

Southern California Channel Islands Bibliography, through 1992

Comprises 4035 references to the scientific literature on Southern California's Channel Islands. The Bibliography was compiled by the Channel Islands National Marine Sanctuary and is presented here in a February 1993 version.

The Santa Barbara Museum of Natural History presents a [California Channel Islands Bibliography](#) on its website. It has more recent references and overlaps considerably with this bibliography. However this bibliography has some references not in their database, so it is maintained in original form.

1. Abbott PL, Kies RP, Bachmann WR, Natenstedt CJ (San Diego State Univ., Dep. Geol. Sci., San Diego, CA; Stanford Univ., Stanford, CA; Nor. Res. Cent., Norway; Union Oil Co., United-States). A tectonic slice of Eocene strata, northern part of California continental borderland. Larue DK, Steel RJ. in Cenozoic marine sedimentation; Pacific margin, U.S.A.: Society of Economic Paleontologists and Mineralogists, Pacific Section ; Cenozoic marine sedimentation; Pacific margin, U.S.A.; 1983 May 18; Sacramento, CA,. Stanford Univ., Stanford, CA: Society of Economic Paleontologists and Mineralogists, Pacific Section; 1983. p. 151-168. 29 refs., illus., 1 table, strat. cols., sect., sketch maps. sedimentation/tectonic controls/sedimentary rocks/clastic rocks/conglomerate/sedimentary petrology/paleogeography/Eocene/Paleogene/Tertiary/Pacific Coast/continental borderland/San Miguel Island/Santa Cruz Island/Santa Rosa Island/San Nicolas Island/rhyolite/volcanic rocks/SRD.

2. Atwood JL, Elpers MJ, Collins CT. Survival of breeders in Santa Cruz Island and mainland California scrub jay populations. Condor 1990;92(3):783-788 AUTH AFFL: Manomet Bird Obs., Box 936, Manomet, MA 02345.
fspub/Aphelocoma coerulescens insularis/communal breeding/Santa Cruz Island/SRD.

3. Belyea RR. Stratigraphy and depositional environments of the Sespe Formation, northern Peninsular Ranges, California [dissertation]. : San Diego State University; 1984. Master's; 206 p., 101 refs., illus., 9 tables.
Orange County/Sespe Formation/Vaqueros Formation/Jolla Vieja Formation/stratigraphy/Eocene/Miocene/sedimentation/environment/fluvial environment/Arizona/channels/Cristianitos fault zone/Paleogene/Tertiary/grabens/Gypsum Canyon/Jurassic/lithofacies/lower Miocene/Neogene/Mexico/paleogeography/Peninsular Ranges/provenance/San Joaquin Hills/Santa Ana Mountains/Santa Cruz Island/Santiago Creek/Sonoran Arc/Southern California/transgression/upper Eocene/SRD.

4. Bereskin SR, Edwards LN. Mid Tertiary stratigraphy, southwestern Santa Cruz Island. in Geology of the Northern Channel Islands. Weaver, D. W. ed. Los Angeles, CA: Am. Assoc. Petroleum Geologists and Soc. Econ. Paleontologists and Mineralogists, Pacific Sec.; 1969. p. 68-79.
illus., table, faunal lists.
Mid-Tertiary formations on southwestern Santa Cruz Island are: (1) Vaqueros Formation -- paleoecologic and stratigraphic evidence

indicate an inner shelf to nonmarine environment (Zemorrian to lower Saucesian); Rincon Formation -- a middle to outer shelf bathymetry, shoaling to the east or northwest (Saucesian); San Onofre Breccia -- inner to middle shelf with portions possibly nonmarine, thickens and coarsens to the northeast toward a high (Saucesian to Relizian); Monterey and Blanca Formations -- Beechers Bay Member of the Monterey was deposited at depths increasing with time from middle shelf to bathyal, paleoslope dipped southwest (Relizian to Luisian and possibly Mohnian).
fspub/mid-tertiary formations/Santa Cruz Island/SRD.

5. Liston A, Rieseberg LH, Mistretta O. Ribosomal DNA evidence for hybridization between island endemmic species of Lotus. Biochem Syst Ecol. Oxford : Pergamon Press. 1990.

1990;18(4):p.239-244

Foreign Includes references. Article.

lotus/lotus scoparius/interspecific hybridization/ribosomal dna/restriction mapping/endangered species/introgression/california//lotus scoparius ssp/traskiae/lotus argophyllus ssp/ornithopus/san clemente island/california/genetic assimilation/AGRICOLA.

6. Pennings SC. Spatial and temporal variation in recruitment of *Aplysia californica* Cooper: Patterns, mechanisms and consequences. J. EXP. MAR. BIOL. ECOL 1991;146(2):253-274.

Recruitment of the sea hare, *Aplysia californica*, was examined at 10 rocky reefs off the coast of Santa Catalina Island, CA, for up to 3 yrs or more. *A. californica* recruit primarily to the red alga *Plocamium cartilagineum*. Recruitment intensity (number of recruits/kg *Plocamium*) differed dramatically but consistently between reefs, and varied between months. Recruitment during Jan-Feb probably consists of larvae spawned locally, in the Channel Islands area, during the summer peak in reproduction. Recruitment during Jun to Sept probably consists of larvae spawned in the Baja, California, Mexico, region which are carried north by summer currents. Reproduction is cued by high temperatures in the summer, and occurs over a large range of body sizes. Winter recruits that survive to the summer reproduce at masses of 500 g or more, while summer recruits reproduce the same season at masses of around 0.75 g. Survival of winter recruits is low, but survivors have high fecundity because of their large body size. The asynchronous seasonal reproductive patterns of Channel Island and Baja California populations may be important to the population dynamics of these populations since they are linked by a common larval pool.
population dynamics/reproduction/marine molluscs/*Aplysia californica*/*Plocamium cartilagineum*/seasonality/temporal variation/INE/USA/ California/Santa Catalina Island/IE/Mexico/Baja California/recruitment/ASFA.

7. BERELSON W M. THE FLUSHING OF TWO DEEP-SEA BASINS SOUTHERN CALIFORNIA BORDERLAND. LIMNOL OCEANOGR36 (6). 1991. 1150-1166.

DEP. GEOLOGICAL SCIENCES, UNIV. SOUTH. CALIF., LOS ANGELES, CALIF. 90089-0740. BA.

A time series of water temperature, salinity, and nutrient measurements has been made in San Pedro and San Nicolas Basins of the southern California borderland between 1977 and 1988. These basins exhibit temporally coincident changes in temperature and nutrient content defining a period of basin flushing (1982-1984) and a period of stagnation (1984-1987). During the flushing period, cooler, oxygen- and NO₃--rich water replaces warmer, oxygen- and NO₃--depleted bottom water. Flushing produces a decrease of 0.2.degree.C in the average temperatures of San Pedro Basin bottom

water (790-900 m) and an increase in the average oxygen content by 12 μM . These values are 0.1 and 3 for San Nicolas Basin (1,400-1,800 m). The residence time of water in San Pedro Basin during the flushing period is 12 \pm 6 months and 9 \pm 2 months in San Nicolas Basin. A box model approach, constrained by the time-series data for the stagnation period, was used to determine values of the effective vertical eddy diffusivities for the 790-m horizon in San Pedro Basin and 1,400-m horizon in San Nicolas Basin (1.3 \pm 0.4 and 9.9 \pm 3.4 $\text{cm}^2 \text{ s}^{-1}$ respectively).
OXYGEN CONTENT TEMPERATURE SALINITY NUTRIENT LEVEL/Biosis.

8. Gossett RW, Brown DA, Westcott AM, Ward C, Cross JN, Hershelman GP. Municipal wastewater contamination in the Southern California Bight: Part I--Metal and organic contaminants in sediments and organisms. Marine Environmental Research;1986 VOL. 18, NO. 4
EnvBib/Marine biology/Wastewater, municipal/Sediment/Southern California Bight/Water pollution monitoring/ENVIRONMENTAL BIBLIOGRAPHY.

9. Duell Jr. Lowell F. W, Usgs. Estimates of evapotranspiration in alkaline scrub and meadow communities of Owens valley, California, using the Bowen-ratio, eddy-correlation, and Penman-combination methods, . Usgs water-supply paper 2370-e, 1990, p1(39)
Fed govt report evapotranspiration removes a significant amount of water from the Owens valley, which is a water source for Los Angeles. evapotranspiration estimates were made in seven locations varying in geohydrology and vegetation. estimate methodologies included the Bowen-ratio, eddy-correlation, and Penman combination methods. air temperature, vapor-density deficit, and net radiation appear to directly effect evapotranspiration, which ranges from 301 mm/year in low-density scrub sites to 1137 mm/year in high-density meadows. (21 graphs, 1 map, 4 photos, 56 references, 8 tables).
Ecology, terrestrial/evapotranspiration/monitoring, env-water/california/ecology, plant/hydrology/plant cover/climatolog/EnviroLine.

10. Howell DG, Link MH. Eocene conglomerate sedimentology and basin analysis, San Diego and the southern California borderland. J. Sediment. Petrol. 1979;49(2):p.517-539
U. S. Geol. Surv., Menlo Park, Calif., United-States; Los Ang. Harbor Coll., United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present).
California/sedimentary petrology/sedimentary rocks/clastic rocks/conglomerate/sedimentation/environment/coastal environment/sedimentary structures/environmental analysis/San Diego County/Eocene/Paleogene/Tertiary/United States/Southern California/San Diego/continental borderland/textures/marine transport/rivers/channels/alluvial fans/coastal plains/deltas/lithofacies/shelf environment/submarine environment/cyclic processes/transgression/progradation/basins/fan deltas/GEOREF.

11. Tibby RE, Terry RD. Physical and chemical characteristics of water over the southern California shelf. Oceanographic Survey of the Continental Shelf Area of Southern California. 1959(20):138-168
NPS/Physical oceanography/oceanography/water masses.

12. Roden GI, Groves G.W. On the statistical prediction of ocean temperature. J. Geophys. Res. 1960;65(1):250-263
NPS/Physical Oceanography/Oceanography.

13. Ferraro SP, Cole FA. Taxonomic Level and Sample Size Sufficient for Assessing Pollution Impacts on the Southern California Bight Macrobenthos. Marine Ecology Progress Series 1990;67:p.251

Performer: Environmental Research Lab.-Narragansett, Newport, OR. Mark O. Hatfield Marine Science Center.

Macrobenthic data from samples taken in 1980, 1983 and 1985 along a pollution gradient in the Southern California Bight (USA) were analyzed at 5 taxonomic levels (species, genus, family, order, phylum) to determine the taxon and sample size sufficient for assessing pollution impacts on 5 measures of community structure. Two statistical designs were compared: a t-test for differences between reference and impacted stations where the error term was (1) among-year variation at the reference station (impact effects design), (2) replicate (within-station) sampling error (location effects design). The estimated statistical power (1-Beta) to detect impacts was a function of type and magnitude of impact, level of taxonomic identification, the statistical design, and the sample size (n_i = number of sampling years at the reference station for the impact effects design, and n_l = number of replicate samples per station for the location effects design). Four replicate 0.1 sq m van Veen grabs per station were needed to ensure community-wide, unbiased estimates of Shannon's, 1-Simpson's and McIntosh's Index. Family-level identification appeared to be a good choice for assessing pollution impacts at the study site as it ensured a high probability (1-Beta \geq 0.80) of detecting intermediate or larger impacts on most (impact effects design) or all (location effects design) of 5 measures of community structure when n_i and n_l \geq 4. The level of taxonomic identification and sample size should be considered along with other sampling variables (e.g. sample unit size, sieve mesh size) when seeking a statistically rigorous, cost-effective study design sufficient to meet pollution assessment objectives.

Sample preparation/Classification/Marine ecosystems/Site surveys/Water pollution sampling/Experimental design/Systematics/Santa Monica Bay/Reprints/Environmental impact assessments/Benthos/Taxonomy/Environmental monitoring/Water pollution effects/Southern California Bight/NTIS.

14. Smith PE, Ahlstrom EH, Casey HD. The Saury as a Latent Resource of the California Current. 1970;

National Marine Fisheries Service, La Jolla, Calif. Fishery-Oceanography Center. Pub. in California Cooperative Oceanic Fisheries Investigations Report, v14 p88-130, 1970.

An American fishery on the Pacific saury (*Cololabis saira* Brevoort) of the California Current has been considered intermittently over the last three decades. Recently, interest in the eastern Pacific stocks has increased due to rising prices and diminished catches of this species in the western Pacific. Japanese, Soviet, and American exploratory research on this species in the eastern Pacific has been intensified during the past several years. As yet no fishery has developed on this species in the California Current region. It is the purpose of this paper to review two bodies of data on saury abundance collected on cruises of the California Cooperative Oceanic Fisheries Investigations (CalCOFI) conducted jointly by the University of California, Scripps Institution of Oceanography and NOAA'S National Marine Fisheries Service Laboratory, LaJolla, Calif. In addition to summarizing current data collected by surveys in the California Current area, an attempt will be made to answer the following questions: What is the range of natural fluctuations in abundance of Pacific saury in the California Current survey area. What seasons or areas within the California Current area are

the most likely for scouting for fishable saury concentrations.
Fishes/Ocean currents/Abundance/Exploration/Resources/Surveys/
Fisheries/Sampling/Food supply/California/Cololabis
saira/California current/NTISNOAA/NTIS.

15. Simpson JJ. An integrated study of offshore mesoscale eddy dynamics in the California Current system. Oceans '89/OCEANS '89: THE GLOBAL OCEAN. VOLUME 3: NAVIGATION, REMOTE SENSING, UNDERWATER VEHICLES/EXPLORATION 1989:pp. 1009-1014 Scripps Inst. Oceanogr., Mail Code A030, La Jolla, CA 92039, USA. Recent advances in observational and modeling technology have brought a mesoscale ocean analysis and short-range forecasting (nowcasting) within reach. The observational tools comprise a new generation of remote-sensing instruments, some of which are already orbiting or soon to be launched, supplemented by in situ oceanic and atmospheric observations. The modeling progress stems from recent research in developing eddy-resolving models and nesting these regional models in larger-scale general circulation models. This paper describes an integrated approach, using all these techniques, to study mesoscale eddy dynamics in the California Current system.
mesoscale features/oceanic eddies/INE, California Current/
mathematical models/prediction/satellite sensing/oceanographic data/ meteorological data/ocean circulation/dynamical oceanography/OceanAbstracts.

16. Marx W. The Southern California Bight: Where traditional approaches won't work. EPA J 1990;VOL. 16, NO. 6:pp. 38-41
Southern California Bight/water pollution control/sewage disposal/water quality standards/PollutionAbstracts.

17. Abbott IA. Taxonomic and nomenclatural notes on North Pacific marine algae. Phycologia 1972;11:pp. 259-265
List of various changes in nomenclature for twelve species of North Pacific marine algae and includes some distributional information for the Southern California Islands.

18. NELSON GH, WESTCOTT RL. REVIEW OF THE PULCHELLUS GROUP OF AGRILUS WITH DESCRIPTIONS OF NEW SPECIES (COLEOPTERA: BUPRESTIDAE). COLEOPT BULL 45(2) 1991: 121-142, ILLUSTR.
* ORDER COLEOPTERA ** SUBORDER POLYPHAGA *** SUPERFAMILY BUPRESTOIDEA **** BUPRESTIDAE ***** AGRILUS CHALCOGASTER, AGRILUS HESPENHEIDEI, AGRILUS INHABILIS, AGRILUS INHABILIS CHALCOGASTER, AGRILUS INHABILIS CUPRINUS, AGRILUS INHABILIS INHABILIS, AGRILUS PULCHELLUS, AGRILUS PULCHELLUS SPECIES GROUP, AGRILUS RUBROVITTATUS, AGRILUS UTAHENSIS, ENGYAULUS PULCHELLUS VAR. MARTINI. LAND & FRESHWATER ZONES/NEARCTIC REGION/USA/CALIFORNIA/INYO COUNTY/ NEW SUBSPECIES/NEW MEXICO/EDDY COUNTY/NEW SPECIES/UTAH/EMERY COUNTY/Zoological Index.

19. Hunt GL, Ingram T. Summary of the Historical Data Base for Selected Species of Marine Birds in The Channel Islands National Park and National Marine Sanctuary. ; 1982.
distribution/California channel islands/seabirds/reproduction/breeding/phenology.

20. Abbott PL, Smith TE. Trace-element comparison of clasts in Eocene conglomerates, southwestern California and northwestern Mexico. J. Geol. 1978;86(6):753-762
Address: San Diego State Univ., Dep. Geol. Sci., San Diego, Calif., USA; Univ. Windsor, CAN.
sedimentary rocks/sedimentation/sedimentary petrology/geochemistry/provenance/clastic rocks/trace elements/conglomerate/Jolla Vieja Formation/Sespe Formation/Poway

Conglomerate/Eocene/Paleogene/Tertiary/clasts/tuff/pyroclastics and glasses/data/rhyolitic composition/statistical analysis/Las Palmas Gravel/Sonora/Baja California/Southern California/California Channel Islands/geology/sedimentary petrology/Channel Islands National Marine Sanctuary/CINMS.

21. Brumbaugh RW. Gully development in disturbed watersheds on Santa Cruz Island, California; a remote sensing investigation [abstract]. Yearbook of Assoc. Pac. Coast Geogr. Rodney Steiner ed. : Oregon State University Press; 1976. 38. p. p. 117.
AUTH AFFIL: Univ. Calif., Los Angeles, Ca.
geomorphology/landform evolution/coastal/Santa Cruz Island/erosion/fpub/gullies/watersheds/remote sensing/SRD.

22. Brumbaugh RW, Leishman NJ. Vegetation change on Santa Cruz Island, California: the effect of feral animal grazing. U S D A For Serv Gen Tech Rep PSW U S Pac Southwest For Exp Stn. (Berkeley, CA) 1982(58):589
4 refs.
fpub/vegetation change/feral/sheep/grazing/Santa Cruz Island/SRD.

23. Brumbaugh RW, Renwick WH, Loehner LL. Effects of vegetation change on shallow landsliding: Santa Cruz Island, California Grazing effects, soil erosion. U S D A For Serv Gen Tech Rep PSW U S Pac Southwest For Exp Stn. (Berkeley, CA) 1982(58):397-402
17 refs., ill., maps.
fpub/vegetation change/landsliding/Santa Cruz Island/grazing effects/SRD.

24. Bunnell D. The amazing caves of Santa Cruz Island. National Speleological Society 1983;41(2):86-87, 91
8 refs., illus.
fpub/geomorphology/solution features/caves/Santa Cruz Island/sea caves/Painted Cave/SRD.

25. Busath AL. Geographic variation in the semiterrestrial amphipod *Orchestia traskiana*: phenotypic plasticity or incipient speciation? [dissertation] : UCSB; 1979. 163 p.
Doctoral.
fpub/amphipod/*Orchestia traskiana*/Santa Cruz Island/SRD.

26. Chaney RW, Mason HL. A Pleistocene flora from Santa Cruz Island, Calif. Carnegie Inst. of Washington Contributions to Paleontology, Pub. 415 1934 Oct:1-24 1 fig., 7 pls.
paleontology/Santa Cruz Is. flora/paleobotany/Santa Cruz Island/Quaternary/floras/SRD.

27. Crippen RE, Luyendyk BP, Hajic EJ (Univ. Calif., Dep. Geogr., Santa Barbara, CA). High resolution structural mapping in the Santa Barbara Channel [abstract]. in Abstracts with Programs, Geological Society of America: Geological Society of America, Cordilleran Section, 78th annual meeting; 1982 Apr 19; Anaheim, CA. ; 1982. 14 (4). p. p. 157.
oceanography/continental shelf/geophysical surveys/sonar methods/acoustical surveys/reflection/seismic surveys/tectonics/Anacapa Passage/Monterey Formation/folds/Santa Cruz Island Fault/Dume Fault/anticlines/Santa Rosa Island Fault/high resolution methods/SRD.

28. Berry ES, Skilling DE, Barlough JE, Vedros NA, Gage LJ, Smith AW. New marine calicivirus serotype infective for swine. Am J Vet Res. Schaumburg, Ill. : American Veterinary Medical

Association. Aug 1990. 1990;51(8):p.1184-1187 Other-US Includes references. Article.

A new serotype of calicivirus was isolated from California sea lions (*Zalophus californianus*) with severe vesicular disease. Neutralizing antibodies were found in 27 of 82 (32.9%) serum samples from California sea lions and in 15 of 146 (10.3%) serum samples from Steller sea lions (*Eumetopias jubatus*) tested. The seropositive animals were widely dispersed along the margins of the eastern Pacific basin, from the Bering Sea to the Santa Barbara Channel. Seropositive samples were found from as early as 1976 through the present time. This new calicivirus serotype, San Miguel sea lion virus type 13, was inoculated into weaned pigs, resulting in induction of severe vesicular disease, which spread to all pigs, including uninoculated pen contacts. Virus was continually shed by most of the pigs throughout the 2-week duration of the experiment. pigs/calicivirus/infectivity/serotypes/isolation/characterization/zalophus/incidence/mammals/geographical distribution/great basin/pacific slope/eumetopias jubatus/AGRICOLA.

29. Costello J. Complete carbon and nitrogen budgets for the hydromedusa *Cladonema californicum* (Anthomedusa: Cladonemidae). MAR. BIOL 1991;108(1):119-128. Complete carbon and nitrogen budgets were constructed for a single cohort of the hydromedusa *Cladonema californicum*, collected in 1984 from Santa Catalina Island, California, USA. The budgets accounted for 62 to 84% (average = 74%) of ingested C and 60 to 108% (average = 84%) of ingested N. During most of the medusan life cycle, expenditures for growth exceeded those for metabolism and dissolved organic release (DOR). The gross growth efficiency was lower for C than for N; different conversion rates of C and N are discussed in terms of C:N ratios and budget balances for predator and prey. Growth rates, egg production, and C and N composition of *C. californicum* were quite different from those of neritic ctenophores, indicating that gelatinous predators may be a physiologically diverse group. ingestion/animal metabolism/growth/fecundity/predators/aerobic respiration/ammonia/excretion/food conversion/*Cladonema californicum*/energy budget/carbon/nitrogen ratio/ASFA.

30. LEE T, BARG E, LAL D. STUDIES OF VERTICAL MIXING IN THE SOUTHERN CALIFORNIA BIGHT WITH COSMOGENIC RADIONUCLIDES PHOSPHORUS-32 AND BERYLLIUM-7. LIMNOL OCEANOGR36 (5). 1991. 1044-1053. SCRIPPS INSTITUTION OCEANOGRAPHY, GEOL. RES. DIV., UCSD, LA JOLLA, CALIF. 92093-0220. BA. We measured concentrations of the two cosmogenic nuclides ³²P and ⁷Be and radiogenic ²³⁴Th in the Southern California Bight during June and October 1989 in water depths up to 80 m. The depth of the mixed layer was 18 and 28 m, respectively, and the thermocline was well developed. The depth profiles of ³²P are similar to an earlier profile in September 1987 but the column inventories are .apprx. 5 times lower. ³²P activity is fairly uniform in the mixed layer and decreases monotonically with depth below it. On the other hand, ⁷Be concentrations are nearly uniform to depths of 60-80 m. The integrated inventories of both dissolved ³²P and ⁷Be are appreciably lower, by factors of 5-10, than their expected secular equilibrium concentrations for their mean oceanic injection rates. We show that the low inventories of ³²P and ⁷Be are not due primarily to their decreased injection rates but rather to vertical mixing. The vertical eddy diffusivity and the consequent sustained new production based on upward NO₃-fluxes have been estimated as > 7 cm s⁻¹ and .apprx. 1 g C m⁻² d⁻¹ from the observed profiles of .BETA.e, ³²P, and NO₃- THORIUM-234 THERMOCLINE NITROGEN OXIDE/Biosis.

31. Feng DF, Greenblatt PR, Losee JR, Zirino A. Observations of planktonic bioluminescence in the euphotic zone of the California Current. *Marine Biology*;1984 VOL. 84, NO. 1
EnvBib/Bioluminescence/Euphotic zone/California Current/Marine biology/Plankton/ENVIRONMENTAL BIBLIOGRAPHY.

32. Crites Ronald W., Fehrmann Robert C. Land application of winery stillage wastes,. Presented at univ of wisconsin municipal & industrial waste research & practice 3rd conf, madison, sep 10-12, 80, p12 (10) (metcalf & eddy inc, calif) and; (ag-chem equipment co, minn),. Application of winery stillage wastes to land has been practiced for more than 30 years by wineries in the central valley of california. a year-long survey and monitoring program was initiated in 1979 to document the environmental impacts of such waste disposal. compared with control soils, constituent concentrations increased in the surface of the application sites and decreased rapidly with depth. both organic nitrogen and organic carbon are substantially higher in the surface two feet of soil used for stillage disposal. no differences between upgradient and downgradient well waters were detected for nitrate nitrogen, electrical conductivity, and ph. (1 graph, 13 references, 4 tables). Wastewater disposal, land/food wastes/organic compounds/nitrogen/biodegradation-microorganism/infiltration/groundwater soil chemistry/biochemical oxygen demand/conf paper/EnviroLine.

33. Boucher G. Digital processing and quantitative analysis of single channel high resolution seismic reflection data. *Eos (Am. Geophys. Union, Trans.)*. 1979;60(18):p.286
U. S. Geol. Surv., Menlo Park, Calif., United-States American Geophysical Union; 1979 spring annual meeting, Washington, D.C., May 28-June 1, 1979 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). California/geophysical surveys/seismic surveys/Pacific Ocean/automatic data processing/digital techniques/geophysical methods/seismic methods/interpretation/sedimentation/transport/marine transport/ocean circulation/nearshore environment/quantitative methods/single channel methods/high resolution methods/reflection methods/Santa Barbara Channel/United States/Southern California/Northwest Pacific/GEOREF.

34. Tibby RB, Barnard JL. Some physical and biological characteristics of open coastal waters and their relationship to waste discharge. *Adv. Water Poll. Res.* 1962;3
NPS/Physical oceanography/oceanography/water masses.

35. Rossby CG. Dynamics of steady Ocean currents in the light of experimental fluid mechanics. *Pap. Physical Oceanography Meteorology* 1936;5(1):43 NPS/Physical Oceanography/Oceanography/Currents/water masses.

36. Wenner AM, Meade DE, Friesen LJ. Recruitment, Search Behavior, and Flight ranges of Honey Bees. *American Zoologist* 1991;31:768-782 SCIR.
fspub/feral bees/entomology/insects/Santa Cruz Island.

37. Crowe BM, Howell DG, McLean H (U. S. Geol. Surv., Menlo Park, CA; United-States Soc. Econ. Paleontol. Mineral.) Miocene volcanic and volcanoclastic rocks of Santa Cruz Island; evidence for offset along the Santa Cruz Island Fault [abstract]. Fritsche AE, Ter Best HJ, Wornardt WW. in *The Neogene symposium; selected technical papers on paleontology, sedimentology, petrology,*

tectonics and geologic history of the Pacific Coast of North America: 51st annual meeting of the Pacific Section of SEPM; Tomorrow's oil from today's provinces; 1976 Apr 21; San Francisco, CA. : Soc. Econ. Paleontol. Mineral.; 1976. p. p. 18. fspub/San Onofre Breccia/Monterey Formation/Blanca Formation/structural geology/faults/Miocene/Santa Cruz Island/Santa Cruz Island Fault/displacements/strike slip faults/effects/sedimentary rocks/igneous rocks/lithostratigraphy/age/clastic rocks/terrigenous/conglomerate/sandstone/diagenesis/volcanic/basalt/andesite/dacite/breccia/absolute age/dates/volcanic rocks/K-Ar/lower Miocene/SRD.

38. Benedict AB, Long ER (Performer: National Ocean Service, Rockville, MD. Office of Oceanography and Marine Assessment.) Catalog of Biological Effects Measurements along the Pacific Coast. Technical memo. ; 1987. Report No.: NOAATMNOSOMA32. 107p. PC A06/MF A01.

The report provides a catalog of measurements of biological effects of pollutants along the Pacific Coast. Information reported includes the types of tests performed, sampling dates, locations, number of stations, amounts of data generated, and bibliographic citations for published results. The catalog is part of a task of the National Status and Trends Program (NS&TP) to review and evaluate historical measurements of biological effects and to help identify candidate measures for possible use in future NS&TP monitoring of marine environmental quality. The information portrayed in the catalog was generated from an on-line data base established for the task. The catalog includes 170 studies or surveys conducted from 1951 to the present, in which some 59,000 samples were tested or analyzed using various methods. Most studies were conducted between 1972 and 1985. The most frequently studied areas were near the metropolitan areas bordering Puget Sound, the Southern California Bight, and San Francisco Bay. About 305 different types of tests were identified, based on evaluations of the details of methodological protocols. A total of 107 species and 16 communities were used as biological indicators.

Historical aspects/Environmental quality/Pacific Ocean/Coastal regions/Water pollution sampling/Tables Data/Site surveys/Biological indicators/Bioassay/Sediments/Estuaries/Toxic substances/Chemical compounds/Biological effects/Water pollution effects/Catalogs Publications/NTIS.

39. Eichelberger AL. Forecasting the Catalina Eddy. Technical memo. ; 1971 Feb. Report No.: NOAA-NWSTM-WR-62. 22p. National Weather Service, Salt Lake City, Utah. Western Region. The Catalina Eddy, a small-scale vortex in the bight of southern California, has long been a serious problem for the forecaster. It disrupts the normal stratus pattern and can cause marked cooling in the southern California coastal area. The eddy is shown to result when an eastward-moving upper trough nears southern California, with strong northerly surface winds prevailing along the California coast. An objective aid for predicting the eddy is presented. It was found that with a surface pressure gradient of five to ten millibars from 35N 125W to Los Angeles, positive vorticity advection resulting in vorticity values of seven to ten units at Los Angeles will generate the eddy. Primitive equation prognostic vorticity charts are shown to be highly useful in forecasting development of the Catalina Eddy. . Weather forecasting/Sea breezes/California/Eddies/Atmospheric circulation/Meteorological charts/Atmospheric disturbances/Vortices/Spaceborne photography/Catalina eddy/Santa Catalina Island/ESSA 6 satellite/ESSA 2 satellite/NTISNOAA/NTIS.

40. Lluch-Belda D, Lluch-Cota DB, Hernandez-Vazquez S, Salinas-Zavala CA. Sardine and anchovy spawning as related to temperature and upwelling in the California Current System. REP. CCOFI 1991;VOL. 32:pp. 105-111 Cent. Invest., Biol. Baja California Sur, A.C., Apdo. Postal 128, La Paz, Baja California Sur 23070, Mexico.

Sardine and anchovy spawning was analyzed regarding its relation to sea-surface temperature and upwelling, using CalCOFI cruise data and Bakun's upwelling indices. Sardines spawn in a much wider temperature range (13 degree -25 degree C) than anchovy (11.5 degree -16.5 degree C). Two maxima of spawning occur in the California Current: at 15 degree C and 23 degree C. An additional peak is present in the Gulf of California at about 19 degree C. Only one maximum is evident for anchovy spawning, at about 14 degree C. The distribution of spawning as a function of upwelling was also analyzed for both species. There is a maximum for sardines at intermediate values of upwelling. There are two maxima for anchovy: a minor one at low levels of upwelling and a major one at the maximum values of upwelling. Sardines are eurythermic as compared to anchovies, but spawn only at intermediate values of upwelling, whereas anchovies are stenothermic but spawn at much wider ranges of upwelling, particularly at low and high values. spawning populations/surface temperature/upwelling/abiotic factors/Engraulis mordax/Sardinops caerulea/INE, California Current/ISE, California Current/ISE, California Gulf/Oceanic Abstracts.

41. Magnell BA, Bray NA, Winant CD, Greengrove CL, Largier J, Borchardt JF, Bernstein RL, Dorman CE. Convergent shelf flow at Cape Mendocino. OCEANOGRAPHY 1990;VOL. 3, NO. 1:pp. 4-11 EG&G Washington Analytical Services Center, Inc., 237 Riverview Ave., West Newton, MA 02154, USA.

Observations taken during the course of the Northern California Coastal Circulation Study (NCCCS) pilot experiment from March through August of 1987 show that shelf currents often converge near Cape Mendocino, resulting in offshore transport. This convergence occasionally, though not always, is accompanied by convergence in the large-scale winds. A cyclonic eddy, roughly 20 km in diameter, is commonly found on the south side of the Cape, where, on the shelf, the average currents are directed to the north. The water temperature in this area is colder than that observed north of the Cape, where the average current is to the south. Correlation between currents and the local wind near the Cape is lower than expected from previous results obtained during the Coastal Ocean Dynamics Experiment (CODE) conducted in the same general region, though farther south, along a straight section of the coast. Similarly, temperature and wind fluctuations at a given location are less correlated than they were during CODE. shelf currents/shelf dynamics/sediment transport/INE, USA, California, Cape Mendocino/OceanAbstracts.

42. Hubbe JM, Hansen AH. Dry deposition study planning for SJVAQS/AUSPEX. 84. Annual Meeting of the Air and Waste Management Association 1991:p. 110 Electr. Power Res. Inst., P.O. Box 10412, 3412 Hillview Ave., Palo Alto, CA 94303, USA.

The primary purpose of Technical Support Study 8 was to provide information that would improve the representation of dry-deposition in modeling activities of the SJVAQS. The state of dry deposition measurement and modeling techniques were reviewed. A program of model development, field measurement and model evaluation was proposed. Inferential dry-deposition measurements were recommended to be performed as additions to the surface meteorology and air-quality measurements during summer 1990. Recommended direct

measurements of gaseous dry deposition have been postponed until summer 1991. A coordinate program of airborne and tower-based eddy-correlation measurements is being planned.

dry deposition/monitoring measurements/California, San Joaquin Valley/air quality/meteorology/PollutionAbstracts.

43. Abbott IA, G. J. Hollenberg. Marine Algae of California. Palo Alto, CA: Stanford University Press; 1976. Comprehensive treatment of the marine algal flora of California. A total of 669 algal species are described along with their California distributions. Several distributional records for the Southern California Islands are included, derived largely from a collection of intertidal and subtidal algae provided by Dr. N. Nicholson. Marine Algae.

44. HEYNING JE, LEWIS TD. ENTANGLEMENTS OF BALEEN WHALES IN FISHING GEAR OFF SOUTHERN CALIFORNIA. INT WHALING COMM REP COMM 40 1990: 427-431, ILLUSTR. * MAMMALIA ** CETACEA *** MYSTICETI. ECOLOGY/ACCIDENTAL ENTRAPMENT/ENTANGLEMENTS IN FISHING GEAR RECORDED, CALIFORNIA (MARINE)/PACIFIC OCEAN/NORTHERN PACIFIC/SOUTHERN CALIFORNIA BIGHT/ENTANGLEMENTS IN FISHING GEAR RECORDED/Zoological Index.

45. Wayne RK, George SB, Gilbert D, Collins PW. The Channel Islands fox as a model of Genetic Change for Small Populations. The Unity of Evolution Biology: Proceedings of the 4 th Intern. Congress of Systematic and Evolutionary Biology 1991;II genetics/channel islands/populations.

46. Abcor IW, MWD. Air pollution regulations in state implementation plans: California, Santa Barbara County. : EPA/450/3-78/054/35; 1978. 71. ((Supported by Environmental Protection Agency, Research Triangle Park, NC. Control Programs Development Div.)).

Note: Also available from NTIS as set of 48 reports PC E99, PB-296 657-SET. This document has been produced in compliance with Section 110(h)(1) of the Clean Air Act amendments of 1977. The Federally enforceable regulations contained in the State Implementation Plans (SIP's) have been compiled for all 56 States and territories (with the exception of the Northern Mariana Islands). They consist of both the Federally approved State and/or local air quality regulations as indicated in the Federal Register and the Federally promulgated regulations for the State, as indicated in the Federal Register. Regulations which fall into one of the above categories as of January 1, 1978, have been incorporated. As mandated by Congress, this document will be updated annually. State and/or local air quality regulations which have not been Federally approved as of January 1, 1978, are not included here; omission of these regulations from this document in no way affects the ability of the respective Federal, State, or local agencies to enforce such regulations.

Air pollution abatement/Regulations/California/National government/State government/Local government/Law/Jurisprudence/Law enforcement/Implementation/air pollution planning/Santa Barbara County/air pollution/Environmental Management/Environmental Planning/resource management.

47. Crowe BM, McLean H, Howell DG, Higgins RE (U. S. Geol. Surv., Menlo Park, CA; Cent. Wash. State Coll., WA). Petrography and major element chemistry of the Santa Cruz Island volcanics. Howell DG, AFFL: U. S. Geol. Surv., Menlo Park, CA. in Aspects of the geol. hist. of the Calif. Continental Borderland: Calif.

Continental Borderland Symposium; 1975 Sep 22; Santa Cruz Island.
: Am. Assoc. Pet. Geol., Pac. Sect.; 1976. Misc. Publ. 24. p.
196-215. 42 refs., illus., tables, sketch maps.
fspub/petrology/igneous rocks/volcanic/Miocene/southwest/Santa Cruz
Island/basalt/andesite/dacite/lava flows/flow
breccia/pyroclastics/petrography/geochemistry/magnesia/iron/silic
a/alumina/potash/titanium/SRD.

48. Cushing J, Daily M, Noble E, Roth VL, Wenner AM. Fossil
mammoth from Santa Cruz Island, California. Quaternary Research
(New York) 1984;21(3):376-384 40 refs., illus., 5 tables, sketch
maps.
paleontology/Mammalia/Elephantoidae/Pleistocene/mammoth/Santa Cruz
Island/Proboscidea/Christy Ranch/Sauces Canyon/Pozo Canyon/SRD/SRD.

49. Doerner DP. Lower Tertiary biostratigraphy of
southwestern Santa Cruz Island. in Geology of the Northern Channel
Islands. Weaver, D. W. ed. Los Angeles, CA: Am. Assoc. Petroleum
Geologists and Soc. Econ. Paleontologists and Mineralogists,
Pacific Sec.; 1969. p. 17-29.
illus., tables.
The Pozo Formation is at the base of the Tertiary section, and is
overlain successively by the Canada, Jolla Vieja, and Cozy Dell
formations. Numerous faunules and zonules are recognized; they are,
from bottom to top: Turritella-Ostrea faunule, Cibicides-
Trochammina zonule (the Pozo Formation), Eponides zonule, Bulimina-
Plectofrondicularia zonule (the middle Canada Formation), and the
Cibicides-Cassidulina zonule (the upper part of the Canada
Formation). Environmental conditions are discussed and faunal lists
are included. fspub/Pozo Formation/Santa Cruz Island/SRD.

50. Douros WJ. Stacking behavior of an intertidal abalone:
An adaptive response or a consequence of space limitation? J. Exp.
Mar. Biol. Ecol. 1987;108(1):1-14
AUTH AFFL: Dep. Biol. Sci., Univ. California, Santa Barbara, CA
93106. Intertidal populations of black abalone *Haliotis cracherodii*
at Santa Cruz Island, California, vary in density among surge
channels from < 1 to 126 abalone/m². Dense populations are
characterized by high levels of intraspecific secondary substratum
use ("stacking") for attachment surfaces, though it is rare in low
density areas. Use of shell surfaces by black abalone appears not
to be an evolved adaptive strategy. Individuals in stacks fed
significantly more than expected, yet solitary abalone next to
stacks shared food trapped by stacks. Laboratory experiments showed
that stacking is density dependent and probably the result of
limitation of primary attachment space.
fspub/population density/spatial distribution/settling
behavior/marine mollusks/secondary substratum/stacking
behavior/Santa Cruz Island/SRD.

51. Emery KO. The Painted Cave. Santa Cruz Island, CA. Sea
and Pacific Motorboat 1954;?(46):37-39, 91-92
illus.
physical geology/caves/Painted Cave/Santa Cruz Island/SRD.

52. Essaid HI. A multilayered sharp interface model of
coupled freshwater and saltwater flow in coastal systems: model
development and application. Water Resour Res. Washington, D.C. :
American Geophysical Union. July 1990. 1990;26(7):p.1431-1454
Other-US Includes references. Article.
A quasi three-dimensional, finite difference model, that simulates
freshwater and saltwater flow separated by a sharp interface, has
been developed to study layered coastal aquifer systems. The model

allows for regional simulation of coastal groundwater conditions, including the effects of saltwater dynamics on the freshwater system. Vertically integrated freshwater and saltwater flow equations incorporating the interface boundary condition are solved within each aquifer. Leakage through confining layers is calculated by Darcy's law, accounting for density differences across the layer. The locations of the interface tip and toe, within grid blocks, are tracked by linearly extrapolating the position of the interface. The model has been verified using available analytical solutions and experimental results. Application of the model to the Soquel-Aptos basin, Santa Cruz County, California, illustrates the use of the quasi three-dimensional, sharp interface approach for the examination of freshwater-saltwater dynamics in regional systems. Simulation suggests that the interface, today, is still responding to long-term Pleistocene sea level fluctuations and has not achieved equilibrium with present day sea level conditions.

fresh water/salt water intrusion/aquifers/flow in stratified systems/hydrodynamics/groundwater/three dimensional models/simulation models/coastal areas/california/AGRICOLA.

53. Tershy BR, Breese D, Alvarez-Borrego S. Increase in cetacean and seabird numbers in the Canal de Ballenas during an El Nino-Southern Oscillation event. MAR. ECOL. PROG. SER 1991;69(3):299-302.

El Nino-Southern Oscillation (ENSO) events cause a decline in upwelling-based primary productivity throughout the California Current system and southern Gulf of California. However, in the Canal de Ballenas, central Gulf of California, primary productivity is based on tidal mixing and appears unaffected by ENSO events. Between the ENSO year of 1983 and the anti-ENSO year of 1985 we censused 4 piscivores (Bryde's whale *Balaenoptera edeni* ; common dolphin *Delphinus delphis* ; blue-footed booby *Sula nebouxii* and brown booby *S. leucogaster*) and 3 planktivores (fin whale *B. physalus* ; black storm-petrel *Oceanodroma melania* ; and least storm-petrel *O. microsoma*). For all species the number of individuals sighted per hour declined by 77 to 94% over the 3 yr period. This suggests that during ENSO events the Canal de Ballenas may serve as a refugium of high productivity and prey abundance for these highly mobile marine animals. Southern Oscillation/environmental effects/primary production/growth/plankton feeders/marine birds/marine mammals/refuges/ISE/California Gulf/Canal de Ballenas/El Nino phenomena/ASFA.

54. CLOERN J E. TIDAL STIRRING AND PHYTOPLANKTON BLOOM DYNAMICS IN AN ESTUARY. J MAR RES 49 (1). 1991. 203-221. U.S. GEOL. SURVEY MS496, 345 MIDDLEFIELD RD., MENLO PARK, CALIF. 94025, USA. BA. A decade of observation in South San Francisco Bay [California, USA] demonstrates that estuarine phytoplankton biomass fluctuates at the time scale of days to weeks, and that much of this variability is associated with fluctuations in tidal energy. During the spring seasons of every year from 1980-1990, episodic blooms occurred in which phytoplankton biomass rose from a baseline of 2-4 mg chlorophyll a m⁻³, peaked at 20-40 mg chlorophyll a m⁻³, and then returned to baseline values, all within several weeks. Each episode of biomass increase occurred during neap tides, and each bloom decline coincided with spring tides. This suggests that daily variations in the rate of vertical mixing by tidal stirring might control phytoplankton bloom dynamics in some estuaries. Simulation experiments with a numerical model of phytoplankton population dynamics support this hypothesis. The model incorporates biological processes (light-dependent growth, zooplankton grazing, benthic grazing) and physical processes (sinking, vertical mixing)

as controls on the biomass distribution of phytoplankton in a 10-m water column. Numerical simulations indicate that phytoplankton dynamics are highly sensitive to the rate of vertical mixing (parameterized as an eddy diffusivity K_z), such that biomass increases rapidly at small K_z (5 $m^2 d^{-1}$), but not at large K_z (50 $m^2 d^{-1}$). Cyclic variation of K_z between 5 and 50 over a 14-d period (simulated neap-spring cycle) yields simulation results that are similar to bloom events observed in this estuary.

BIOMASS GRAZING GROWTH LIGHT EFFECT SEASONALITY TIDAL CYCLE TIDAL ENERGY VERTICAL MIXING SINKING CHLOROPHYLL A NUMERICAL MODEL SAN FRANCISCO BAY CALIFORNIA USA/Biosis.

55. Stewart BS, Yochem PK. Radio-tagged harbor seal, *Phoca vitulina richardsi*, eaten by white shark, *Carcharodon carcharias*, in the Southern California Bight. California Fish and Game;1985 VOL. 71, NO. 2 (April) EnvBib/Carcharodon carcharias/Radio transmitter/Southern California Bight/Wildlife tracking/Seal, harbor/Phoca vitulina richardsi/Shark, white/ENVIRONMENTAL BIBLIOGRAPHY.

56. Levine PE, Olson James V., Crites Ronald W. Nitrogen and phosphorus removal after 30 years of rapid infiltration,. Presented at usace/et al land treatment of wastewater intl sym, hanover, aug 20-25, 78, v2, p17 (10). . Report No.: *79-003332.

Metcalf & eddy inc, calif,.

Measured were groundwater and soil nitrogen and phosphorus concentrations beneath a rapid infiltration land application site located in Hollister, Calif. The site has received primary municipal effluent for 30 years. Measurements were compared with measurements taken at adjacent locations outside the range of the land application system. After percolation through 7 m of unsaturated gravelly and sandy loams, total nitrogen values in the underlying aquifer approached values recorded at offsite control locations. Influent values of 40.2 mg/l total nitrogen decreased to less than 4 mg/l in the shallow aquifer. Nitrate-nitrogen did not pose a pollution hazard. Effective phosphorus removal required percolation through greater amounts of the soil, but the sorption capacity of the soil has not been exhausted even after 30 years of continuous wastewater application. (4 diagrams, 5 graphs, 18 references, 2 tables).

Nitrogen/phosphorus/infiltration/wastewater disposal, land/groundwater/water quality criteria/soil chemistry/soil analysis/aerated lagoons/california/water levels/epa conf pape/EnviroLine.

57. Tibby R, Pomeroy. An oceanographic and biological survey of the southern California mainland shelf. 1965(27)
NPS/Physical oceanography/oceanography/water masses/currents/waves/tides.

58. Sacki K. Sailing directions for the west coast of North America. Embracing the coasts of Central America, California, Oregon, Fuca Strait, Puget Sound, Vancouver Island and the islands and rocks off the coasts of central America and California. 1953
NPS/Physical Oceanography/Oceanography/Currents.

59. Mayer JJ, Brisbin ILJ. Wild Pigs of the United States Their History, Morphology, and Current Status. Athens, Georgia: University of Georgia Press; 1991.

SCIR.
feral pigs/Santa Cruz Island.

60. Eppley R, Garside C, Renger E, Orellana E. Variability

of nitrate concentration in nitrogen-depleted subtropical surface waters. MAR. BIOL 1990;107(1):53-60.

Recent improvements in the analytical determination of nitrate and nitrite allow measurements of nanomolar concentrations in nitrogen-depleted surface waters, revealing variability not previously observable. The new methods allow direct observation of net nitrate consumption and production measured as changes in nitrate concentration over time in incubated samples of seawater. We find that nitrate concentrations in nitrogen-depleted surface waters show regional differences, and sometimes diel differences. The variability in nitrate concentration reflects differences in atmospheric inputs, in physical forcing, as well as in the biological processes of nitrate uptake and nitrification. Examples are shown from the Southern California Bight (1986-1987), the equatorial Pacific (Feb-Mar, 1988), and the eastern subtropical Atlantic (Mar-Apr, 1989). nitrate/nitrogen/marine environment/subtropical zones/Southern California Bight/Pacific Ocean/Equatorial Region/Atlantic Ocean/Eastern Region/nutrient concentrations/CSA Life Sciences Collection.

61. Johnson JE. Assessment of Data Requirements for Quasigeostrophic Nowcasts and Hindcasts of a Mesoscale Eddy Field in the California Current System with Application to Fall Transition. Master's thesis. [dissertation] ; 1990. 369p.

Contract: N000146WR24027.

Performer: Naval Postgraduate School, Monterey, CA

An extensive Ocean Prediction Through Observation, Modeling, and Analysis (OPTOMA) domain, off Northern and Central California, was surveyed in November 1986, during OPTOMA 23. Surface dynamic height (SDH), sea surface temperature (SST), and other fields were mapped with a Gandin objective analysis (OA) model; stream function nowcasts and hindcasts of the mesoscale oceanic field were generated by a quasigeostrophic (QG) model, initialized and updated with OA fields of dynamic topography. The westward propagation, at 5-to-10 km/day, of an anticyclone was the predominant mesoscale event; cyclonic features were quasi-stationary. The Generalized Digital Environmental Model had accurate averages and ranges of values, but was not representative of the mesoscale field, Because the mesoscale field did not change much over the ten-day period, persistence fields scored well. QG hindcasts were most sensitive to data density, The transition in the autumn of 1986 in the California Current System was a chronic event; winds favorable for upwelling fluctuated and diminished in late Oct. but occurred during short periods through Dec. A balance of alongshore pressure gradient and wind stress at Monterey shifted from a maximum southward in late Nov. to maximum northward two weeks later. The northward nearshore flow was observed in satellite imagery, SDH and SSH OA fields, and in QG hindcasts.

Ocean currents/Nowcasting/Hindcasting/Ocean models/California current/OPTOMA Project/Theses/Eddies Fluid mechanics/NTIS.

62. Patrick WH,, DeLaune RD. Subsidence, accretion, and sea level rise in south San Francisco Bay marshes. LIMNOL. OCEANOGR 1990;VOL. 35, NO. 6:pp. 1389-1395

Lab. Wetland Soils and Sediments, Cent. Wetland Resour., Louisiana State Univ., Baton Rouge, LA 70803, USA.

Accelerated sea level rise that is predicted to occur as a result of the greenhouse effect is likely to have a significant effect on the world's salt marshes. For salt-marsh vegetation to remain productive and even to survive in a period of rising sea level, the marsh must accrete sufficient sediment to maintain the marsh surface within an appropriate tidal range. Accretion and subsidence

were studied in three south San Francisco Bay salt marshes that differed greatly in subsidence over the past few decades. Marsh accretion as a result of sedimentation and peat of formation has been able to compensate for high rates of subsidence and the low rate of sea level rise and to maintain the elevation of the marsh surface above mean high water (MHW).
USA, California/INE, USA, California, San Francisco Bay/salt marshes/ greenhouse effect/sea level changes/sedimentation/peat/subsidence/ accretion/Oceanic Abstracts.

63. Batteen ML, Haney RL, Tielking TA, Renaud PG. A numerical study of wind forcing of eddies and jets in the California Current system. J. MAR. RES 1989;VOL. 47, NO. 3:pp. 493-523
Dep. Oceanogr., Nav. Postgrad. Sch., Monterey, CA 93943-5000, USA. A high-resolution, multi-level, primitive equation ocean model is used to examine the response to wind forcing of an idealized flat-bottomed oceanic regime along an eastern ocean boundary. A band of steady alongshore, upwelling favorable winds, either with or without alongshore variability, is used as forcing on both an f-plane and a beta -plane. In each experiment a wind-driven equatorward coastal jet and a poleward undercurrent are generated. In time the coastal jet and undercurrent become unstable and lead to the development of eddies and jets with relatively strong onshore and offshore directed flows. The results of this study support the hypothesis that steady wind forcing is one of several possible important generation mechanisms for eddies in the California Current System. wind-driven circulation/mathematical models/eddy flux/jets/INE, California Current/ISE, California Current/OceanAbstracts.

64. Farley KJ. Predicting organic accumulation in sediments near marine outfalls. J. ENVIRON. ENG 1990;VOL. 116, NO. 1:p. 144
Environ. Syst. Eng., Clemson Univ., Clemson, SC 29634-0919, USA. The impacts of wastewater discharges in coastal waters are largely exhibited in sediment composition changes. Processes controlling the accumulation of organic material in sediments near submerged sewage outfalls are described. A simplified model is then formulated for predicting deposition and organic accumulation in surface sediments. The model is based on mathematical descriptions of coastal transport, particle dynamics, and organic carbon cycles and includes a second-order kinetic description for the coagulation and settling of sewage particles and natural organic material. Sample calculations are presented demonstrating the importance of coagulation and settling behavior and tidal motion in determining the pronounced changes in deposition and sediment composition near outfalls.
coastal water/wastewater discharges/sediments/outfalls/sewage/Southern California Bight/PollutionAbstracts.

65. Bright DB, R. H. Sims, J. W. Lockyer (Applied Marine Biology Group, Naval Undersea Research and Development Center). Preliminary survey of algae in the vicinity of Eel Point, San Clemente Island, California. Pasadena, CA; 1970.
Limited account of mostly upper and mid intertidal seaweeds obtained near Eel Point, San Clemente Island.
Marine Algae, intertidal, San Clemente Island.

66. MULLIN MM, CONVERSI A. BIOMASSES OF EUPHAUSIIDS AND SMALLER ZOOPLANKTON IN THE CALIFORNIA CURRENT - GEOGRAPHIC AND INTERANNUAL COMPARISONS RELATIVE TO THE PACIFIC WHITING, MERLUCCIUS PRODUCTUS, FISHERY. U S FISH WILDL SERV FISH BULL 87(3) 1989:

633-644, ILLUSTR.

* PISCES ** SUPERCLASS GNATHOSTOMATA *** CLASS TELEOSTOMI ****
DIVISION TELEOSTEI ***** SUPERORDER PARACANTHOPTERYGII *****
GADIFORMES ***** SUBORDER GADOIDEI ***** MERLUCCIIDAE
***** MERLUCCIUS PRODUCTUS.

FEEDING/CARNIVOROUS FEEDING/PREDATION/PREY/EUPHAUSIIDAE (CRUSTACEA)
& SMALLER ZOOPLANKTON/PREY BIOMASS VARIABILITY CORRELATIONS WITH
FISHERY, NORTHERN PACIFIC/PREDATOR PREY INTERACTIONS/FISHERY
EFFECTS ON ZOOPLANKTON PREY BIOMASS, NORTHERN PACIFIC/PACIFIC
OCEAN/NORTHERN PACIFIC/CALIFORNIA CURRENT/ZOOPLANKTON PREY BIOMASS
VARIABILITY IN RELATION TO FISHERY/Zoological Index.

67. Woodhouse CD, Rindlaub KW. AN INFORMATION BASE OF
SCIENCE ACTIVITIES IN CHANNEL ISLANDS NATIONAL PARK, CALIFORNIA. ;
1982.

PREPARED FOR THE MAN AND BIOSPHERE PROGRAM, NATIONAL PARK SERVICE.
CALIFORNIA CHANNEL ISLANDS/GEOLOGY/VASCULAR PLANTS/ROCKY
INTERTIDAL/POLLUTION/CLIMATE/BIRDS/AMPHIBIANS/REPTILES/SOILS/MOLL
USCS/ARTHROPODS.

68. Fisher RV, Charlton DW (Univ. Calif., Santa Barbara,
CA). Mid Miocene Blanca Formation, Santa Cruz Island, California.
Howell DG, AFFL: U.S. Geol. Surv., Menlo Park, CA. in Aspects of
the geol. hist. of the Calif. Continental Borderland: Calif.
Continental Borderland Symposium; 1975 Sep 22; Santa Cruz Island.
: Am. Assoc. Pet. Geol., Pac. Sect.; 1976. Misc. Publ. 24. p.
228-240. 8 refs., chart, table, geol. sketch map.
fspub/Blanca Formation/stratigraphy/Miocene/igneous
rocks/pyroclastics and glasses/sedimentary rocks/southwest/Channel
Islands/Santa Cruz Island/Near Point/Bowes Point/Sierra
Blanca/thickness/Blanca Formation/clastic
rocks/terrigenous/pyroclastics/tuff/breccia/sandstone/conglomerat
e/clasts/petrography/andesite/dacite/environmental
analysis/marine/shallow/provenance/ash flow/tephra/SRD.

69. Foster MS. Experimental studies of subtidal plant
communities [dissertation]. : UCSB; 1972. 125 p.
Doctoral.
fspub/botany/marine flora/ kelp bed ecology/Macrocytis
pyrifera/Santa Cruz Island/SRD.

70. Fusaro C. Population structure, growth rate, and egg
production of the sand crab, *Emerita analoga* (Hippidae): a
comparative analysis [dissertation]. : UCSB; 1977. 182 p.
Doctoral.
fspub/Hippidae/*Emerita analoga*/sand crab/Santa Cruz Island/SRD.

71. Ahlstrom EH. Kinds and abundances of fishes in the
California Current region based on egg and larval surveys. Calif.
Coop. Oceanic Fish. Invest. Rep. 1965;10:31-52.
fish/text/NPS/National Park Service/vertebrates/zoology/MINERALS
MANAGEMENT SERVICE.

72. Goeden RD, Ricker DW. Santa Cruz Island revisited.
Sequential photography records the causation, rates of progress,
and lasting benefits of successful biological weed control
California. Del Fosse ES. Proceedings of the Fifth International
Symposium on Biological Control of Weeds; 1980 Jul; Melbourne
Australia. Australia: CSIRO; 1980. p. 355-365.
refs., ill.
fspub/Santa Cruz Island/biological weed control/SRD/SRD.

73. Ahlstrom EH. Distribution and abundance of sardine and

anchovy larvae in the California current region off California and Baja California, 1951-64: A summary. U.S. Fish Wildl. Serv. Spec. Sci. Rep. Fish. 1966;534:p.71. Northern anchovy/Engraulis mordax/larvae/distribution/fish/Cross/MINERALS MANAGEMENT SERVICE.

74. Ahlstrom EH. Co-occurrences of sardine and anchovy larvae in the California current region off California and Baja California. Calif. Coop. Oceanic Fish. Invest. Rep. 1966;11:117-135 Northern anchovy/Engraulis mordax/larvae/spawning/fish/MINERALS MANAGEMENT SERVICE.

75. Greene EL. Studies in the botany of California and parts adjacent. San Francisco ?; 1887.
Extract from Bulletin 7, California Academy of Sciences, p.377-418. botany/Santa Cruz Island/SRD.

76. Ahlstrom EH. Fluctuations of clupeid fishes in relation to the environmental changes in the California current. Presented at: 11th Pacific Science Congress Proceedings, Aug. 23 - Sept. 2, Tokyo (Japan). 1966;1-4:147. clupeid fishes/environmental variations/pelagic fishes/California current/zooplankton/Pieper/MINERALS MANAGEMENT SERVICE.

77. Haemig PD. A comparative experimental study of exploratory behaviour in Santa Cruz Island and mainland California Scrub Jays, *Aphelocoma coerulescens*. Bird Behav. 1989;8(1):38-42 AUTH AFFL: 3724 Baca Chica Blvd., Suite C-200, Brownsville, TX 78521. The exploratory behaviour of island and mainland subspecies of the Scrub Jay *Aphelocoma coerulescens* was studied in the wild, and found to differ. When a novel stimulus was presented to the jays during an experiment, the Island Jay *A. c. insularis* of Santa Cruz Island gave more attention to it than did the California Jay *A. c. californica* of the adjacent mainland. The Island Jay spent more time exploring the novelty and approached much closer to it. The Island Jay also seemed to respond more frequently to the novelty. When exploring, the Island Jay spent a greater percentage of time on the ground than did the California Jay. Greater exploratory behaviour may be adaptive in environments such as oceanic islands, where food shortages are sometimes extreme and where predation is reduced, because such behaviour helps an individual locate and exploit food sources it might otherwise pass over or miss.
fspub/Aphelocoma coerulescens insularis/Santa Cruz Island/SRD.

78. Ahlstrom EH. Co-occurrences of sardines and anchovy larvae in the California Current region off California and Baja California. Calif. Coop. Oceanic Fish. Invest. Rep. 1967;11:117-135.
text/fish/MINERALS MANAGEMENT SERVICE.

79. Freckleton JR. Geohydrology of the Foothill Ground water Basin near Santa Barbara, California. Sacramento, Calif. : Dept. of the Interior, U.S. Geological Survey ; Denver, CO : U.S. Geological Survey, Books and Open-File Reports Section [distributor], 1989. 1989;v:p.46
Water-resources investigations report ; 89-4017. Other-US Includes bibliographical references (p. 45-46). Monograph; Bibliography. Hydrogeology/Water/Underground/California/Santa Barbara Region/Mathematical models/Water table/California/Santa Barbara/AGRICOLA.

80. Hemming JE. Mussel aquaculture in Alaska. PROCEEDINGS OF THE FOURTH ALASKA AQUACULTURE CONFERENCE, NOVEMBER 18-21, 1987,

SITKA, ALASKA USA.; ALASKA SEA GRANT REP. 1988;88-4:95-98.

Mussel culture began 750 years ago in France when an Irish sailor put a fish trap made of wooden poles on the tide flats. Instead of fish, he caught blue mussels when spat settled in great abundance on his poles. Mussels proved to be an easily obtainable food source in France and the Irishman's discovery eventually led to a culture system called the bouchot system, which is still in use in France. Blue mussels are grown in Washington on Puget Sound. They are also grown commercially along the New England coast, and on oil rigs in the Santa Barbara channel of southern California. Each of these areas has chronic water quality problems. Alaska has innumerable fiords and protected bays with excellent water quality that should provide suitable sites for shellfish culture. With good planning, technical support, and protective regulations, Alaska could easily become the mariculture center of North America.
aquaculture development/marine aquaculture/Mytilus/spat/INE/USA/
Alaska/mussel culture/ASFA.

81. HAYWARD T L, MANTYLA A W. PHYSICAL CHEMICAL AND BIOLOGICAL STRUCTURE OF A COASTAL EDDY NEAR CAPE MENDOCINO USA. J MAR RES48 (4). 1990. 825-850. MARINE LIFE RES. GROUP, SCRIPPS INSTITUTION OCEANOGRAPHY, LA JOLLA, CALIF., 92093, USA. BA.
We sampled mesoscale physical, chemical and biological structure in the coastal region of northern California in May, 1987. The circulation was dominated by an equatorward-flowing coastal jet and by set of mesoscale eddies. High-velocity flow in the core of the coastal jet was composed of low-salinity, low-nutrient water. Cyclonic coastal eddies were observed near Cape Mendocino and Pt. Arena. The Cape Mendocino eddy is examined in detail. This eddy is a common feature which was present both before and after the spring transition, suggesting a relatively weak coupling between the eddy and the local wind field. The coastal circulation strongly affected the chemical and biological structure of the region. The coastal jet and cyclonic eddy increased primary production and phytoplankton biomass by increasing the nutrient supply to the euphotic zone. The change in slope of density surfaces in association with high-velocity flow in the jet and eddy raised isopycnals carrying nutrients to the surface layer. The inshore edge of the coastal jet marked the boundary between rich coastal water and oligotrophic offshore water. Since the jet was not carrying nutrients in the surface layer, advection by this feature was not an important nutrient source for the coastal ocean. The cyclonic flow and secondary circulation associated with the eddy appeared to act as a nutrient pump which provided a continuing input of high nutrient, low chlorophyll water to the center of the eddy. This resulted in low chlorophyll in the eddy center, and high chlorophyll and a large excess in dissolved oxygen at its outer edge. The coupling between physical and biological structure in the study region differs from that described for systems dominated by wind-driven coastal upwelling.
PHYTOPLANKTON BIOMASS EUPHOTIC ZONE NUTRIENT SUPPLY PRIMARY PRODUCTION NUTRIENT PUMP WIND-DRIVEN COASTAL UPWELLING/Biosis.

82. Dickey TD, Haury LR, Koblinsky CJ, Simpson JJ. An Offshore Eddy in the California Current System. Progress in Oceanography;1984 VOL. 13, NO. 1 EnvBib/California current system/Oceanography/Eddy/ENVIRONMENTAL BIBLIOGRAPHY.

83. Jesson JP, Meakin P., Glasgow L. C. The fluorocarbon-ozone theory-ii. tropospheric lifetimes: an estimate of the tropospheric lifetime of ccl3f,. Atmospheric env, 1977, v11, n6, p499 (10). . Report No.: 78-005583. E. i. du pont de nemours & co,.

Currently available measurements of ccl3f concentrations in the troposphere are compared with concentrations expected on the basis of available production and release data. calculations are compared with previously published experimental measurements. current predictions are presented as a function of time, eddy diffusion profile, and tropospheric lifetime. the most probable lifetime for ccl3f is from 15-20 years. changes in absolute calibration of the electron capture gas chromatography data, however, would lead to revisions in the estimated lifetimes. (3 graphs, 27 references, 3 tables).

Chlorofluoromethanes/ozone/troposphere/monitoring, env-air/ireland/area comparisons/california, univ/southern hemispher atmospheric diffusion/stratosphere/meteorology/chromatography, gas/washington/EnviroLine.

84. Barnes PW. Marine geology and oceanography of Santa Cruz Basin off southern California. U. S. Geol. Surv. ; 1970. Univ. South. Calif., Los Angeles, Calif., United-States Monographic; Report B; Bibliography and Index of Geology (1969-present).

175

146.

Pacific Ocean/oceanography/marine geology/California/United States/Santa Cruz/transport/currents/salinity/temperature/variations/structure /bottom features/sediments/chemical composition/analysis/stratigraphy/sedimentation/rates/sedimentary structures/Pleistocene/Quaternary/Cenozoic/Holocene/GEOREF.

85. Tubbs AM, Moore AL, Park JM, Phillips JJ. Data from deep moored instrument stations: 4. Scripps Inst. Oceanography Ref. 1972 NPS/Physical oceanography/oceanography/water masses.

86. Schwartzlose RA. Nearshore currents of the western United States and Baja California as measured by drift bottles. CalCOFI Report 1960;9 NPS/Physical Oceanography/Oceanography/Currents.

87. Wenner AM. Swarm Movement: A Mystery Explained. American Bee Journal 1992;132:27-31

SCIR.

fspub/feral bees/insects/entomology/Santa Cruz Island.

88. Haemig PD. Island Scrub Jay predation on cliff nests of house finches. Wilson Bull. 1988;100(1):140 AUTH AFFL: Lewis and Clark's Rangers, 3724 Boca Chica Blvd., Suite C-200, Brownsville, TX 78521.

The Island Scrub Jay (*Aphelocoma coerulescens insularis*) is found only on Santa Cruz Island, 30 km from the coast of southern California (34 degree 00'N, 119 degree 42'W). Not as well studied as the jays of the adjacent mainland, many aspects of its biology remain unknown. In this note, the author documents predation by Island Scrub Jays on the nests of House Finches (*Carpodacus mexicanus*). Although such predation is well known among other Corvids, no specific reports of it have been published before for the Island Scrub Jay.

fspub/Aphelocoma coerulescens insularis/Carpodacus mexicanus/Santa Cruz Island/SRD.

89. Ahlstrom EH. Remarkable movements of oil globules in eggs of bathylagid smelts during embryonic development. Mar. Biol. Assoc. India J. 1969;11(1-2):206-217.

bathylagus/smelts/california

current/embryology/eggs/leuroglossus/physical
oceanography/Hickey/gulf of california/oil
globules/l/stilbius/b/wesethi zooplankton/Pieper/MINERALS
MANAGEMENT SERVICE.

90. Purdy DF (Performer: Minerals Management Service, Los Angeles, CA. Pacific OCS Region). Summary of the Physical Oceanography of the Pacific Northwest Coast. ; 1990. Report No.: MMS910003. 51p.

The technical report summarizes current information on the physical oceanography of the Pacific Coast of Washington and Oregon, including information on currents, water mass characteristics, vertical stratification and mixing, upwelling, and waves. A general outline of the California current system is given, including the California and Davidson surface currents, the California and Washington undercurrents, and shelf currents. Conditions affecting local and nearshore currents, considered important in the event of an oil spill, are discussed. A summary of wave data is included from several sources including the Corps of Engineers WIS (Wave Information Study), based on meteorological information, and the Minerals Management Service's Coastal Wave Statistical Data Base (CWSDB), based on high quality data from a system of buoys. Washington State/Oregon/Environmental transport/Continental shelves/Stratification/Water pollution/Mixing/Precipitation Meteorology/Water runoff/Oil spills/Upwelling/Ocean waves/Ocean temperature/Salinity/Ocean currents/Coastal regions/Physical oceanography/Pacific Northwest Region United States/NTIS.

91. Ichiye T. Some Hydrodynamic Problems for a Nepheloid Zone. ; 1966 Mar 4. Report No.: CONTRIB-925. 17p.

Lamont Geological Observatory Palisades N Y 203250 Research supported in part by NSF. Published in Pure and Applied Geophysics v63 p179-95 1966. A layer of a few hundred meters thickness with suspended matter (a nepheloid zone) was discovered by Ewing and Thorndike near the bottom on the continental slope of the North Atlantic. A downward pressure gradient is produced in this layer due to increment of water density with suspensoid. When only the Coriolis force balances with this pressure gradient, a bottom nepheloid current flows southwestward parallel to the depth contours with a velocity of about 10 (cm/sec) for a slope of one degree. The pressure gradient for fluid with locally variable density above a sloping bottom is treated and an extra term due to density gradient along the slope is derived. The vertical profiles of the nepheloid current with an effect on the vertical eddy viscosity are computed. Two kinds of vertical distributions of eddy viscosity are determined from the observed nepheloid distributions and used in the calculations: constant but different values at two layers and those increasing with height. The effect of the change of density along the bottom is treated by introducing dimensionless variables. Rossby number of the nepheloid current becomes about 0.01 indicating inertia terms to be negligible. Rossby number of turbidity currents ranges from 2 (in a decaying area) to 5 (developing area), suggesting that inertia terms are more important than Coriolis terms. The trajectories of turbidity currents are computed from motion of a mass of mud under the Coriolis force and friction, and the results are applied to those inferred by Hand and Emery in the San Diego Trough off California. (Author). Ocean currents/Hydrodynamics/Sedimentation/Turbulence/Equations of motion/Diffusion/Coriolis effect/Density/Viscosity/Mud/Continental shelves/Nepheloid zones/NTIS.

92. Martin M, Richardson BJ. Long term contaminant biomonitoring. MAR. POLLUT. BULL 1991;VOL. 22, NO. 11:pp. 533-537

Dep. Biol. Sci., Deakin Univ., Geelong, Vic. 3217, Australia. Heavy metals, halogenated hydrocarbons, and petroleum hydrocarbons in the world's marine and estuarine waters have long been recognized as some of the most potentially deleterious contaminants to biota, and to human consumers of seafoods. During the past two decades, various strategies have been developed to monitor and evaluate the adverse impacts of these compounds in marine waters: one of the most successful efforts has involved the use of bivalve shellfish as sentinel organisms, a technique which has become popularly known as the "Mussel Watch". It is the aim of this article to discuss the need for a more comprehensive contaminant biomonitoring programme in southeastern Australia, with special attention to the marine environment of the State of Victoria. heavy metals/marine pollution/pollution monitoring/hydrocarbons/PSE , Australia, Victoria/coastal waters/marine mollusks/Bivalvia/publi c health/bioaccumulation/INE, USA, California/Oceanic Abstracts.

93. Sheres D, Kenyon KE. Swell refraction by the Pt. Conception, California, eddy. INT. J. REMOTE SENS 1990;VOL. 11, NO. 1:pp. 27-40 Cent. Mar. Sci., Univ. S. Mississippi, Stennis Space Cent., MS 39529, USA. The interaction between an ocean eddy and incoming swell is investigated numerically producing characteristic refraction patterns of wave number and energy. The velocity distribution in the model eddy follows observations off Pt. Conception that are discussed in Sheres and Kenyon in this issue. The energy refraction patterns exhibit focus regions (caustics) where wave energy is concentrated; adjacent regions have a reduced wave energy concentration. wave refraction/oceanic eddies/interactions/surface water waves/ swell/INE, USA, California, Pt/Conception/OceanAbstracts.

94. Caplan RI, R. A. Boolootian. Intertidal Ecology of San Nicholas Island. R. N. Philbrick. Proceedings of the symposium on the biology of the California Islands; Santa Barbara, CA. Santa Barbara, CA: Santa Barbara Botanic Garden; 1967. p. 203-207. Reports results of an ecological study of two rocky intertidal sites on San Nicholas Island. A total of 19 macrophytes is included among the flora and fauna occupying the sites. Species observed were reported to be representative of both northern and southern California associations., although the study was restricted to intertidal regions greater than +2.0ft. above mean lower low water. Marine Algae and Fauna, intertidal, San Nicholas Island.

95. BUTLER JL. GROWTH DURING THE LARVAL AND JUVENILE STAGES OF THE NORTHERN ANCHOVY, ENGRAULIS MORDAX, IN THE CALIFORNIA CURRENT DURING 1980-84. U S FISH WILDL SERV FISH BULL 1989; 87((3)):645-652

* PISCES ** SUPERCLASS GNATHOSTOMATA *** CLASS TELEOSTOMI ****
DIVISION TELEOSTEI ***** SUPERORDER CLUPEOMORPHA *****
CLUPEIFORMES ***** SUBORDER CLUPEOIDEI ***** ENGRAULIDAE
***** ENGRAULIS MORDAX.

BIOMETRICS/MEASUREMENTS/SIZE/JUVENILES, EL NINO EVENT CORRELATION, NORTHERN PACIFIC/FEEDING/CARNIVOROUS FEEDING/PREDATION/PREY/ZOOPLANKTON/AVAILABILITY, LARVAL & JUVENILE GROWTH CORRELATIONS, NORTHERN PACIFIC/PREDATOR PREY INTERACTIONS/ZOOPLANKTON ABUNDANCE, LARVAL & JUVENILE GROWTH CORRELATIONS, PACIFIC/FOOD AVAILABILITY/ZOOPLANKTON, LARVAL & JUVENILE GROWTH RATE RELATIONSHIPS, NORTHERN PACIFIC/WHOLE ANIMAL PHYSIOLOGY/GENERAL PHYSIOLOGICAL CONDITION/ENVIRONMENTAL FACTORS/PHYSICAL ENVIRONMENT/CLIMATE & WEATHER/EL NINO EVENT, LARVAL & JUVENILE GROWTH VARIATION RELATIONSHIP, PACIFIC/LIFE CYCLE & DEVELOPMENT/LIFE CYCLE/DEVELOPMENTAL STAGES/LARVA/GROWTH RATE,

INTERANNUAL VARIATION RELATED TO FOOD AVAILABILITY,
PACIFIC/JUVENILE
STAGES/DEVELOPMENT/GROWTH/GROWTH RATE/LARVAE & JUVENILES,
INTERANNUAL VARIATION IN RELATION TO FOOD, PACIFIC/PACIFIC
OCEAN/NORTHERN PACIFIC/CALIFORNIA CURRENT/LARVAL & JUVENILE
GROWTH, VARIATION IN RELATION TO FOOD AVAILABILITY/Zoological
Index.

96. OCEANOGRAPHIC SERVICES I. STORM WAVE STUDY, SANTA
BARBARA CHANNEL: REPORT 166-2. ; 1969.
WAVES/PHYSICAL OCEANOGRAPHY/OCEANOGRAPHY.

97. Agbezuge LK, Noerager JA. Deepwater riser flotation
systems. Ocean Resour. Eng. 1978;12(1):10-17
Address: Exxon Production Res. Co., Houston, TX, USA.

J
The first offshore exploratory drilling risers could drill in up
1000 ft of water without using buoyancy devices. As the search for
oil progressed into deeper water, the additional tensioning
capability required proved prohibitive. It imposed excessive axial
loads and consequently unacceptable high riser stresses and reduced
drilling vessel stability. In 1968 Exxon Co. USA introduced the use
of syntactic foam as a buoyancy device when it successfully drilled
with this material in depths >1000 ft in the Santa Barbara Channel.
Since then the use of syntactic foam has become commonplace. Later,
in 1974, the flotation air can was introduced as an alternative
riser buoyancy system when it was used on the Glomar Coral Sea
drilling riser in the Mediterranean. The authors discuss the
stability of drilling risers, and the use of buoyant risers foam
buoyancy factors which decrease foam buoyancy, the use of flotation
air cans. A comparison is made of foam and air cans.
riser pipes/flotation/offshore drilling/Santa Barbara
Channel/marine technology/petroleum/engineering.

98. Hein FJ, Longstaffe FJ, Segó DC (Univ. Alta., Dep. Civ.
Eng., Edmonton, AB, Canada). Sediment types, clay mineralogy and
geotechnical properties of deep water marine sediments; offshore
Baffin Island, Queen Charlotte Vancouver islands and California
borderland. Pelletier BR, Matich MAJ, Meyerhoff GG. in Canadian
conference on marine geotechnical engineering: 3rd Canadian
conference on marine geotechnical engineering (Conference-
Canadienne-sur-le-Genie-Geotechnique-Marin); 1986 Jun 10; St.
John's, NF. : C-CORE, Memorial University of NF; 1986. 3 (2). p.
559-575.

20 refs., illus., 1 table, sketch maps.
geophysical surveys/gravity surveys/British Columbia/clay
mineralogy/areal studies/soil
mechanics/materials/properties/plasticity /Santa Barbara Basin/San
Nicolas Island/Santa Cruz Island/Western Canada/Canada/Queen
Charlotte Islands/Vancouver Island/Baffin Island/Atterberg
limits/bathymetry/histograms/bioturbation/biogenic
structures/sedimentary structures/clay/clastic sediments/SRD.

99. Ahlstrom EH. Mesopelagic and bathypelagic fishes in the
California Current region. Calif. Coop. Oceanic Fish. Invest. Rep.
1969;13:39-44. text/fish/California Current/mesopelagic
fishes/abundance/species composition/zooplankton/MINERALS
MANAGEMENT SERVICE.

100. Ahlstrom EH. Kinds and abundance of fish larvae in the
eastern tropical Pacific, based on collections made on Eastropac I.
U.S. Natl. Mar. Fish. Serv. Fish. Bull. 1971;69(1):3-77.
fish larvae/plankton/pacific ocean/tropical/california

current/distribution patterns/species
gradient/zooplankton/Pieper/MINERALS MANAGEMENT SERVICE.

101. Higgins RE (Cent. Wash. State Coll., WA). Major element chemistry of the Cenozoic volcanic rocks in the Los Angeles Basin and vicinity. Howell DG, AFFL: U.S. Geol. Surv., Menlo Park, CA. in Aspects of the geol. hist. of the Calif. Continental Borderland: Calif. Continental Borderland Symposium; 1975 Sep 22; Santa Cruz Island. : Am. Assoc. Pet. Geol., Pac. Sect.; 1976. Misc. Publ. 24. p. 216-227.

19 refs., illus., tables, sketch map.
fspub/Los Angeles County/geochemistry/igneous
rocks/volcanic/southwest/Los Angeles Basin/Santa Monica/Santa
Monica Mountains/Los Angeles/Glendorra/Santa Cruz
Island/basalt/dacite/andesite/plate tectonics/subduction
zones/Miocene/subduction/SRD.

102. Hill DJ (Univ. Calif., Santa Barbara, CA). Geology of the Jurassic basement rocks, Santa Cruz Island, California, and correlation with other Mesozoic basement terranes in California. Howell DG, AFFL: U.S. Geol. Surv., Menlo Park, CA. in Aspects of the geol. hist. of the Calif. Continental Borderland: Calif. Continental Borderland Symposium; 1975 Sep 22; Santa Cruz Island. : Am. Assoc. Pet. Geol., Pac. Sect.; 1976. Misc. Publ. 24. p. 16-46.

illus., tables, sect.
fspub/Santa Cruz Island Schist/Willows Plutonic
Complex/petrology/igneous rocks/metamorphic rocks/Santa Cruz
Island/Jurassic/upper Jurassic/Alamos
Pluton/metasedimentary/metaplutonic/facies/spilite/keratophyre/quartz
keratophyre/gabbro/ultramafic
family/microdiorite/leucotonalite/dikes/complexes/mineral
assemblages/genesis/SRD.

103. Ahlstrom EH, Kramer D. Distributional atlas of the fish larvae in the California Current region: Northern anchovy, *Engraulis mordax* Girard, 1951 through 1965. Calif. Coop. Oceanic Fish. Invest. Atlas 1968;9:p.269. Fish/anchovy/MINERALS MANAGEMENT SERVICE.

104. Hill DJ. Pre-Tertiary rocks exposed on Santa Cruz Island, California; preliminary observations [abstract]. in Abstracts with Programs/ GSA: Geol. Soc. Am., Cordilleran Section, 70th Annual Meeting. ; 1974. 6 (3). p. p. 192.
fspub/petrology/igneous rocks/metamorphic rocks/Mesozoic/Santa Cruz
Island/Plutonic/schists/SRD.

105. Ahlstrom EH, Moser HG. Distributional atlas of fish larvae in the California current region: Flatfishes, 1955 through 1960. Calif. Coop. Oceanic Fish. Invest. Atlas Vol. 23 1975;:207. Groundfish/larvae/distribution/California halibut/*Paralichthys californicus*/English sole/*Parophrys vetulus*/Dover sole/*Microstomus pacificus*/fish/Cross/MINERALS MANAGEMENT SERVICE.

106. Hobbs ER. The effects of feral sheep grazing on Bishop pine (*Pinus muricata*) forests, Santa Cruz Island, CA [dissertation]. : UCLA; 1978. 61 p. SCIR Doctoral, ill., maps.
fspub/geography/Santa Cruz Island/SRD.

107. Hobbs ER. Vegetation dynamics of a California island, Santa Cruz Island, includes forests, *Pinus muricata*, *Lyonothamnus floribundus*, 1929 1970. U S D A For Serv Gen Tech Rep PSW U S Pac Southwest For Exp Stn. (Berkeley, CA) 1982 Jun(58):603

1 ref., map.

fspub/vegetation dynamics/Santa Cruz Island/Pinus
muricata/Lyonothamnus floribundus/Santa Cruz Island/SRD/SRD.

108. Hornafius S, Kamerling MJ, Terres RR, Luyendyk BP
(Univ. Calif., Dep. Geol. Sci., Santa Barbara, CA). Differential
tectonic rotation within the western Transverse Ranges [abstract].
in Abstracts with Programs, GSA: The Geological Society of America,
Cordilleran Section, 78th annual meeting; 1982 Apr 19; Anaheim, CA.
; 1982. 14 (4). p. 173-174.

fspub/structural geology/tectonics/paleomagnetism/Neogene/Topanga
Formation/Monterey Formation/Rincon Shale/Transverse
Ranges/Miocene/Tertiary/shale/clastic rocks/marine
environment/Point Mugu/Santa Cruz Island/Santa Ynez
Range/declination/rotation/Santa Maria Basin/Santa Monica
Mountains/SRD.

109. Wenner AM. "Bee lining" and ecological research on
Santa Cruz Island. Am Bee J. Hamilton, Ill. : Dadant & Sons. Dec
1989. 1989;129(12):p.808-809 Other-US Includes references.
Article.

apis mellifera/feral varieties/honeybee colonies/hunting/pest
control/research projects/california//apis mellifera
scutellata/african honeybee control/AGRICOLA.

110. Eppley RW. Primary production, nutrients, and
particulate matter in the Southern California Bight: Contributions
to the C, N and O₂ budgets: A component of the California Basin
Study (CaBS): (Progress report, November 1988). REP. U.S. DEP.
ENERGY 1988;

A carbon budget has been developed for the euphotic zone in the
surface waters of the Santa Monica Basin off Los Angeles,
California, by CaBS. This grant provided several components of the
budget: primary production, new production (equivalent to the
sinking flux of biogenic particles out of the euphotic zone),
standing stocks of particulate matter including particulate organic
carbon, nitrogen and chlorophyll. Ancillary measurements of plant
nutrients (nitrate, phosphate, silicic acid) were also made
relative to primary and new production rates. The residence time of
particulate matter in the euphotic zone was also determined as this
is important for removal of particle-reactive substances, such as
certain metals, hydrocarbons and chlorinated hydrocarbons.
nutrients (mineral)/particulate organic matter/particulate
flux/pollution dispersion/metals/hydrocarbons/euphotic
zone/INE/USA/California/primary production/ASFA.

111. REILLY S B, THAYER V G. BLUE WHALE BALAENOPTERA-
MUSCULUS DISTRIBUTION IN THE EASTERN TROPICAL PACIFIC. MAR MAMMAL
SCI6 (4). 1990. 265-277. NATL. OCEANIC AND ATMOSPHERIC ADM., NATL.
MARINE FISHERIES SERVICE, SOUTHWEST FISHERIES SCI. CENT., P.O. BOX
271, LA JOLLA, CALIF. 92038. BA. The distribution of blue whales
Balaenoptera musculus, in the eastern tropical Pacific (ETP) was
analyzed from 211 sightings of 355 whales recorded during research
vessel sighting surveys or by biologists aboard fishing vessels.
Over 90% of the sightings were made in just two areas: along Baja
California, and in the vicinity of the Costa Rica Dome (a large,
stationary eddy centered near 9.degree.N, 89.degree.W), with the
rest made along the equator near the Galapagos Islands, the coasts
of Ecuador and northern Peru. All sightings occurred in relatively
cool, upwelling-modified waters. Because these areas are the most
productive parts of the ETP, and have relatively large standing
stocks of euphausiids, it seems possible that blue whales select
low latitude habitats which permit foraging. The waters off western

Baja California were occupied seasonally, with a peak in sightings coinciding with the spring peak up welling and biological production. The Costa Rica Dome area was occupied year round, suggesting either a resident population, or that both northern and southern hemisphere whales visit, with temporal overlap. The modal group size was one for all areas and seasons, but the frequency of groups with two or more whales was significantly higher in sightings made near the Galapagos Islands and the coast of Ecuador and northern Peru.

SEASONAL VARIATION HABITAT SELECTION FORAGING OCEANOGRAPHY BAJA CALIFORNIA COSTA RICA DOME ECUADOR PERU GALAPAGOS ISLANDS/Biosis.

112. Heinbokel JF. Studies on the Functional Role of Tintinnids in the Southern California Bight. II. Grazing Rates of Field Populations. *Marine Biology*;1978 VOL. 47, NO. 2
EnvBib/Field population/Southern California Bight/Functional role/Tintinnid/Grazing rate/ENVIRONMENTAL BIBLIOGRAPHY.

113. Peterson TW, Seinfeld John H. Mathematical model for transport, interconversion, and removal of gaseous and particulate air pollutants-application to the urban plume,. *Atmospheric env*, 1977, v11, n12, p1171 (14). . Report No.: 78-004953.
California inst of technology,.
A solution to the steady state, three-dimensional atmospheric diffusion equation is presented. the solution is used to predict conversion of air pollutants from gaseous to particulate form, and describes setting, deposition, and first-order removal. the analytical solution of the equation in three dimensions, with wind speed and eddy diffusivities independent of height, is the basis for a model that calculates material balance and determines the relative roles of conversion and removal in governing gaseous and particulate concentration levels. using the model, gaseous and particulate pollutant material balances in the los angeles airshed are predicted. (5 graphs, 1 map, 41 references, 4 tables). Urban atmosphere/particulates/mathematic models-air/air chemistry/atmospheric diffusion/sulfates/nitrates/ hydrocarbons-air/aerosols/winds/los angeles/nitrogen oxides/ sulfur dioxide/EnviroLine.

114. Yerkes RF, Lee WHK. Seismicity and late Quaternary deformation in the western Transverse Ranges. *Geol. Soc. Am.*, *Abstr. Programs*. 1979;11(3):p.136 U. S. Geol. Surv., Menlo Park, Calif., United-States The Geological Society of America, Cordilleran Section, 75th annual meeting, San Jose, Calif., April 9-11, 1979 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).
California/seismology/earthquakes/Pacific Coast/structural geology/neotectonics/seismicity/seismotectonics/Santa Barbara County/Ventura County/United States/Southern California/Transverse Ranges/upper Quaternary/Quaternary/Santa Barbara Channel/Ventura Basin/magnitude/mechanism/elastic waves/P waves/faults/fault planes/uplifts/geodesy/extension/plate tectonics/GEOREF.

115. Tully JP. Notes on the behavior of fresh water entering the sea. *Seventh Pac. Sci. Congress* 1952;3:1-22
NPS/Physical oceanography/oceanography/water masses.

116. Scripps Institute of Oceanography. Results of current measurements with drogues. *Data Report*, SIO Ref. 1962;62-27
NPS/Physical Oceanography/Oceanography/Currents.

117. Moody A. Spatial variability of soil properties beneath *Quercus agrifolia* on Santa Cruz Island, California [dissertation].

Santa Barbara: UCSB ; 1991. 85 pp. SCIR
MA Thesis.
fspub/Santa Cruz Island/live oak/Quercus/soil.

118. Howell DG (U. S. Geol. Surv., Menlo Park, CA). The East Santa Cruz Basin Fault, southern California continental borderland [abstract]. in Abstracts with programs, GSA: The Geological Society of America, Cordilleran Section, 71st annual meeting; 1975 Mar 25; Los Angeles, CA. ; 1975. 7 (3). p. p. 327. fspubstructural geology/faults/Santa Cruz Basin/Santa Cruz Island/East Santa Cruz Basin Fault/displacements/strike slip faults/Cenozoic/paleogeography/lithofacies/Eocene/Miocene/middle Miocene/Tertiary/upper Tertiary/basins/sedimentation/environment/paleocurrents/SRD/SRD.

119. Bakus G, Green K. The distribution of marine sponges collected from the 1976-1978 Bureau of Land Management Southern California Bight Program. BULL. SOUTH. CALIF. ACAD. SCI 1987;86(2):57-88.
A total of 58 species, representing 48 genera of sponges, was collected from southern California (depth 0-1865 m) during 1976-1978. Twenty-two species show geographical range extensions and 12 species had depth range extensions. Oxymycale is synonymized under Mycale. Stelletta clarella is synonymized under S. estrella . The biogeography of sponges of the southern California borderlands is discussed. range extension/water depth/USA/California Coast/check lists/Porifera/INE/USA/California/ecological distribution/CSA Life Sciences Collection.

120. Fisk C (Performer: Pacific Missile Test Center, Point Mugu, CA). Tidal and Lunar Data for Point Mugu, San Nicholas Island, and the Barking Sands Area During 1991. Technical publication. ; 1990. Report No.: PMTCTP000052. 36p. Basic lunar and tidal data for Point Mugu, San Nicolas Island and the Barking Sands Area during 1990 are provided. The data presented are (1) Tidal data, (2) times of moonrise and moonset, (3) times of lunar phases, and (4) times of sunrise and sunset. Keywords: Tides/tables/data; Ocean tides; Moon/phase; Moon/tables/data; California; Hawaii; Launching sites. (MM). California/Hawaii/Launching sites/Phase/Sunrise/Sunset/Tables Data/Tides/Santa Barbara Islands/Moon/Ocean tides/Pacific Missile Test Center/Point Magu California/San Nicolas California/Barking Sands Hawaii/Moon phase/Ephemerides/Air water interactions/Solar position/NTIS.

121. Badan-Dangon A, Dorman CE, Merrifield MA, Winant CD. The lower atmosphere over the Gulf of California. J. GEOPHYS. RES. (C OCEANS 1991;VOL. 96, NO. C9:pp. 16877-896 Cent. Invest. Cient. y Educ. Super., Klm. 105, Carretera Tijuana-Ensenada, Ensenada, B.C., Mexico.
Automated meteorological observations at coastal and island stations, instrumented aircraft flights, and coastal soundings were made between July 1983 and June 1985 to define the variations of the lower atmosphere over the northern half of the Gulf of California during the two important climatic seasons, the mid-latitude winter and the subtropical summer. A marine layer is well defined over water during both seasons but dissipates within a few kilometers inland. The winter large-scale pressure field is dominated by the Great Basin high over the southwestern United States. Modulated by upper level synoptic activity, it causes 3 to 6 days events of northwesterly winds (8-12 m/s) directed along the gulf's axis, which are coherent over basin scales, and bring cool,

dry desert air over the gulf. A dynamical analysis of subdiurnal motions shows that the cross-gulf momentum balance is geostrophic, the along-gulf balance is ageostrophic, with the along-gulf pressure gradient opposed by friction at the surface. These results are consistent with a scale analysis of the equations of motion in the marine layer over the Gulf of California.
climatology/atmospheric circulation/ocean-atmosphere system/seasonal variations/temporal variations/fixed stations/ISE, California Gulf/ winter/summer/meteorological data/winds/lower atmosphere/Oceanic Abstracts.

122. Sheres D, Kenyon KE. An eddy, coastal jets and incoming swell all interacting near Pt. Conception, California. INT. J. REMOTE SENS 1990;VOL. 11, NO. 1:pp. 5-25
Cent. Mar. Sci., Univ. S. Mississippi, Stennis Space Cent., MS 39529, USA. Observations of ocean features and their interaction near Pt. Conception, California, are reported for a two-month period during the early spring of 1983 at the time of the El Nino. The development of a body of warm water into a clockwise rotating eddy is described and the observed increase in the spatial scale of the eddy is found to compare favourably with the value calculated from a model of geostrophic adjustment. The subsequent interaction of the warm core eddy with a cold coastal jet directed offshore is discussed in relation to the approximate one-month lifetime observed for the eddy.
interactions/INE, California, Pt/Conception/swell/oceanic eddies/coastal jets/satellite sensing/OceanAbstracts.

123. Eichbaum WM, Bernstein BB. Current issues in environmental management: A case study of Southern California's marine monitoring system. COAST. MANAGE 1990;VOL. 18, NO. 4:pp. 433-445
Conserv. Found., Washington, DC 20037, USA.
A case study panel of the National Research Council's Committee on Systems Assessment of Marine Environmental Monitoring analyzed the monitoring system in the Southern California Bight. The goal of this assessment was to identify monitoring's contribution to decision-making and recommend how effective monitoring programs could be designed. The committee viewed monitoring as part of a management system including public concerns, laws and regulations, and the decision-making infrastructure. In assessing this larger system, the panel found many monitoring programs in the bight, regulated and performed by a variety of public and private agencies. These programs had contributed to the understanding of impacts around point sources. However, larger-scale and cumulative impacts were not well monitored because of an emphasis on point-source impacts only.
environmental monitoring/monitoring systems/marine environments/Sout hern California Bight/PollutionAbstracts.

124. Chapman VJ. A contribution to the ecology of *Egregia laevigata* Setchell. I. Bot. Mar. 1961;3:33-45
Report of the results of ecological studies fo *E. menziesii* (then referred to as *E. laevigata*) and includes only limited information on the occurrence of this species on the Southern California Islands.
Marine Algae.

125. BARTLEY DM, KENT DB. GENETIC STRUCTURE OF WHITE SEABASS POPULATIONS FROM THE SOUTHERN CALIFORNIA BIGHT REGION: APPLICATIONS TO HATCHERY ENHANCEMENT. CALIF COOP OCEANIC FISH INVEST REP 31 1990:97-105
* PISCES ** SUPERCLASS GNATHOSTOMATA *** CLASS TELEOSTOMI ****

DIVISION TELEOSTEI ***** SUPERORDER ACANTHOPTERYGII *****
PERCIFORMES ***** SUBORDER PERCOIDEI ***** SCIAENIDAE
***** ATRACTOSCION NOBILIS.

BIOCHEMISTRY/METABOLIC BIOCHEMISTRY/ENZYMES/GENETIC STRUCTURE OF
POPULATIONS ANALYSIS, CALIFORNIA (MARINE)/GENETICS/POPULATION
GENETICS/BIOCHEMICAL ASSESSMENT, CALIFORNIA
(MARINE)/EVOLUTION/VARIATION/POLYMORPHISM/ALLOZYME VARIATION,
CALIFORNIA (MARINE)/GENETIC VARIATION/POPULATIONS, BIOCHEMICAL
ANALYSIS, CALIFORNIA (MARINE)/BIOCHEMICAL VARIATION/GENETIC
STRUCTURE OF POPULATIONS, CALIFORNIA (MARINE)/PACIFIC
OCEAN/NORTHERN PACIFIC/SOUTHERN CALIFORNIA BIGHT/GENETIC STRUCTURE
OF POPULATIONS/Zoological Index.

126. OCEANOGRAPHIC SERVICES I. A STUDY OF WAVE CONDITIONS
ALONG A TOW ROUTE FROM LONG BEACH TO A PROPOSED PLATFORM LOCATION
OFF GAVIOTA. REPORT 240-2. ; 1971A.
WAVES/PHYSICAL OCEANOGRAPHY/OCEANOGRAPHY.

127. Alldredge AL. The chemical composition of macroscopic
aggregates in two neritic seas. Limnology and Oceanography
1979;24(5):855-866 Address: Univ. of California, Dept. of
Biological Sciences, Santa Barbara, CA 93106.
Chemical analysis of macroscopic aggregates and whole water samples
shows that 26-34% of total POC, N, protein, carbohydrate, lipid,
and particulate dry weight in surface waters of the Santa Barbara
Channel and 4-8% in the Gulf of California exist as particles of
marine snow >=3 mm in longest dimension. Twenty percent of these
aggregates in the Gulf of California and 5% in the Santa Barbara
Channel were of recognizable zooplankton origin. Macroscopic
aggregates from the Gulf of California had significantly lower C,
N, and protein content and significantly higher ash content than
the total particulate matter. Aggregates in both locations had
significantly higher C:N ratios than the total POM. Calculated
sinking rates of macroscopic aggregates indicate that marine snow
serves as a major source of vertical flux to the benthos. As
enrichment sites for nutritionally valuable substances, macroscopic
aggregates are rich food sources and significantly alter the
microscale distribution and composition of POM in neritic waters of
the pelagic zone.
Nutrients/Particulate matter/Carbon/Nitrogen/Marine
snow/Zooplankton/Proteins/Carbohydrates/Lipids/Chemical
analysis/macroscopic aggregates/neritic waters/enrichment
sites/ash/nutrition/marine snow/Santa Barbara Channel/Gulf of
California/marine biology/oceanography.

128. Howell DG (U. S. Geol. Surv., Menlo Park, CA). Eocene
paleogeography of southern California continental borderland
[abstract]. in Am. Assoc. Pet. Geol. Bulletin: Am. Assoc. Pet.
Geol., Soc. Econ. Paleontol. Mineral., Annu. Mtg. Abstr. 2. ; 1975.
p. p. 37-38.
fsub/stratigraphy/Eocene/paleogeography/San Nicolas Island/San
Miguel Island/Santa Rosa Island/Santa Cruz Island/San
Diego//sedimentation/continental
margin/turbidite/sandstone/conglomerate/faults/SRD.

129. Howell DG (U. S. Geol. Surv., Menlo Park, CA). Late
Miocene counterclockwise rotation of the south half of Santa Cruz
Island. Howell DG. in Aspects of the geol. hist. of the Calif.
Continental Borderland: Calif. Continental Borderland Symposium;
1975 Sep 22; Santa Cruz Island. : Am. Assoc. Pet. Geol., Pac.
Sect.; 1976. Misc. Publ. 24. p. 449-454.
13 refs., illus., sketch map.
fsub/tectonophysics/plate tectonics/Channel Islands/Santa Cruz

Island/movement/rotation/counterclockwise/Miocene/upper
Miocene/foiliation/interpretation/strike/faults/displacements/right
slip/East Santa Cruz basin fault/SRD/SRD.

130. Howell DG, McLean H (U. S. Geol. Surv., Menlo Park,
CA). Basin analysis of provincial lower and middle Miocene strata,
Santa Rosa and Santa Cruz islands, California [abstract]. Ujiie H,
Saito T. in Proceedings of the First international congress on
Pacific Neogene stratigraphy: First international congress on
Pacific Neogene stratigraphy; 1976 May 16; Tokyo. Tokyo: Sci.
Counc. Japan; 1977. p. 344-345.
fspub/stratigraphy/Miocene/sedimentary rocks/clastic
rocks/lithostratigraphy/structural geology/tectonics/Santa Cruz
Island/Santa Rosa Island/Neogene/Tertiary/lower Miocene/middle
Miocene/continental
borderland/lithofacies/basins/breccia/models/nearshore
environment/shelf environment/conglomerate/SRD.

131. Howell DG, McLean H (U. S. Geol. Surv., Menlo Park,
CA). Basin analysis of lower middle Miocene strata, Santa Rosa and
Santa Cruz islands, California [abstract]. in Am. Assoc. Pet.
Geol., Bull.: AAPG-SEPM annual meeting; 1977 Jun 12; Washington,
D.C. ; 1977. 61 (5). p. 796-797.
fspub/sedimentary petrology/sedimentary rocks/breccia/Miocene/Santa
Rosa Island/Santa Cruz
Island/stratigraphy/paleoenvironment/sedimentation/middle
Miocene/clastic rocks/terrigenous/lithofacies/environmental
analysis/paleocurrents/basins/lithostratigraphy/tectonics/structu
re/faults/SRD/ SRD.

132. Howell DG, McLean H, Vedder JG (U. S. Geol. Surv.,
Menlo Park, CA). Cenozoic tectonism on Santa Cruz Island. Howell
DG, AFFL: U. S. Geol. Surv., Menlo Park, CA. in Aspects of the
geol. hist. of the Calif. Continental Borderland: Calif.
Continental Borderland Symposium; 1975 Sep 22; Santa Cruz Island.
: Am. Assoc. Pet. Geol., Pac. Sect.; 1976. Misc. Publ. 24. p.
392-416. 40 refs., illus., block diags., sects., geol. sketch
maps.
fspubstructural geology/tectonics/evolution/southeast/Channel
Islands/Santa Cruz Island/Santa Cruz Island
Fault/Cenozoic/faults/SRD/SRD.

133. Howell DG, McLean H (U. S. Geol. Surv., Menlo Park,
CA). Middle Miocene paleogeography, Santa Cruz and Santa Rosa
islands. Howell DG, AFFL: U. S. Geol. Surv., Menlo Park, CA. in
Aspects of the geol. hist. of the Calif. Continental Borderland:
Calif. Continental Borderland Symposium; 1975 Sep 22; Santa Cruz
Island. : Am. Assoc. Pet. Geol., Pac. Sect.; 1976. Misc. Publ. 24.
p. 266-293.
16 refs., illus., block diags., sketch maps.
fspub/sedimentary petrology/sedimentary rocks/clastic
rocks/terrigenous/Miocene/southwest/Channel Islands/Santa Cruz
Island/Santa Rosa Island/paleogeography/transport/middle
Miocene/pyroclastics/conglomerate/sandstone/siltstone/lithofacies
/massive/unsorted/bedding/graded
bedding/paleocurrents/provenance/sedimentation/turbidity
currents/traction currents/SRD/SRD.

134. Howell DG, Stuart CJ, Platt JP, Hill DJ. Possible
strike slip faulting in the southern California borderland. Geology
(Boulder) 1974;2(2):93-98 sketch maps.
Proposed East Santa Cruz fault system, right slip, reconstruction
of Eocene-Miocene sedimentation and paleogeography; offshore

California. fspub/structural geology/Faults/south/Santa Cruz Island/San Miguel Island/San Nicolas Island/Santa Rosa Island/Tertiary/Santa Cruz Basin/paleogeography/sedimentation/reconstruction/Eocene/Poway Conglomerate/Miocene/San Onofre Breccia/displacements/Strike slip/East Santa Cruz Basin Fault/SRD.

135. Hurst RW, Wood WR, Hume M (Calif. State Univ., Dep. Geol., Los Angeles, CA). Geochemistry of the Conejo, Catalina Island and Santa Cruz Island volcanic suites [abstract]. in Abstracts with Programs, GSA: The Geological Society of America, Cordilleran Section, 78th annual meeting; 1982 Apr 19; Anaheim, CA. ; 1982. 14 (4). p. p. 174.

geochemistry/isotopes/igneous rocks/volcanic rocks/potassium/strontium/rubidium/iron/magmas/differentiation/continental borderland/Catalina Island/Santa Cruz Island/Conejo/major elements/SRD.

136. Beauchamp RM. San Clemente Island: remodeling the museum. Conservation and management of rare and endangered plants : proceedings of a California Conference on the Conservation and Management of Rare and Endangered Plants / edited by Thomas S. Elias ; foreward by Jim Nelson. Sacramento, Calif. : California Native Plant Society, c1987. 1987:p.575-578

Other-US Paper presented at a Conference on the "Conservation and Management of Rare and Endangered Plants," November 5-8, 1986, Sacramento, California. Includes references. Article. natural flora/endangered species/botanical surveys/california/AGRICOLA.

137. Shane SH, McSweeney D. Using photo-identification to study pilot whale social organization (SC/A88/P20). INDIVIDUAL RECOGNITION OF CETACEANS: USE OF PHOTO-IDENTIFICATION AND OTHER TECHNIQUES TO ESTIMATE POPULATION PARAMETERS. INCORPORATING THE PROCEEDINGS OF THE SYMPOSIUM AND WORKSHOP ON INDIVIDUAL RECOGNITION AND THE ESTIMATION OF CETACEAN POPULATION PARAMETERS.; REP. INT. WHALING COMM. (SPEC. ISSUE). 1990;(12):259-263.

Photo-identification of uniquely-marked individuals was the primary research tool used in studies of pilot whale (*Globicephala macrorhynchus*) social organization at Santa Catalina Island, California (1983-8) and the Big Island of Hawaii (1985-8). Pilot whales showed fairly high site fidelity, especially in Hawaii. Pod cohesiveness over time was marked in Hawaii but less evident at Catalina. Pods in both study areas were composed primarily of presumed adult females with juveniles and calves. Presumed adult males were rare, and when seen, did not associate with the same pod all the time. Pair-wise association analyses at Catalina showed some degree of social affiliation between some individuals. Thirty-four to 45% of pilot whales in the 2 study areas were identifiable which compares favorably with bottlenose dolphins (44%) but is lower than humpback whales (92%) and Risso's dolphins (67-95%). Despite some problems, photo-identification is a promising technique for studying pilot whale social organization. *Globicephala macrorhynchus*/photography/identification/INE/USA/California/ISE/Hawaii/social behaviour/ASFA.

138. SIMARD Y, MACKAS D L. MESOSCALE AGGREGATIONS OF EUPHAUSIID SOUND SCATTERING LAYERS ON THE CONTINENTAL SHELF OF VANCOUVER ISLAND CANADA. CAN J FISH AQUAT SCI 46 (7). 1989. 1238-1249.

DEP. FISHERIES AND OCEANS, INST. MAURICE-LAMONTAGNE, P.O. BOX 1000, MONT-JOLI, QUE. G5H 3Z4. BA. High frequency acoustics (104 kHz) and stratified (BIONESS) net

tows were used to map the vertical and horizontal distribution of macrozooplankton scattering layers on and seaward of the continental shelf off Vancouver Island, in June and August of 1986. The macrozooplankton scattering layers were dominated by euphausiids, primarily *Euphausia pacifica* and *Thysanoessa spinifera*. During both surveys, dense aggregations were found in the same two general regions. The first was along the shelf break, where highest biomass was observed (averages over a few kilometres of transect reaching to about 200 mg dry weight $\cdot m^{-3}$ = about 40 individuals $\cdot m^{-3}$ and > 4 g dry weight $\cdot m^{-2}$). A second, broader and more diffuse aggregation occupied the deeper southeast end of the shelf (area about 200 km², biomass 1-2 g $\cdot m^{-2}$). The scattering layers showed a consistent diel vertical migration. Daytime depth was deeper at the shelf break (.apprx. 150-200 m) than on the shelf (.apprx. 100-150 m) and occasionally extended to the bottom. These day-depths corresponded to the California Undercurrent waters of 6-7.degree. C, a salinity of 33.75-34.ppermill. and sigma-T > 26.5 . Distribution patterns were coincident with those of upwelled regions, high phytoplankton biomass, and high hake and herring biomass. They were also associated with the shelf break jet and the recurrent Tully eddy. There is a strong possibility of aggregation in restricted areas through the coupling of advection and vertical swimming behavior of the animals.

EUPHAUSIA-PACIFICA THYSANOESSA-SPINIFERA BIOMASS SWIMMING BEHAVIOR
ADVECTION HIGH FREQUENCY ACOUSTICS STRATIFIED NET TOW/Biosis.

139. Heinbokel JF. Studies on the Functional Role of Tintinnids in the Southern California Bight. I. Grazing and Growth Rates in Laboratory Cultures. *Marine Biology*;1978 VOL. 47, NO. 2
EnvBib/Grazing rate/Tintinnid/Growth rate/Laboratory culture/Southern California Bight/ENVIRONMENTAL BIBLIOGRAPHY.

140. Kats G, Thompson C. R., Kuby W. C. Improved ventilation of open top greenhouses,. *Acpa j*, nov 76, v26, n11, p1089 (2). .
Report No.: *77-001424. Univ of california, riverside,.
Open top chambers allow exposure of plants to more nearly ambient conditions and atmospheric control. however, as wind velocity increases and carries ambient air over the top of the chamber, eddy currents cause vertical mixing and contaminate the test atmosphere. an open top chamber with a baffle to reduce vertical mixing is described. more effort should provide an even better chamber in which the greenhouse effect is further minimized. (1 diagram, 1 graph).
Greenhouses/ventilation/greenhouse effect/humidity/atmospheric temperature/oxidants/pathology, plant-lab/air pollution damage/EnviroLine.

141. Willingham CR. The structural character of the western termination of the Transverse Range Province, California. *Geol. Soc. Am., Abstr. Programs.* 1979;11(3):p.135
Earth Sci. Assoc., Palo Alto, Calif., United-States The Geological Society of America, Cordilleran Section, 75th annual meeting, San Jose, Calif., April 9-11, 1979 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).
California/structural geology/tectonics/Pacific Coast/oceanography/continental shelf/Pacific Ocean/geophysical surveys/seismic surveys/Santa Barbara County/United States/Southern California/Transverse Ranges/Point Conception/Point Arguello/Santa Maria Basin/Santa Ynez Mountains/Santa Barbara Channel/reflection methods/seismic methods/structure/faults/folds/fault zones/Hosgri Fault/evolution/offshore/Northeast Pacific/Cenozoic/Phanerozoic/GEOREF.

142. Tyler JE, Preisendorfer BW. Transmission of energy within the sea. . The Sea 1962;1:397-451
NPS/Physical oceanography/oceanography.

143. Sette E, Isaacs JD. The changing Pacific Ocean in 1957 and 1958. CalCOFI Report 1958;7:13-217
NPS/Physical Oceanography/Oceanography.

144. Beatty SW, Licari DL. Invasion of fennel (*Foeniculum vulgare*) into shrub communities on Santa Cruz Island, California. Madrono 1992;39(1):54-66 SCIR/SBMNH.
fspub/fennel/restoration biology/management/Santa Cruz Island.

145. Kajimura H (Performer: National Marine Fisheries Service, Seattle, WA. Alaska Fisheries Science Center.) Fur Seal Investigations, 1989. Technical memo. ; 1990. Report No.: NOAATMNMFSFNWC190. 106p.
Contents: Population Assessment, Pribilof Islands, Alaska; Weights and sex ratios of northern fur seal pups 1989; Behavior and biology of northern fur seals, St. George Island; Census of northern fur seals on Bogoslof Island; Population and behavioral studies, San Miguel Island, California; and Entanglement studies, juvenile male roundups St. Paul Island, Alaska.
Pribilof Islands/Alaska/Census/Abundance/Breeding/Saint George Island/Maps/Weight Mass/Sex/Animal behavior/San Miguel Island/California/Bogoslof Island/Populations/Seals Mammals/Conservation/Northern fur seal/Entanglement/Callorhinus ursinus/NTIS.

146. Brink KH, Beardsley RC, Niller PP, Abbott M, Huyer A, Ramp S, Stanton T, Stuart D. Statistical properties of near-surface flow in the California coastal transition zone. J. GEOPHYS. RES. (C OCEANS 1991;VOL. 96, NO. C8:pp. 14,693-706 Woods Hole Oceanogr. Inst., Woods Hole, MA 02543, USA.
During the summers of 1987 and 1988, 77 near-surface satellite-tracked drifters were deployed in or near cold filaments near Point Arena, California (39 degree N), and tracked for up to 6 months as part of the Coastal Transition Zone (CTZ) program. The CTZ drifter results show that the California Current can be characterized in summer and fall as a meandering coherent jet which on average flows southward to at least 30 degree N, the southern end of the study domain. From 39 degree N south to about 33 degree N, the typical core velocities are of O(50 cm/s) and the current meanders have alongshore wavelengths of O(300 km) and onshore-offshore amplitude of O(100-200 km). The lateral movement of this jet leads to large eddy kinetic energies and large eddy diffusivities, especially north of 36 degree N. The initial onshore-offshore component of diffusivity is always greater than the alongshore component in the study domain, but at the southern end, the eddy diffusivity is more isotropic, with scalar single particle diffusivity ($K_{xx} + K_{yy}$) of O(8×10^7 cm²/s). The eddy diffusivity increases with increasing eddy energy.
near-surface layer/coastal upwelling/seasonal variations/water masses/boundary currents/water temperature/statistical analysis/coastal jets/drifters/thermal structure/INE, California Current/surface circulation/ocean currents/oceanic eddies/filaments/Oceanic Abstracts.

147. Lynn RJ, Simpson JJ. The California Current system: The seasonal variability of its physical characteristics. J. GEOPHYS. RES. (C OCEANS 1987;VOL. 92, NO. C12:pp. 12947-966
Southwest Fish. Cent., NMFS, NOAA, La Jolla, CA 92037, USA. The

seasonal variation of the physical characteristics and of large-scale current patterns of the California Current system is examined using harmonic analysis applied to the 23 years of California Cooperative Oceanic Fisheries Investigations data collected between 1950 and 1978. The amplitude and phasing of seasonal variation in dynamic height and the overall standard deviation of dynamic height define three domains: oceanic, coastal, and an intervening transition zone. The transition zone is a broad band centered approximately 200-300 km offshore and parallel to the coast in which the seasonal range of dynamic height is a relative minimum and the standard deviation is a maximum. The transition zone is coincident with the core of flow of the California Current. A strong interaction between the core of the California Current and the mesoscale eddy field is evident. INE, California Current/dynamical oceanography/dynamic height/ mesoscale eddies/current data/statistical analysis/seasonal variations/ocean currents/OceanAbstracts.

148. Brown DA, Gossett RW, Hershelman GP, Ward CF, Westcott AM, Cross JN. Municipal wastewater contamination in the Southern California Bight. Part 1. Metal and organic contaminants in sediments and organisms. MAR. ENVIRON. RES 1986;VOL. 18, NO. 4:pp. 291-310
Southern California Coast. Water Res. Proj., 646 West Pacific Coast Highw., Long Beach, CA 90806, USA.
Sediments and organisms were examined for concentrations of organic and metal contaminants from near the Los Angeles County (JWPCP) municipal outfall at Palos Verdes (PV) station 7-3, the Los Angeles City (Hyperion) municipal outfall at Santa Monica Bay (SMB) station 6-4 and reference station SMB 2-3 near Malibu Beach. Mass emission rate of copper was almost twice as high from Hyperion as from JWPCP, while mass emission rate of DDTs was an order of magnitude higher from JWPCP than from Hyperion. The degree of contamination of organisms by DDTs increased with proximity to PV7-3 but contamination by PCBs was similar at PV 7-3 and SMB 6-4.
metals/wastewater discharges/outfalls/contamination/PCB compounds/Southern California Bight/PollutionAbstracts.

149. Clarke WD, M. Neushul. Subtidal ecology of the southern California Coast. T. A. Olson and F. J. Burgess. Pollution and Marine Ecology. New York: Interscience Publishers, John Wiley and Sons; 1967.
Reports the results of a two year study of subtidal communities associated with kelp beds on the southeastern portion of Anacapa Island. An ecological survey line was established perpendicular to the bathymetric contours, extending from the intertidal zone to a depth of 38 m. The nature of the bottom substrata and the distributions of the major plants along the survey line along with observations of conspicuous invertebrates was reported. .
Marine algae, substrate, invertebrates, subtidal, Anacapa Island.

150. OCEANOGRAPHIC SERVICES I. STUDY OF OCEAN CURRENTS AFFECTING PROPOSED PIPELINES IN SANTA BARBARA, EASTERLY ROUTE. REPORT 222-2A. ; 1971B. WAVES/PHYSICAL OCEANOGRAPHY/OCEANOGRAPHY.

151. Alldredge AL. Aggregation of spawning appendicularians in surface windrows. Bull. Mar. Sci. 1982;32:250-254
aggregation/distribution/surface windrows appendicularians/San Pedro Basin/marine biology/oceanography.

152. Ireland WJ. Ninth annual report of the State Mineralogist, for the year ending December 1, 1889. Calif. State Min. Bur., State Mineral., Annu. Rep. 1890;9:1-352

illus. (incl. sketch map).
economic geology/mineral resources/auriferous
gravels/cement/clays/coal/counties/Channel Islands/areal
geology/Ventura County/San Nicolas Island/Santa Cruz Island/SRD.

153. Jackson PJ. Effects of debris slides on distribution of
grassland species: Santa Cruz Island, CA [dissertation]. : UCLA;
1987. 106 p. Masters, illus.
fspub/debris slides/grassland species/Santa Cruz Island/SRD.

154. Junger A (U. S. Geol. Surv., Menlo Park, CA). Offshore
structure between Santa Cruz and Santa Rosa islands. Howell DG,
AFFL: U. S. Geol. Surv., Menlo Park, CA. in Aspects of the geol.
hist. of the Calif. Continental Borderland: Calif. Continental
Borderland Symposium; 1975 Sep 22; Santa Cruz Island. : Am. Assoc.
Pet. Geol., Pac. Sect.; 1976. Misc. Publ. 24. p. 418-426. sects.,
sketch map.
structural geology/faults/Channel Islands/Santa Cruz Island/Santa
Rosa Island/offshore/Santa Rosa Island Fault/Santa Cruz Island
Fault/Carrington Basin/extent/geophysical surveys/seismic
surveys/basins/SRD/SRD.

155. Kamerling MJ, Luyendyk BP (Univ. Calif., Dep. Geol.
Sci., Santa Barbara, CA). A model for Neogene tectonics of the
inner southern California borderland constrained by paleomagnetic
data [abstract]. in Abstracts with Programs, GSA: The Geological
Society of America, 92nd annual meeting; 1979 Nov 5; San Diego, CA.
; 1979. 11 (7). p. p. 453.
fspub/structural geology/tectonics/Pacific
Coast/tectonophysics/plate tectonics/paleomagnetism/Miocene/Los
Angeles County/Anacapa Island/Santa Cruz Island/San Miguel
Island/Santa Catalina Island/Santa Barbara
Island/shear/rotation/igneous rocks/Neogene/Tertiary/Pacific
Plate/North American Plate/SRD.

156. Kamerling MJ, Luyendyk BP, Powell TS, Terres RR (Univ.
Calif., Dep. Geol. Sci., Santa Barbara, CA,). Tectonic rotation of
the northern Channel Islands of the Southern California borderland
[abstract]. in Eos Transactions, AGU: American Geophysical Union;
1980 Dec 8; San Francisco, CA. ; 1980. 61 (46). p. p. 1125.
fspub/tectonophysics /plate tectonics/Channel Islands/northern
Channel Islands/Santa Monica Mountains/Anacapa Island/San Miguel
Island/Santa Cruz Island/Santa Rosa
Island/Miocene/Neogene/Tertiary/Eocene/Paleogene/Transverse
Ranges/western Transverse Ranges/fractures/faults/East Pacific
Rise/North American Plate/SRD.

157. Keller B, Prothero WAJ, Trehu A, Stierman DJ (Univ.
Calif. Santa Barbara, Dep. Geol. Sci., Santa Barbara, CA; U. S.
Geol. Surv.; Univ. Calif. Riverside, Dep. Earth Sci.) 1982 Santa
Barbara, California, land sea seismic refraction experiment
[abstract]. in Eos Transactions, AGU: American Geophysical Union;
1982 Dec 7; San Francisco, CA. ; 1982. 63 (45). p. p. 1037.
structural geology/tectonics/geophysical surveys/seismic
surveys/Santa Barbara Channel/Santa Cruz Island Fault/Anacapa
Passage/traveltime/refraction methods/ocean bottom seismographs/Mid
Channel Fault/Diablo Arch/Pn waves/body waves/elastic waves/San
Rafael Mountains/Santa Ynez Mountains/Santa Ynez Fault/Santa Cruz
Island/SRD.

158. Keller B, Prothero WAJ, Trehu A, Stierman DJ. Ray trace
model of the Santa Barbara, California, land sea seismic refraction
experiment. Geophysical Research Letters 1983;10(10):933-936

AUTH AFFL: Univ. Calif., Santa Barbara, CA; U. S. Geol. Surv.; 17 refs., illus., sketch map.

Significant lateral P velocity variations extending to at least 15 km depth. Most major faults mapped on the surface have a signature in the deeper crustal structures. A deep low-velocity trough underlies the Montalvo trend in the Santa Barbara Channel. A narrow high-velocity ridge is associated with basement rocks south of the Santa Cruz Island fault. Lateral velocity variations suggest that earthquake hypocenters and fault plane solutions calculated assuming a laterally homogeneous crust-model may be significantly in error.--Modified journal abstract.

seismology/crust/oceanography/continental shelf/Pacific Ocean/geophysical surveys/seismic surveys/velocity structure/Santa Barbara Channel/Transverse Ranges/raypaths/geophysical profiles/refraction methods/deep seismic sounding/deep seated structures/P waves/body waves/elastic waves/faults/fault planes/earthquakes/continental borderland/discontinuities/low velocity zones/North American Pacific/Santa Cruz Island/SRD.

159. Keller B, Prothero WAJ (Univ. Calif., Dep. Geol. Sci., Santa Barbara, CA). Western Transverse Ranges crustal model [abstract]. in Eos Transactions, AGU: American Geophysical Union; 1984 Dec 3; San Francisco, CA. ; 1984. 65 (45). p. p. 996.

seismology/crust/velocity structure/Transverse Ranges/reflection/Santa Barbara/Borderland/Coast Ranges/Santa Barbara Channel/Santa Cruz Island fault/East Pacific Rise/SRD.

160. Beatty SW. Mass movement effects on grassland vegetation and soils on Santa Cruz Island, California. Ann Assoc Am Geogr. Washington, D.C. : The Association. Sept 1988. 1988;78(3):p.491-504

Other-US Includes references. Article. vegetation/grasslands/botanical composition/environmental factors/mass movements/plant community analysis/plant competition/soil properties/islands/california/AGRICOLA.

161. Cailliet GM, Ebeling AW. The vertical distribution and feeding habits of two common midwater fishes (*Leuroglossus stilbius* and *Stenobranchius leucopsarus*) off Santa Barbara. REP. CCOFI 1990;31:106-123.

Leuroglossus stilbius (Bathylagidae) was abundant in the nearshore Santa Barbara Basin (SBB), but less so in the more offshore Santa Cruz Basin (SCB). *Stenobranchius leucopsarus* (Myctophidae) was abundant in both basins. *L. stilbius* is adapted morphologically to feed by suction and to eat smaller, less active organisms. *S. leucopsarus* is better adapted to feed by grasping, and to eat larger, faster, and more elusive prey. In the SBB, *L. stilbius* fed, mostly at night in surface waters, on larvaceans and salps all year, reflecting the seasonally consistent abundance of these prey items. In the SCB, it fed less intensely, mostly at night in surface waters, and its diet varied with the seasonal abundance of its gelatinous prey. *S. leucopsarus* fed mainly on crustaceans, and it did not exhibit a distinct chronology. It ate similar prey all year in both basins, but euphausiids dominated the diet when they were most abundant. Thus *L. stilbius* is well adapted to inshore, eutrophic midwater habitats.

vertical distribution/feeding behaviour/*Leuroglossus stilbius*/*Stenobranchius leucopsarus*/abundance/INE/USA/California/Santa Barbara/circadian rhythms/ASFA.

162. KUSTAS W P, CHOUDHURY B J, MORAN M S, REGINATO R J,

JACKSON R D, GAY LW, WEAVER H L. DETERMINATION OF SENSIBLE HEAT FLUX OVER SPARSE CANOPY USING THERMAL IR DATA. AGRIC FOR METEOROL44 (3-4). 1989. 197-216. USDA-ARS HYDROL. LAB., NAT. RESOUR. INST., BELTSVILLE, MD. 20705. BA. Surface temperatures, T_s , were estimated for a natural vegetative surface in Owens Valley, California [USA], with infrared thermometric observations collected from an aircraft. The region is quite arid and is composed primarily of bushes (.apprx.30%) and bare soil (.apprx.70%). Application of the bulk transfer equation for the estimation of sensible heat, H , gave unsatisfactory values when compared to Bowen ration and eddy correlation methods over a particular site. This was attributed to the inability with existing data to properly evaluate the resistance to heat transfer, r_{ah} . To obtain appropriate r_{ah} -values the added resistance to heat transfer, k_B-1 , was allowed to vary although there is both theoretical and experimental evidence that k_B-1 for vegetative surfaces can be treated as constant. The present data indicate that for partial canopy cover under arid conditions k_B-1 may be a function of T_s measured radiometrically. The equation determining k_B-1 was simplified and tested over another arid site with good results; however, this had a limited data set (i.e., 6 data points). The dimensionless k_B-1 equation is simplified for use over full canopy cover and is shown to give satisfactory estimates of H over a fully-grown wheat crop. WHEAT CROP VEGETATION BUSHES SURFACE TEMPERATURE CALIFORNIA USA/Biosis.

163. Susuki T, Stadum CJ. A Neogene section, northeastern San Clemente Island, California. Los Ang. Cty., Nat. Hist. Mus., Contrib. Sci. 1978(299) Monographic; Serial B; Bibliography and Index of Geology (1969-present). California/stratigraphy/Neogene/Mollusca/biostratigraphy/assemblages/Mammalia/D esmostylia/Los Angeles County/Monterey Formation/United States/San Clemente Island/Tertiary/Cenozoic/lithostratigraphy/sandstone/clastic rocks/faunal list/Chondrichthyes/Pisces/Osteichthyes/Vertebrata/GEOREF.

164. Uchupi E. Submarine geology os the Santa Rosa-Cortez Ridge. J. Sediment Petrol. 1961;31:534-545
NPS/Physical oceanography/oceanography/currents.

165. Shepard FP. Longshore current observations in southern California. U.S. Army Corps of Engineers, Beach erosion Board Technical Memorandum 1950;13:54 NPS/Physical Oceanography/Oceanography/Currents.

166. Pinter N, Sorlien C. Evidence for latest Pleistocene to Holocene movement on the Santa Cruz Island fault, California. Geology 1991;19:909-912 SCIR/SBMNH.
fspub/geology/Santa Cruz Island/fault/earthquake.

167. Clark RA, Halvorson WL, Sawdo AA, Danielsen KC (Performer: California Univ., Davis. Inst. of Ecology. Funder: National Park Service, San Francisco, CA. Western Region.) Plant Communities of Santa Rosa Island, Channel Islands National Park. Technical rept. ; 1990. Report No.: TR42. 109p. Sponsored by National Park Service, San Francisco, CA. Western Region. . A survey of the plant communities on Santa Rosa Island, Channel Islands National Park, was conducted from January through July 1988. Vegetation data were collected at 296 sites using a releve technique. The areal extent of each community was mapped on USGS 7.5' topographic maps, and digitized for GIS manipulation. The description of the communities presented here provides the first

quantitative analysis of the vegetation of Santa Rosa Island, and provides a baseline against which future comparisons of the condition of vegetation resources can be made. Santa Rosa Island has a grazing history that spans nearly 150 years. A number of insular endemic plants occur on the island, some are apparently quite limited in distribution and were not encountered in the vegetation study. Management of the island to preserve viable populations of the endemics, and to allow for the restoration of natural plant assemblages will require the removal of alien herbivores, and a complex active restoration scheme. A long-term commitment by NPS managers of both monies and personnel are necessary to achieve these goals. The success of the endeavour will be a great accomplishment in ecosystem restoration. Santa Rosa Island/Ranches/Land use/Grazing land/Vegetation/Baseline measurements/Permits/Hunting/Ecosystems/Plant communities/Channel Islands National Park/Natural resources management/NTIS.

168. Haidvogel DB, Beckmann A, Hedstroem KS. Dynamical simulations of filament formation and evolution in the coastal transition zone. J. GEOPHYS. RES. (C OCEANS 1991;VOL. 96, NO. C8:pp. 15,017-040
Inst. Mar. and Coast. Sci., Rutgers Univ., New Brunswick, NJ, USA. Using the semispectral primitive equation model of Haidvogel et al. (1991), the evolution of a forced, surface-intensified, eastern boundary current is studied in the presence of both finite-amplitude topography and irregular coastline geometry. The model domain is 1000 km in alongshore length, and extends on average 700 km in the cross-shelf direction. A representative cape, as well as smoothed continental shelf-slope topography, are included. The model is forced by inclusion of nudging terms in the equations of motion which relax the fluid system back to a prescribed reference state on a time scale of 45 days. The reference state chosen is a broad, geostrophically balanced, equatorward flow having a maximum current at the surface of 0.45 m/s and a transport of approximately 10 Sv. No explicit wind forcing is included. Initialized with the smooth surface current, the model quickly approaches a turbulent, time-dependent equilibrium featuring an intense, meandering alongshore jet with local velocities of 0.8-1.0 m/s. A deep, poleward undercurrent also forms. Subsequent interaction with the protruding cape geometry causes an offshore deflection in the steepening frontal meanders, some of which produce elongated filaments which penetrate significant distances (400-500 km) offshore.
eastern boundary currents/dynamics/modelling/coast effect/continental slope/bottom topography effects/equations of motion/transport processes/current meandering/vertical water movement/heat transport/ offshore/oceanic eddies/INE, California
Current/hydrodynamics/under currents/coastal upwelling/coastal transition zones/filaments/Oceanic Abstracts.

169. Send U. The origin of eddy heat fluxes in the northern California upwelling regime. J. GEOPHYS. RES. (C OCEANS 1989;VOL. 94, NO. C1:pp. 871-876 Cent. Coast. Stud., Scripps Inst. Oceanogr., La Jolla, CA 92093, USA. Observed eddy heat fluxes, i.e., covariances between heat content and horizontal currents, are analyzed with moored data from the Coastal Ocean Dynamics Experiment. It is demonstrated that much of each sampled covariance arises from the separate correlations of currents and temperature with the upwelling variability, which is attributed to the particular warming and cooling processes present. Thus a large part of the observed eddy heat fluxes is wind driven. The remainder is consistent with being largely statistical noise in the observed covariance between those parts of the flow and temperature which

are not correlated with the upwelling. This also suggests that the wind-driven part alone might be a better estimate of the ensemble average eddy heat flux. heat transfer/eddy flux/coastal upwelling/INE, USA, California/ oceanographic data/water currents/water temperature/wind-driven circulation/CODE/OceanAbstracts.

170. Bracewell LW, Selleck RE, Carter R. Contribution of wastewater discharges to ocean surface particulates. 51st annual conference of the Water Pollution Control Federation Water Pollution Control Federation. Journal 1980 Aug;52(8):2230-2245 Swanson-Oswald Assoc., San Francisco, CA Water Pollution Control Federation G (GENERAL OR REVIEW).

A survey in the Southern California Bight indicated that much of the floatable particulates in the vicinity of primary treatment outfalls-mostly composed of grease and wax-originated in wastewater. These particulates also contained appreciable concentrations of coliform bacteria. The particulates from primary effluents had large proportions of unsaturated 18-carbon fatty acids, whereas secondary effluent particulates resembled open-ocean particulates in proportions of fatty acids. Larger particulates were quickly dispersed. Surface concentrations of ≤ 3 -mg hexane-extractable matter/m² probably are aesthetically acceptable. AM. Pacific Ocean/Seawater/Particulates/Marine environments/Wastewater discharges/Outfalls/Primary treatment/Coliforms/Bacteria/Surveys/California Coast/US West Coast/floatable particulates/Southern California Bight/PollutionAbstracts.

171. Dawson EY. Contributions toward a marine flora of the southern California Channel Islands. ; 1949. (Allan Hancock Foundation Occasional Papers; 8 (1-57)). Report of the partial results of a phycological survey of the Southern California Islands. Provides an accounting of some of the more outstanding distributional records as well as new species descriptions. A total of 197 species of benthic algae were reported by Dawson to have been identified at the writing of this paper, but he reports on only a small fraction of these. Marine Algae.

172. OWEN RW. EDDIES OF THE CALIFORNIA CURRENT SYSTEM: PHYSICAL AND ECOLOGICAL CHARACTERISTICS. THE CALIFORNIA CHANNEL ISLANDS: PROCEEDINGS OF A MULTIDISCIPLINARY SYMPOSIUM. 1980 SOUTHERN CALIFORNIA BIGHT/CURRENTS/PHYSICAL OCEANOGRAPHY/OCEANOGRAPHY.

173. Alldredge AL, Cohen Y. Can microscale chemical patches persist in the sea? Microelectrode study of marine snow, fecal pellets. Science 1987;235:689-691 patches/distribution/marine snow/fecal pellets/Santa Barbara Channel/marine biology/marine chemistry/oceanography.

174. Kies RP, Abbott PL (San Diego State Univ., Dep. Geol. Sci., San Diego, CA). Paleogene conglomerate assemblages of the Southern California continental borderland [abstract]. in Abstracts with Programs, GSA: The Geological Society of America, Cordilleran Section, 78th annual meeting; 1982 Apr 19; Anaheim, CA. ; 1982. 14 (4). p. p. 178. sedimentary petrology/sedimentary rocks/clastic rocks/conglomerate/Santa Barbara County/San Diego County/Poway Dacite/Owl Creek Dacite/Las Palmas Dacite/Black Dacite/Mount Soledad Formation/continental borderland/Paleogene/Tertiary/San Miguel Island/Santa Cruz Island/Santa Ana Mountains/San Diego/marine environment/fluvial environment/deltaic

environment/dacite/dacites/volcanic rocks/phenocrysts/SRD.

175. Kies RP, Abbott PL. Sedimentology and paleogeography of lower Paleogene conglomerates, Southern California continental borderland. in: Geology and mineral wealth of the California Transverse Ranges. Fife, D. L., Minch, J. A. ed. Santa Ana, CA: South Coast Geol. Soc.; 1982. p. 337-349. 23 refs., illus., strat. cols., sects., geol. sketch maps. (Annual symposium and guidebook; no. 10).

AUTH AFFIL: Union Oil Co., Anchorage, AK; San Diego State Univ. paleogeography/Paleogene/sedimentary rocks/clastic rocks/conglomerate/stratigraphy/Tertiary/lower Paleogene/Transverse Ranges/Channel Islands/rhyolite/rhyolites/volcanic rocks/clasts/Santa Ana Mountains/Valle de Las Palmas/San Miguel Island/Santa Cruz Island/sedimentary petrology/lithostratigraphy/correlation/SRD.

176. Kies RP, Abbott PL, Filewicz M (San Diego State Univ., San Diego, CA; Union Oil Co., United-States). Sedimentology of late Paleocene through middle Eocene Poway clast-bearing marine depositional system, southern California borderland [abstract]. in Amer. Assoc. Pet. Geol. Bulletin: AAPG-SEG-SEPM Pacific Section meeting; 1982 Apr 14; Anaheim, CA. ; 1982. 66 (10). p. 1692-1693. stratigraphy/Paleogene/sedimentation/processes/marine sedimentation/sedimentary rocks/clastic rocks/lithofacies/Santa Barbara County/San Diego County/Poway Conglomerate/Mount Soledad Formation/continental borderland/Santa Cruz Island/San Miguel Island/upper Paleocene/Paleocene/Tertiary/lower Eocene/Eocene/middle Eocene/conglomerate/SRD.

177. Klein PA. Terracette morphology and soil characteristics, Santa Cruz Island, CA [dissertation]. : UCLA; 1987. 125 p. Masters, illus.,map, photos. fspub/soil characteristics/terracette morphology/Santa Cruz Island/SRD.

178. Alexander GV, Young DR, McDermott DJ, Sherwood MJ, Mearns AJ, Lunt OR. Marine organisms in the Southern California Bight as indicators of pollution. 1st International Conference Heavy Metals in the Environment [Symp. Proc.] 1975;2:955-971. Eganhouse/chemical/oceanography/water pollution/trace metal/mussel/microstomus/fin/erosion/trace element/MINERALS MANAGEMENT SERVICE.

179. Lamar DL, Merifield PM (Calif. Earth Sci. Corp., Santa Monica, CA). Application of ERTS images to study of active and potentially active faults, Santa Barbara area, California [abstract]. in Abstract with Programs, GSA: The Geological Society of America, Cordilleran Section, 71st annual meeting; 1975 Mar 25; Los Angeles, CA. ; 1975. 7 (3). p. p. 339. geophysical surveys/remote sensing/San Andreas Fault/Big Pine Fault/Santa Ynez Fault/More Ranch Fault/Santa Cruz Island Fault/Santa Rosa Island Fault/United States/imagery/satellite/ERTS/applications/faults/movement/extent /active faults/SRD/SRD.

180. Langston RL. The Rhopalocera of Santa Cruz Island, California. J. Res. Lepid. (Santa Barbara, CA) 1979 Mar;18(1):24-35 Presented at the Multidisciplinary Symposium on the California Islands, Santa Barbara, Calif. (28 Feb. 1978); 15 refs. fspub/Rhopalocera/Santa Cruz Island/insects/SRD/SRD.

181. Laughrin LL. The island fox: a field study of its behavior and ecology [dissertation]. : UCSB; 1977. 83 p. Doctoral, illus.
fpub/island fox/Urocyon littoralis santacruzae/Santa Cruz Island/SRD.

182. Alexander LM, Sherman eds. K. Changes in the biomass of the California current ecosystem. Variability and Management of Large Marine Ecosystems: Am. Assoc. Adv. Sci. Selected Symp. 1986;(9):33-54.
text/birds/10/California current/physical oceanography/MINERALS MANAGEMENT SERVICE.

183. Leishman NJ. Effects of feral animals on woody vegetation: Santa Cruz Island, CA [dissertation]. : UCLA; 1981. 71 p. Masters, illus.
fpub/feral animal/woody vegetation/geography/Santa Cruz Island/SRD.

184. Bartley DM, Kent DB. Genetic structure of white seabass populations from the southern California Bight region: Applications to hatchery enhancement. REP. CCOFI 1990;31:97-105.
Although some fisheries biologists have expressed concern over the practicality of hatchery enhancement of marine fisheries, hatchery technology has advanced significantly during the 1980s. Marine hatchery enhancement programs are now addressing ecology and genetics as well as animal husbandry. To describe the genetic structure of white seabass (*Atractoscion nobilis*) and apply the information to hatchery enhancement, we used starch-gel electrophoresis to assess the level and distribution of genetic variability of seabass from nine areas in the southern California Bight. Average heterozygosity per sample estimates ranged from 0.02 to 0.064. Indices of genetic identity between samples were greater than 0.99. Because only 3% of the total gene diversity was due to intersample differences, and because an estimate of number of migrants exchanging genes among samples was approximately 9 per generation, we believe little population subdivision exists within the study area.
Atractoscion nobilis/natural populations/cultured organisms/ISE/population genetics/ASFA.

185. PELAEZ J. SATELLITE IMAGES OF A RED TIDE EPISODE OFF SOUTHERN CALIFORNIA USA. OCEANOL ACTA10 (4). 1987. 403-410. SCRIPPS INSTITUTION OCEANOGRAPHY, LA JOLLA, CALIF. 92093. BA. The evolution of a "red tide" episode, and of related water structures, was observed using satellite images of phytoplankton pigments and of sea-surface temperature. Intense phytoplankton growth started at coastal upwelling centres. The very high pigment concentrations observed along a segment of the coast apparently resulted from a combination of in situ growth and transport of a high-pigment "attached" eddy into that coastal area by ocean circulation. Onshore advection of warm water dissipated the "red tide". In addition, the sequence of satellite images allowed the visualization of some oceanographic processes and showed potential for short-term oceanic forecasting.
DINOFLLAGELLATE GROWTH PIGMENT TEMPERATURE COASTAL UPWELLING OCEANIC FORECASTING/Biosis.

186. Weser OE. Oil trapping characteristics of turbidites. Bouma, A. H., Moore, G. T., Coleman, J. M. Framework, facies, and oil-trapping characteristics of the upper continental margin. Am.-

Assoc.-Pet.-Geol.,-Stud.-Geol. 1978(7):p.227 Scripps Inst.
Oceanogr., La Jolla, Calif., United-States Analytic; Serial B;
Bibliography and Index of Geology (1969-present).
California/economic geology/petroleum/sedimentary rocks/clastic
rocks/turbidite/sedimentation/environment/deep sea
environment/occurrence/traps/United States/Southern California/Los
Angeles Basin/Ventura Basin/Santa Barbara Basin/Santa Monica
Basin/San Pedro Basin/environmental analysis/distal facies/proximal
facies/electrical logging/well logging/sandstone/grain
size/sedimentary structures/correlation/gravity structures/GEOREF.

187. United States Coast and Geodetic Survey. Density of sea
water at tide stations Pacific Coast. Special Publication 1954;281
NPS/Physical oceanography/oceanography/currents.

188. Shepard FP, Inman DL. Nearshore water circulation
related to bottom topography and wave refraction. Trans. American
Geophysical Union 1950;31:196-212

189. Beatty SW (Dept. Geography/Univ. of Colorado). The
interaction of grazing, soil disturbance, and invasion success of
fennel on Santa Cruz Island, CA. Boulder, CO; 1991. Report No.:
Final Report to The Nature Conservancy. 27 pp. SCIR/TNC.
fspub/fennel/management/restoration biology/conservation/feral
animals/soil.

190. Fishery Bulletin 1990;88(3)
Also available from Supt. of Docs. See also PB90-268293. PC A09.
Performer: National Marine Mammal Lab., Seattle, WA
Contents: Effects of water temperature on size and biochemical
composition of winter flounder *Pseudopleuronectes americanus* at
hatching and feeding initiation; Blood chemistry of the windowpane
flounder *Scophthalmus aquosus* in Long Island Sound: Geographical,
seasonal, and experimental variations; Reproduction, movements, and
apparent population dynamics of the Atlantic threadfin *Polydactylus*
octonemus in the Gulf of Mexico; Feeding ecology of late-larval and
early-juvenile walleye pollock *Theragra chalcogramma* from the Gulf
of Alaska in 1987; Variation of egg size of walleye pollock
Theragra chalcogramma with a preliminary examination of the effect
of egg size on larval size; Estimating relative survival rate for
two groups of larval fishes from field data: Do older larvae
survive better than young; Horizontal and vertical movements of
yellowfin and bigeye tuna associated with fish aggregating devices;
and Food habits of California sea lions *Zalophus californianus* at
San Clemente Island, California, 1981-86. Ocean
temperature/Flatfishes/Biochemistry/Reproduction
Biology/Populations/Ecology/Eggs/Mexico Gulf/Long Island
Sound/Larvae/Survival/Tunas/Food habits/California/Marine
fishes/Fisheries/Marine biology/Announcement bulletins/*Scophthalmus*
aquosus/Sea lions/NTIS.

191. Huyer A, Kosro PM, Fleischbein J, Ramp SR, Stanton T,
Washburn L, Chavez FP, Cowles TJ, Pierce SD, Smith RL. Currents and
water masses of the coastal transition zone off northern
California, June to August 1988. J. GEOPHYS. RES. (C OCEANS
1991;VOL. 96, NO. C8:pp. 14,809-831
Coll. Oceanogr., Oregon State Univ., Corvallis, OR 97331, USA. In
summer 1988, repeated mesoscale surveys of a grid extending 200 km
offshore between 37 degree N and 39 degree N in the coastal
transition zone off northern California were made, obtaining
continuous acoustic Doppler current profiler data and conductivity-
temperature-depth data at standard stations 25 km apart on
alongshore sections 40 km apart. All surveys showed a baroclinic

equatorward jet, with core velocities of > 50 cm/s at the surface decreasing to about 10 cm/s at 200 m, a width of 50-75 km and a baroclinic transport of about 4 Sv. The core of the jet lay between the 8.6 and 9.4 m σ_{θ} contours of geopotential anomaly (relative to 500 dbar). Three current meter moorings, deployed at 25-km separation across the jet at the beginning of the survey sequence, provided time-series of the velocity; throughout the 37-day deployment, at least one mooring was within the core defined by the 8.6 and 9.4 m σ_{θ} contours. The subsurface waters adjacent to the continental margin were warmer and more saline than those offshore, indicating net northward advection by the California Undercurrent over the inshore 100 km and equatorward advection farther from shore.

current profiles/mesoscale eddies/coastal upwelling/offshore/near-surface layer/baroclinic motion/jets/seasonal variations/surface circulation/INE, USA, California, Point Arena/water masses/summer/thermal structure/coastal transition zones/filaments/Oceanic Abstracts.

192. Huyer A, Kosro PM. Mesoscale surveys over the shelf and slope in the upwelling region near Point Arena, California. J. GEOPHYS. RES. (C OCEANS 1987;VOL. 92, NO. C2:pp. 1655-1681 Coll. Oceanogr., Oregon State Univ., Corvallis, OR 97331, USA. Repeated mesoscale surveys of a 40-km-wide, 100-km-long, coastal region near Point Arena, California, were conducted during the upwelling season (April-August) in 1981 and 1982. Each survey included conventional conductivity-temperature-depth casts at standard locations over the continental shelf and slope between 38 degree N and 39 degree 10'N, and continuous operation of a Doppler acoustic log to obtain velocity profiles in the 20- to 150-m depth range. "Synoptic" surveys covered the entire grid in 2-3 days. Circulation patterns during all but one of the surveys were very complex and included meandering equatorward flow, cyclonic and anticyclonic eddies, and inshore countercurrents. Overall average fields are relatively simple. They show broad equatorward surface flow, a very weak inshore countercurrent, and a definite poleward undercurrent at the shelf break. INE, USA, California, Point Arena/continental shelves/coastal upwelling/mesoscale features/CTD observations/velocity profiles/ ocean circulation/coastal currents/shelf dynamics/dynamical oceanography/continental slope/Coastal Ocean Dynamics Experiment/OceanAbstracts.

193. Anonymous. Californians turn refuse to fuel oil. SOLID WASTES MANAGEMENT REFUSE REMOVAL JOURNAL 1977 Dec;20(12):50-51. A facility designed to recover 42 gal of fuel oil, 133 lb of ferrous metal, 8 lb of nonferrous metal, and 100 lb of glass from each ton of municipal refuse is described. A 200-TPD demonstration plant in El Cajon, California, uses the Occidental flash pyrolysis technology, which involves heating the organic fraction of the refuse to 950degF in a noncombusting, inert N environment to yield char, gasses, and fuel oil. Refuse is 1st shredded coarsely, ferrous metal removed magnetically, and most of the inorganic material separated by air classification in a N environment. The organic fraction is dried, the remaining inorganic removed in a screen and an air table, and the organic material put through a secondary shredder. Light particles are combined with the secondary shredder output and stored as feedstock for the pyrolysis reactor, where the refuse-derived fuel oil is produced. Glass is removed from the inorganic portion by froth flotation, and Al by eddy current separation. The facility is jointly funded by EPA and Occidental Research. FT. Waste reuse/Water recycling/Fuel oils/Pyrolysis/Waste treatment plants/Materials recovery/California/Solid waste treatment/Pilot

plants/Municipal wastes/El Cajon/EPA/Occidental Research Corp/PollutionAbstracts.

194. Dawson EY. Marine red algae of Pacific Mexico. Part 1 Bangiales to Corallinaceae Subfamily Corallinoideae. Allan Hancock Pacific Expeditions 1952;17(1):1-239 contains algal distributional records for the Southern California Islands which are listed as part of the distributional data for Mexican species. Marine Algae.

195. FERRARO SP, COLE FA. TAXONOMIC LEVEL AND SAMPLE SIZE SUFFICIENT FOR ASSESSING POLLUTION IMPACTS ON THE SOUTHERN CALIFORNIA BIGHT MACROBENTHOS. MAR ECOL PROG SER 67(3) 1990: 251-262, ILLUSTR.
ANIMALS & MAN/POLLUTION/IMPACT ASSESSMENT, METHODOLOGY, MACROBENTHON, NORTHERN PACIFIC/TECHNIQUES/ECOLOGICAL TECHNIQUES/POPULATION SAMPLING/TAXONOMIC LEVEL & SAMPLE SIZE SUFFICIENCY/POLLUTION IMPACT ASSESSMENT, MACROBENTHON, NORTHERN PACIFIC/MATHEMATICAL TECHNIQUES/STATISTICS/POLLUTION IMPACT ASSESSMENT/TAXONOMIC LEVEL & SAMPLE SIZE SUFFICIENCY, MACROBENTHON, NORTHERN PACIFIC/ENVIRONMENTAL FACTORS/POLLUTION IMPACT ASSESSMENT, METHODOLOGY, MACROBENTHON, NORTHERN PACIFIC/ECOLOGY/LIFE HABIT/AQUATIC HABIT/BENTHON/MACROBENTHON, POLLUTION IMPACT ASSESSMENT, METHODOLOGY, NORTHERN PACIFIC/ENVIRONMENTAL INDICATORS/PACIFIC OCEAN/NORTHERN PACIFIC/SOUTHERN CALIFORNIA BIGHT/ POLLUTION IMPACT ASSESSMENT, METHODOLOGY, MACROBENTHON/INVERTEBRATA/Zoological Index.

196. Alldredge AL, Cole J., Carson DA. Production of heterotrophic bacteria inhabiting organic aggregates (marine snow) from surface waters. Limnol. Oceanogr. 1986;31:68-78
heterotrophy/organic aggregates/marine snow bacteria/Santa Barbara Channel/marine biology/oceanography.

197. Mattinson JM, Hill DJ (Univ. Calif., Dep. Geol. Sci., Santa Barbara, CA). Age of plutonic basement rocks, Santa Cruz Island, California. Howell DG, AFFL: U.S. Geol. Surv., Menlo Park, CA. in Aspects of the geol. hist. of the Calif. Continental Borderland: Calif. Continental Borderland Symposium; 1975 Sep 22; Santa Cruz Island. : Am. Assoc. Pet. Geol., Pac. Sect.; 1976. Misc. Publ. 24. p. 53-58.
12 refs., tables.
fspub/Willows Complex/Alamos Pluton/geochronology/absolute age/Jurassic/southeast/Santa Cruz Island/dates/minerals/zircon/hornblende/diorite/keratophyre/K-Ar/Pb/basement/igneous rocks/age/SRD.

198. McKern TW. An anthropometric and morphological analysis of a prehistoric skeletal population from Santa Cruz Island, CA [dissertation]. : UCB; 1955. 102 p.
Doctoral, illus.
Indians, Santa Cruz Island/SRD.

199. McLean H (U.S. Geol. Surv., Menlo Park, CA). Block fault model of Santa Cruz Island. Howell DG, AFFL: U.S. Geological Survey, Menlo park, CA. in Aspects of the geol. hist. of the Calif. Continental Borderland: Calif. Continental Borderland Symposium; 1975 Sep 22; Santa Cruz Island. : Am. Assoc. Pet. Geol., Pac. Sect.; 1976. Misc. Publ. 24. p. 560-561.
block fault diagram.
fspub/structural geology/faults/systems/southwest/Channel Islands/Santa Cruz Island/block/SRD/SRD.

200. McLean H, Crowe BM, Howell DG (U. S. Geol. Surv., Menlo Park, CA). Source of Blanca Formation volcanoclastic rocks and strike slip faulting on Santa Cruz Island, California. Howell DG, AFFL: U. S. Geol. Surv., Menlo Park, CA. in Aspects of the geol. hist. of the Calif. Continental Borderland: Calif. Continental Borderland Symposium; 1975 Sep 22; Santa Cruz Island. : Am. Assoc. Pet. Geol., Pac. Sect.; 1976. Misc. Publ. 24. p. 294-308. 7 refs., illus., tables, geol. sketch map.

fspub/Blanca Formation/sedimentary petrology/sedimentary rocks/clastic rocks/terrigenous/Miocene/southwest/Channel Islands/Santa Cruz Island/provenance/pyroclastics/clasts/petrography/faults/displacements/strike slip/effects/SRD/SRD.

201. McLean H, Howell DG (U. S. Geol. Surv., Menlo Park, CA). Elements of tectonism deduced from Miocene strata, northern Channel Islands, California [abstract]. in Am. Assoc. Pet. Geol. Bull.: AAPG-SEPM-SEG Pacific sections meeting). ; 1976. 60 (12). p. 2185-2186.

fspub/Vaqueros Formation/San Onofre Breccia/Rincon Formation/sedimentary petrology/sedimentary rocks/conglomerate/breccia/sedimentation/Miocene/south/Channel Islands/Santa Cruz Island/Santa Rosa Island/San Miguel Island/controls/structural controls/tectonics/uplifts/lithofacies/clastic rocks/terrigenous/SRD/SRD.

202. McLean H, Howell DG, Vedder JG (U. S. Geol. Surv., Menlo Park, CA). Miocene strata on Santa Cruz and Santa Rosa islands; a reflection of tectonic events in the southern California Borderland. Howell DG, U. S. Geol. Surv., Menlo Park, CA. in Aspects of the geol. hist. of the Calif. Continental Borderland: Calif. Continental Borderland Symposium; 1975 Sep 22; Santa Cruz Island. : Am. Assoc. Pet. Geol., Pac. Sect.; 1976. Misc. Publ. 24. p. 241-253. 13 refs., charts, strat. col.

fspub/Vaqueros Formation/San Onofre Breccia/Rincon Formation/Blanca Formation/Monterey Formation/stratigraphy/Miocene/sedimentary rocks/southwest/Channel Islands/Santa Cruz Island/Santa Rosa Island/clastic rocks/terrigenous/breccia/conglomerate/sandstone/mudstone/lithofacies/clasts/petrography/lithostratigraphy/correlation/provenance/tectonics/evolution/uplifts/ folds/effects/SRD.

203. McLean H, Howell DG, Vedder JG (U. S. Geol. Surv., Menlo Park, CA). Paleogeographic implications of the Miocene basement unconformity, Santa Cruz Island, California [abstract]. in Abstracts with Programs, GSA: The Geological Society of America, Cordilleran Section, 71st annual meeting; 1975 Mar 25; Los Angeles, CA. ; 1975. 7 (3). p. p. 346.

fspub/San Onofre Breccia/Willows Diorite/Blanca Formation/stratigraphy/Miocene/lithostratigraphy/paleogeography/Santa Cruz Island/reconstruction/unconformities/transgression/basement/SRD/SRD.

204. Menke AS, Miller DR (Nat. Hist. Mus. Los Angeles Cty., 900 Exposition Blvd., Los Angeles, CA 90007). Distributional notes on the tiger beetles of the California Channel Islands (Coleoptera: Cicindelidae). Entomology of the California Channel Islands: Proceedings of the first symposium. ; 1985. p. 105-112. Tiger beetles are widespread and often abundant predatory insects in littoral habitats. Cicindela is the only one of the four North

American genera in the family Cicindelidae inhabiting the sea coast and Channel Islands of southern California. The first island record of *Cicindela* was made by Fall (1897) in a treatment of the Coleoptera of the Channel Islands. Freitag (1965) listed a species from Santa Cruz Island in his revision of the Nearctic members of the *Cicindela maritima* complex. However, a comprehensive survey for island tiger beetles has only been completed recently (Nagano, 1982) in which seven of the islands are reported to harbor five species of *Cicindela*. The present paper is a review and update of Nagano (1982) with new records and discussions.
fspub/Cicindelidae/Cicindela/geographical distribution/Santa Cruz Island/SRD/SRD.

205. Scheiber HN. California marine research and the founding of modern fisheries oceanography: CalCOFI's early years, 1947-1964. REP. CCOFI 1990;31:63-83.
This historical perspective on CalCOFI in its early years (1947 to 1964) focuses on two important aspects. The first concerns how the scope and design of CalCOFI research on the California Current, and on the Pacific Ocean more generally, were originally formulated—that is, how the marine scientists and fisheries management specialists, industry leadership, and state and federal policy officials defined their research strategies and future needs in 1947-49. The state of American ocean research when the project was first designed will also be discussed. The second aspect concerns the dramatic development of the range and modes of scientific inquiry in the early years of CalCOFI research.
historical account/marine ecology/USA/California/fishery oceanography/CalCOFI/ASFA.

206. POWER J H. A MODEL OF THE DRIFT OF NORTHERN ANCHOVY ENGRAULIS-MORDAX LARVAE IN THE CALIFORNIA CURRENT PACIFIC OCEAN. U S NATL MAR FISH SERV FISH BULL84 (3). 1986. 585-604.
COASTAL FISHERIES INSTITUTE, CENTER FOR WETLAND RESOURCES, LOUISIANA STATE UNIVERSITY, BATON ROUGE, LA. 70803-7503. BA.
The drift of northern anchovy, *Engraulis mordax*, larvae in the California Current to unfavourable offshore areas may be an important factor contributing to larval mortality, and hence it may affect recruitment and subsequent adult population size. A simulation model based on a finite-difference approximation to the advection-diffusion equation was developed to aid in the study of larval anchovy drift. Model components included the long-term mean geostrophic and wind-driven current velocities to 50 m depth, and turbulent diffusion. The model predicted larval distributions in the Southern California Bight and offshore regions after 30 days of drift, and these distributions were used to assess the extent of cross-shore and alongshore larval transport that occurs when spawning takes place at different locations, seasons, and during times of increased offshore-directed Ekman transport. Offshore transport was minimal in most simulations. Simulations of drift starting from the location of peak spawning showed strongest seasonal effects, with currents during the season of peak northern anchovy spawning (March) resulting in reduced offshore dispersal when compared with currents at other times of the year. March currents also produced the greatest downshore (southeasterly) transport of larvae, and strong seasonal currents, such as the nearshore, northwesterly flowing California Countercurrent, can greatly affect the alongshore 30-day larval distributions. Offshore directed Ekman transport, associated with upwelling, does not strongly affect the drift of larvae in the nearshore region, but large increases in overall Ekman transport, or extension of spawning into offshore regions, can result in significant seaward transport of larvae out of the Southern California Bight.

ADULT MORTALITY POPULATION WIND SPAWNING WATER CURRENT TRANSPORT
DISTRIBUTION UPWELLING/Biosis.

207. Fischer PJ, Rudat J, Ticken E. Recognition of active (Holocene) faulting, southern California borderland. Geol. Soc. Am., Abstr. Programs. 1979;11(3):p.78
Calif. State Univ., Dep. Geosci., Northridge, Calif., United-States
The Geological Society of America, Cordilleran Section, 75th annual meeting, San Jose, Calif., April 9-11, 1979 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).
California/structural geology/neotectonics/Pacific Coast/oceanography/continental shelf/Pacific Ocean/geophysical surveys/seismic surveys/United States/Southern California/continental borderland/Holocene/Quaternary/faults/displacements/active faults/fault zones/topography/reflection methods/seismic methods/Northeast Pacific/acoustical surveys/sonar methods/geophysical methods/GEOREF.

208. United States Geological Survey. Draft environmental statement. Oil and gas development in the Santa Barbara Channel outer continental shelf off California. 1975;1:II-163 and II-197
NPS/physical oceanography/physical oceanography/currents/water masses/waves.

209. Thorp R, Frankie G, Barthell J, Gordon D, Newstrom L, Griswold T, Schmidt J, Thoenes S. Long-term studies to gauge effects of invading bees. California Agriculture 1992;46(1):20-23
SCIR.
honey bees/exotic/african bees .

210. Kern M, Sogge M, van RCI. Water-vapor pressure in nests of the San Miguel Island song sparrow. CONDOR 1990;92(3):761-767.
The water-vapor pressure ($P_{sub(N)}$) in nests of the San Miguel Island race of Song Sparrows (*Melospiza melodia micronyx*) averaged 16 torr, but varied considerably between nests and within individual nests during successive days of incubation. Large daily fluctuations occurred throughout the incubation period and did not parallel concurrent changes in ambient vapor pressure ($P_{sub(I)}$). Daily rates of water loss from nest eggs ($M@u$ multiplied by $sub(H2O)$) averaged 28 mg/day, but also varied considerably within and between nests and did not correlate with changes in $P_{sub(I)}$. $M@u$ multiplied by $sub(H2O)$ increased 6-33% after the third day of incubation. $P_{sub(N)}$ was significantly higher and $M@u$ multiplied by $sub(H2O)$ significantly lower in nests located in sheltered gullies than in nests from a windswept slope. These data suggest that Song Sparrows do not regulate $P_{sub(N)}$ to achieve hatching success.
nests/water vapour/hatching/breeding
success/USA/California/Melospiza melodia micronyx/pressure/CSA Life Sciences Collection.

211. (Performer: National Transportation Safety Board, Washington, DC. Bureau of Accident Investigation.) Marine Accident Report - Sinking of the U.S. Tug BARCONA by the U.S. Navy Nuclear Attack Submarine USS HOUSTON (SSN 713), San Pedro Channel, near Santa Catalina Island, California, June 14, 1989. ; 1990. Report No.: NTSBMAR9005. 54p.
Paper copy available on Standing Order, deposit account required (minimum deposit \$100 U.S., Canada, and Mexico; all others \$200). Single copies also available in paper copy or microfiche. PC A04/MF A01.

The report explains the sinking of the U.S. tug BARCONA by the U.S. Navy nuclear attack submarine USS HOUSTON (SSN 713) in San Pedro Channel near Santa Catalina Island, California, on June 14, 1989. The safety issues discussed in the report are emergency quick release mechanisms on towing vessels; watertight doors on tugs; submarine operations near the surface in heavily trafficked areas; submarine crew fatigue; accident notification; and emergency position indicating radio beacons. Safety Recommendations addressing these issues were made to the U.S. Coast Guard, the U.S. Navy, Connolly Pacific Company, and the American Waterways Operators.

Submarines/Towing/Ships/Accident investigations/BARCONA
tug/Emergency preparedness/Water traffic/Marine accidents/NTIS.

212. Roden GI. Mesoscale flow and thermohaline structure around Fieberling Seamount. J. GEOPHYS. RES. (C OCEANS 1991;VOL. 96, NO. C9:pp. 16,653-672 Sch. Oceanogr., Univ. Washington, Seattle, WA 98195, USA.

The circulation and thermohaline structure around Fieberling and the three neighboring seamounts to the ESE are examined on the basis of high-resolution observations in August 1989. In the upper layers, the primary interaction is with well-defined intrusions of water of subtropical and subarctic origin, linked to the outer boundary of a southward meandering California current. The effects of flow-topography interaction are complex and vary with depth. At the level of Fieberling's top, about 450 m, the impinging subtropical flow is deflected anticyclonically, and several eddies are generated. Uplift of isopycnals suggestive of upwelling is observed above the tops of all four seamounts. The height of the upwelling cones varies between 120 and 240 m, depending upon background stratification, and their axes are sometimes tilted, apparently by shear of the large-scale flow. Strong subsurface jets, 10-20 km wide and 500-1000 m thick, with speeds up to 30 cm/s, have been found in the vicinity of the seamounts. In the lower layers the primary interaction is with large-scale flow from the southeast.

mesoscale features/thermohaline circulation/seamounts/INE,
Fieberling Seamount/INE, California Current/current
meandering/bottom topography effects/upwelling/subsurface
currents/jets/stratification/flow measurement/ocean
currents/thermal structure/salinity profiles/Oceanic Abstracts.

213. Dorman CE. Possible role of gravity currents in northern California's coastal summer wind reversals. J. GEOPHYS. RES. (C OCEANS 1987;VOL. 92, NO. C2:pp. 1497-1506 Dep. Geol. Sci., San Diego State Univ., San Diego, CA 92115, USA. North winds along the northern California coast in the summer of 1982 were interrupted by six events with southerly winds. One of these four events is presented in detail. At the start of this event the marine layer is thickened in the southern California bight. This event is interpreted as a gravity current surging up the coast. The basic reservoir is the thickened marine layer in the southern California bight. Northerly progression is interrupted by a blocking wave near Point Arena where an eddy forms. It is hypothesized that most of the major wind reversals along the northern California coast during the summer are gravity currents of Kelvin waves in the marine layer that are formed to the south. INE, USA, California/dynamical oceanography/ocean-atmosphere system/air-sea interaction/gravity waves/surges/summer/atmospheric motion/continental shelves/shelf dynamics/Kelvin waves/Coastal Ocean Dynamics
Experiment/OceanAbstracts.

214. Reed WE, Kaplan IR, Sandstrom M, et al. Petroleum and anthropogenic influence on the composition of sediments from the Southern California Bight. 1977 oil spill conference AMERICAN PETROLEUM INSTITUTE. PUBLICATION 4284 (1977?):pp. 183-188 Univ. of California, Dept. of Earth and Space Sciences, Los Angeles, CA 90024. Concentrations of petroleum hydrocarbons and industrial chemicals were detected in nearly all benthic and sandy intertidal sediment samples collected from the southern California borderland. Low levels of petroleum contamination in combination with recent biogenic contributions were interpreted primarily on the basis of fully-saturated cycloalkanes in the absence of cyclic alkenes, the presence of a gas chromatographically-unresolved baseline envelope, and the presence of an homologous series of alkyl aromatic hydrocarbons. The inner basins of the Southern California Bight exhibit higher concentrations of weathered petroleum than either the farther offshore basins or the sandy intertidal zone. Near Tanner-Cortez banks and in the San Nicolas Basin, sediments appear to contain unweathered petroleum and high levels of anthropogenic chemicals. The possible sources of hydrocarbons found in the sediments, in addition to shipping losses and harbor traffic, include municipal and industrial wastewaters, previously undetected submarine oil seeps, submarine chemical dumps, and geochemically mature, organic-rich Tertiary shales. from AA.

Water pollution/Petroleum wastes/Hydrocarbons/California Coast/Sediments/Southern California Bight/Pollution Abstracts.

215. Dawson EY. Marine red algae of Pacific Mexico. Part. 1. Cryptonemiales (continued). Allan Hancock Pacific Expeditions 1954;17(2):241-397 Contains some algal distributional records for the Southern California Islands.

216. BUTLER JL. GROWTH DURING THE LARVAL AND JUVENILE STAGES OF THE NORTHERN ANCHOVY, ENGRAULIS MORDAX, IN THE CALIFORNIA CURRENT DURING 1980-84. U S FISH WILDL SERV FISH BULL 87(3) 1989: 645-652, ILLUSTR. FEEDING/CARNIVOROUS FEEDING/PREDATION/PREDATORS/ENGRAULIS MORDAX (PISCES)/PLANKTON ABUNDANCE EFFECTS ON PREDATOR GROWTH RATE, NORTHERN PACIFIC/PREDATOR PREY INTERACTIONS/PLANKTON ABUNDANCE EFFECTS ON PISCAN PREDATOR GROWTH, NORTHERN PACIFIC/ENVIRONMENTAL FACTORS/PHYSICAL ENVIRONMENT/CLIMATE & WEATHER/EL NINO EFFECTS ON ABUNDANCE, IMPLICATIONS FOR PISCAN PREDATOR, PACIFIC/ECOLOGY/ECOLOGICAL ENERGETICS/BIOMASS/PLANKTON, PISCAN PREDATOR GROWTH RELATIONSHIP, NORTHERN PACIFIC/LIFE HABIT/AQUATIC HABIT/PLANKTON/ABUNDANCE EFFECTS ON PISCAN PREDATOR GROWTH RATE, NORTHERN PACIFIC/PACIFIC OCEAN/NORTHERN PACIFIC/CALIFORNIA CURRENT/EL NINO INFLUENCED ABUNDANCE IMPLICATIONS FOR PISCAN PREDATOR/INVERTEBRATA/Zoological Index.

217. PAVLOVA YV. SEASONAL VARIATIONS OF THE CALIFORNIA CURRENT. OCEANOLOGY 1966;6 WATER MASSES/CURRENTS/PHYSICAL OCEANOGRAPHY/OCEANOGRAPHY/BIOLOGICAL OCEANOGRAPHY.

218. Alldredge AL, Elias M, Gotschalk CC. Effects of drilling muds and mud additives on the primary production of natural assemblages of marine phytoplankton. Mar. Environ. Res. 1986;19(2):157-176 Address: DEP. BIOL. SCI., UNIV. CALIF., SANTA BARBARA, CA 93106. The effects of two types of drilling mud and eight mud additives on the primary production of natural assemblages of marine phytoplankton from the Santa Barbara Channel, California [USA], were examined. Exposure for 4 h to BaSO₄, Ca-, Cr- and Fe-

lignosulfonate, Drispac (a polyanionic cellulose polymer), X-Pel-G (gilsonite), Soltex (a sulfonated asphalt) and a synthetic reference drilling mud at concentrations ranging over seven orders of magnitude did not significantly alter primary production of phytoplankton relative to untreated controls. A used drilling mud from the Santa Barbara Channel significantly enhanced primary production of phytoplankton exposed for 4 h to mud diluted by a factor of 101 to 107. Exposure for up to 120 h to low concentrations of BaSO₄, iron-lignosulfonate, paraformaldehyde and both the reference drilling mud and used Santa Barbara mud did not significantly alter primary production. Long-term exposure to Soltex and gilsonite significantly reduced primary production, but only at exposure times considerably longer than would be expected in nature. Drispac enhanced primary production by 50% after exposure for 120 h to 1 .mu.g liter⁻¹. Phytoplankton composition was not altered by long-term exposure to the muds or additives. These results suggest that, where dilution is rapid, discharge of muds containing the additives studied here would not significantly alter the primary production of natural phytoplankton assemblages in the vicinity of drilling platforms. rapid dilution/iron lignosulfonate/drilling mud/mud additives/primary production/phytoplankton/Santa Barbara Channel/marine biology/pollution/petroleum.

219. Miller DR. Mealybugs of Santa Cruz Island, California (Homoptera: Coccoidea: Pseudococcidae). Pan Pacific Entomol. 1971 Oct;47(4):293-303 SCIR.
fspub/mealybugs/Santa Cruz Island/SRD/SRD.

220. Nolf B, Nolf P. Santa Cruz Island volcanics. in Geology of the northern Channel Islands. Weaver.D. W.//// ed. Los Angeles, CA: Am. Assoc. Petroleum Geologists and Soc. Econ. Paleontologists and Mineralogists, Pacific Sec.; 1969. p. 91-94.
fspub/igneous rocks/nomenclature/northern/petrology/Santa Cruz Island/stratigraphy/Tertiary/volcanic rocks/volcanics/SRD.

221. Orme AR, Bowden LW, Minnich RA (Dept. of Geography, UCR). Remote sensing of disturbed insular vegetation from color infrared imagery. : Office of Navy Research; 1971. Report No.: contract no. N00014-69-A-0200-5003. NR387-045. 1235-1243. (Technical report/Dept. of Geography, UCR; 0-71-6). reprinted from the Proceedings of the 7th International Symposium on Remote Sensing of the Environment. illus., maps, biblio.
fspub/Santa Cruz Island/flora/remote sensing/SRD/SRD.

222. Powell JA. Five insects believed to be newly established or recolonized on Santa Cruz Island, California (Dermaptera, Lepidoptera). Bull. South Calif. Acad. Sci. (Los Angeles) 1980 Dec;79(3):97-108 Bibliography.
fspub/insects/Santa Cruz Island/SRD/SRD.

223. Halvorson WL, Koske RE. Mycorrhizae associated with an invasion of *Erechtites glomerata* (Asteraceae) on San Miguel Island, California. Madrono. Berkeley, Calif. : California Botanical Society. July/Sept 1987. 1987;34(3):p.260-268
Other-US Includes references. Article.
erechtites/weeds/plant competition/plant colonization/vesicular arbuscular mycorrhizae/california/AGRICOLA.

224. Dittman D, Robles C. Effect of algal epiphytes on the mussel *Mytilus californianus*. ECOLOGY 1991;72(1):286-296.
The effects of facultative epiphytes on a bivalve host were studied on an islet near Santa Catalina Island, California. The primary

cover in the mid-intertidal zone was a mosaic of red algal turf (*Corallina officinalis*, *Gigartina canaliculata*, and *Gelidium coulteri*) and clumps of the mussel *Mytilus californianus*. In certain circumstances the algae attached to and overgrew the mussels. In other marine habitats, facultative epibionts benefit bivalve hosts by masking them from predators. At Catalina, spiny lobsters (*Panulirus interruptus*) and oystercatchers (*Haematopus bachmani*) preyed on intertidal mussels. However, in tagging studies, overgrown mussels displayed a nonsignificant trend towards lower survivorship. A factorial experiment manipulating exposure to predators and the cover of epiphytes demonstrated that overgrowth significantly reduced survivorship. There was no significant statistical interaction between treatment effects, indicating that the presence of algae did not protect the mussels from predators. competition/interspecific relationships/algae/Mytilus californianus/survival/epiphytes/USA/California/Catalina Island/INE/USA/Santa Catalina Island/marine molluscs/camouflage/predation/ASFA.

225. PICKWELL G V, BEZY R L, FITCH J E, HAURY L R. NORTHERN OCCURRENCES OF THE SEA SNAKE *PELAMIS-PLATURUS* IN THE EASTERN PACIFIC WITH A RECORD OF PREDATION ON THE SPECIES AN OFFSHORE EDDY IN THE CALIFORNIA CURRENT SYSTEM PACIFIC OCEAN 4. PLANKTON DISTRIBUTIONS. CALIF FISH GAME 69 (3). 1983. 172-177. PROG OCEANOGR 13 (1). 1984. 95-112. MARINE SCI. DIV., NAVAL OCEAN SYSTEMS CENT., SAN DIEGO, CA 92152. BA MARINE LIFE RESEARCH GROUP, SCRIPPS INSTITUTION OF OCEANOGRAPHY, LA JOLLA, CALIF. 92093, USA. BARRM. Four specimens of the yellow-bellied sea snake, *P. platurus*, from southern California [USA] and the outer coast of Baja California [Mexico] represent the northernmost records of this species in the eastern Pacific. Three of the snakes were probably carried northward by a warm countercurrent (Davidson Current) along the coast of Baja California and southern California during the warm periods of 1972-1973 and 1976-1977. One of the individuals had been ingested by a puffer *Sphoeroides cf. annulatus*; this represents the 2nd reported instance of predation on the species in nature. DAVIDSON CURRENT PREDATION CALIFORNIA USA BAJA-CALIFORNIA MEXICO/ZOO PLANKTON DINOFLAGELLATE MICRO PLANKTON CHLOROPHYLL PHEOPHYTIN/Biosis.

226. Reynolds RA, Casey RE. Neogene radiolarian biostratigraphy and paleo oceanography of north boundary currents. Am. Assoc. Pet. Geol., Bull. 1979;63(3):p.514 Rice Univ., Houston, Tex., United-States AAPG-SEPM annual meeting, Houston, Tex., April 1-4, 1979 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). California/stratigraphy/Neogene/Japan/Pacific Ocean/oceanography/ocean circulation/Radiolaria/biostratigraphy/paleoecology/United States/Asia/California Current/Japan Current/Deep Sea Drilling Project/Tertiary/Cenozoic/paleo oceanography/paleocirculation/paleocurrents/currents/boundary currents/modern/evolution/sediments/core/paleobathymetry/marine environment/North Pacific/GEOREF.

227. United States Hydrographic Office. Atlas of surface currents. Hydrographic Office Publications 1947(570) NPS/Physical oceanography/oceanography/currents.

228. Peart D, Patten DT (Center for Environmental Studies, Arizona State Univ.) Feral pig activity associated with *Quercus*

agrifolia regeneration on Santa Cruz Island, California [Poster presentation]. Symposium on Ecology and Management of Oak and Associated Woodlands: Perspectives in the Southwestern United States and Northern Mexico; 1992 Apr 27; Sierra Vista, Arizona. 3pp. SCIR.
fspub/oak/feral pig/management/restoration biology/Santa Cruz Island.

229. Atwood J, Elpers M, Collins C. Survival of breeders in Santa Cruz Island and mainland California scrub jay populations. CONDOR 1990;92(3):783-788. Aphelocoma
coerulescens/USA/California/communal breeding/survival/CSA Life Sciences Collection.

230. Hickey BM (Performer: Washington Univ., Seattle. School of Oceanography. Funder: Department of Energy, Washington, DC.) California basin study (CaBS). Annual progress report, November 15, 1989-November 14, 1990. ; 1990. Report No.: DOEER603338. 18p. Sponsored by Department of Energy, Washington, DC. Portions of this document are illegible in microfiche products. PC A03/MF A01 Contract: FG0585ER60333. Previous studies of geochemical recycling processes in the upper water column in the Southern California Bight focused on the seasonal cycle. Inspection of satellite sea surface color images as well as information from studies in other areas suggest that the cycling processes have significant variability on time scales of hours and days. To allow our seasonal studies to be examined in the context of the higher frequency variability, an interdisciplinary mooring was maintained near the midpoint of Santa Monica basin (known as station 305) from January to July, 1990. The Hickey group had the primary responsibility of deploying and recovering the mooring. The mooring consisted of a vector measuring wind recorder mounted above a toroidal buoy, below which were suspended two current/temperature recorders, a transmissometer, and two PAR sensors. The PAR sensors, which provide an estimate of phytoplankton growth rates, were deployed as part of the Trees proposal. At two additional nearby moorings, sediment traps were deployed at selected depths throughout the water column by Landry and by Soutar. To allow some investigation of lateral advection of material, current meters were deployed at the same depths as several of the sediment traps both at this site and also at the site farther along the basin axis. The data from these experiments have not yet been processed. 6 refs., 10 figs. California/Climates/Compiled Data/Continental Shelf/Global Aspects/Mineral Cycling/Monitoring/Moorings/Oceanic Circulation/Oceanography/Phytoplankton/Progress Report/Sampling/Seasonal Variations/Temperature Monitoring/West Coast/Tables data/Coastal Regions/Pacific Ocean/Sediments/Water Currents/EDB/580000/NTIS.

231. Gregg MC, Kunze E. Shear and strain in Santa Monica basin. J. GEOPHYS. RES. (C OCEANS 1991;VOL. 96, NO. C9:pp. 16,709-719
Sch. Oceanogr., Coll. Ocean and Fish. Sci., Univ. Washington, Seattle, WA 98195, USA.
By injecting a cloud of SF sub(6) into Santa Monica Basin at a depth of 790 m and observing its vertical spread, Ledwell and Watson (1991) estimate the average diapycnal diffusivity between 750 and 850 m as $K_{sub}(p) = 2.5 \times 10^{-5} \text{ m}^2/\text{s}$. This diffusivity is higher than inferred from microstructure measurements in the open-ocean thermocline for typical internal wave levels. To examine shear and strain in the basin, we dropped expendable current profilers (XCPs) and calculated strain from conductivity, temperature, and depth (CTD) casts. Shear and strain

are above the GM76 model spectrum, and comparisons with published parameterizations indicate more than enough shear variance to account for the high diffusivity reported by Ledwell and Watson. Thus, the eddy diffusivity in Santa Monica Basin is not at odds with lower values estimated from microstructure measurements in the open ocean, but is due to an elevated internal wave field. The spectral shapes, however, differ from typical open-ocean spectra. ocean basins/diffusion coefficients/vertical advection/INE, USA, California, Santa Monica Basin/mathematical models/strain/shear/deep-water masses/internal wave effects/wave spectra/thermocline/current profiles/tracers/Oceanic Abstracts.

232. Send U. Vorticity and instability during flow reversals on the continental shelf. J. PHYS. OCEANOGR 1989;VOL. 19, NO. 10:pp. 1620-1633 Inst. Meereskd., Univ. Kiel, Duesternbrooker Weg 20, 2300 Kiel 1, FRG. Flow reversals during relaxation of the equatorward wind on the northern California shelf are studied with observations and a simple numerical model. In order to simulate the basic dynamics of the flow reversals and instability, a contour dynamics model is developed for barotropic flow on an exponentially sloping bottom, in which potential vorticity is advected and relative vorticity changes only by movement across topography or advection. It is shown how an intrusion of low potential vorticity along the coast can generate a single "eddy" on the unstable flow behind it. This inshore potential vorticity minimum is likely to originate on the sheltered wide shelf north of Point Reyes. INE, USA, California, Point Reyes/shelf dynamics/vorticity/air-sea interaction/atmospheric forcing/coastal upwelling/barotropic instability/mathematical models/continental shelves/dynamical oceanography/OceanAbstracts.

233. YOUNG DR. Aerial fallout of DDT in Southern California. Bulletin of Environmental Contamination and Toxicology,16(5): 604-611, Nov. 1976 1976 Southern California Coastal Water Research Project, 1500E. Imperial Highway, El Segundo, CA 90245. WATER POLLUTION/AIR-WATER INTERACTIONS/POLLUTANT DEPOSITION/INSECTICIDES/CALIFORNIA COAST/PESTICIDES/DDT/AIR POLLUTANTS/SOUTHERN CALIFORNIA BIGHT/AERIAL FALLOUT/PollutionAbstracts.

234. Dawson EY. Marine red algae of Pacific Mexico. Part 3. Cryptonemiales, Coralliraceae Subfamily Melobesicidae. Pacific Naturalist 1960;2:1-125
Contains some algal distributional records for the Southern California Islands.

235. HAKANSON JL. CONDITION OF LARVAL ANCHOVY (ENGRAULIS MORDAX) IN THE SOUTHERN CALIFORNIA BIGHT, AS MEASURED THROUGH LIPID ANALYSIS. MAR BIOL (BERL) 102(2) 1989: 153-159, ILLUSTR.
* PISCES ** SUPERCLASS GNATHOSTOMATA *** CLASS TELEOSTOMI ****
DIVISION TELEOSTEI ***** SUPERORDER CLUPEOMORPHA *****
CLUPEIFORMES ***** SUBORDER CLUPEOIDEI ***** ENGRAULIDAE
***** ENGRAULIS MORDAX.
WHOLE ANIMAL PHYSIOLOGY/GENERAL PHYSIOLOGICAL CONDITION/LARVA,
INDICATION USING LIPID COMPONENTS, CALIFORNIA
(MARINE)/BIOCHEMISTRY/CHEMICAL COMPOSITION/LIPID & FATTY ACID
CONTENT/LARVA, INDICATORS OF GENERAL PHYSIOLOGICAL CONDITION,
CALIFORNIA (MARINE)/PACIFIC OCEAN/NORTHERN PACIFIC/SOUTHERN
CALIFORNIA BIGHT/LARVAL CONDITION, LIPID COMPONENTS AS
INDICATORS/Zoological Index.

236. PIEPER RE. MESOPELAGIC FAUNAL DISCONTINUITIES IN THE
EASTERN NORTH PACIFIC. OFFICE OF NAVAL RESEARCH CONTRACT

BIOLOGICAL OCEANOGRAPHY/WATER MASSES/CURRENTS/PHYSICAL
OCEANOGRAPHY/OCEANOGRAPHY.

237. Alldredge AL, Gotschalk C. In situ settling behavior of marine snow. *Limnology and Oceanography* 1988;33:339-351
marine snow/settling behavior/Santa Barbara Channel/San Pedro Basin/oceanography/marine biology.

238. Rand WW. Preliminary report of the geology of Santa Cruz Island, Santa Barbara County, Calif. *Mining in California* 1931 Apr;27(2):214-219 map.
Santa Cruz Island/geologic maps/igneous and volcanic rocks/Tertiary/SRD.

239. Renwick WH, Brumbaugh RW, Loeher LL. Landslide morphology and processes on Santa Cruz Island, California. *Geografiska Annaler. Series A: Physical Geography.* 1982;64(3-4):149-159.
AUTH AFFL: Rutgers Univ., Dep. Geogr., New Brunswick, NJ; 24 refs., illus., sketch map.
fspub/geomorphology/mass movements/landslides/landform evolution/permeability/soils/Santa Cruz Island/geologic hazards/SRD.

240. Santa Cruz Island, CA. Rand WW. Berkeley: Library Photographic Service; 1933. , 1:20,000.
map/Santa Cruz Island/SRD.

241. Santa Cruz Island, CA. Fairchild Aerial Surveys I. : U.S. Dept. of Agriculture, Agricultural Adjustment Admin.; 1940. , 1:96,000. map/Santa Cruz Island/photomosaic/SRD.

242. Schroeter SC. Experimental studies of competition as a factor affecting the distribution and abundance of purple sea urchins, *Strongylocentrotus purpuratus* [dissertation]. : UCSB; 1978. 184.
Doctoral, illus.
fspub/competition/ *Strongylocentrotus purpuratus*/ purple sea urchin/Santa Cruz Island/SRD.

243. Schuster RO, Grigarick AA. Tardigrada of Santa Cruz Island, California. *Pan pacific Entomol.* 1970 Jul;46(3):184-193
SCIR, map.
fspub/insects/entomology/Tardigrada/Santa Cruz Island/SRD/SRD.

244. Sholes ODV, Beatty SW. Influence of host phenology and vegetation on the abundance of *Tamalia coweni* galls (Homoptera: Aphididae) on *Arctostaphylos insularis* (Ericaceae). *Am. Midl. Nat.* 1987;118(1):198-204
AUTH AFFL: Div. Nat. Sci., Assumption Coll., Worcester, MA 01609.
Tamalia coweni formed galls on immature leaves of *Arctostaphylos insularis* during the wet season on Santa Cruz Island, California. Because immature leaves were absent from twigs with fruit, the more nonfruiting twigs on a shrub, the more aphid galls on its leaves. Plant species richness, host plant size, host plant abundance, and proximity of neighboring host shrubs were not significantly related to gall abundance. Thus, a resource concentration effect was evident for the exploited host organ (immature leaves), but not for whole host plants. fspub/galls/host plants/phenology/*Tamalia coweni*/*Arctostaphylos insularis*/Aphididae/Santa Cruz Island/SRD.

245. Sorensen SS (Univ. Calif. at Los Angeles, Dep. Earth and Space Sci., Los Angeles, CA). *Metamorphism of Jurassic, island*

arc like basement rocks from the Transverse Ranges and Southern California borderland [abstract]. in Abstracts with Programs, GSA: The Geological Society of America, Cordilleran Section, 81st annual meeting; 1985 May 8; Vancouver, BC. ; 1985. 17 (6). p. p. 410.
fspub/petrology/metamorphism/P T conditions/interpretation/Santa Cruz Island Schist/Santa Monica Formation/Transverse Ranges/basement/Jurassic/Santa Cruz Island/Santa Monica Mountains/Los Angeles Basin/Willows Plutonic Complex/terrane/island arcs/composition/metasedimentary rocks/amphibolites/greenschist/schists/gabbros/SRD.

246. Challet GA. Additional records of predaceous diving beetles (Coleoptera: Dytiscidae) from Santa catalina Island, California. Coleopt Bull. Chicago, Ill. : Coleopterists Society. Mar 1987. 1987;41(1):p.13-14 Other-US Includes references.
Article.
coleoptera/predators/records/collections/fauna/islands/california /AGRICOLA.

247. SIMPSON J J. AN OFFSHORE EDDY IN THE CALIFORNIA CURRENT SYSTEM PACIFIC OCEAN 3. CHEMICAL STRUCTURE. PROG OCEANOGR13 (1). 1984. 71-94. MARINE LIFE RESEARCH GROUP, SCRIPPS INSTITUTION OF OCEANOGRAPHY, LA JOLLA, CALIF. 92093, USA. BARRM.
PHYTO PLANKTON HETEROTROPH/Biosis.

248. Illich HA, Haney FR, Jackson TJ, Mendoza M. Geochemistry of oils from Santa Cruz Basin, Bolivia; case study of migration fractionation. Am. Assoc. Pet. Geol., Bull. 1979;63(3):p.471
Sunmark Explor. Co., Richardson, Tex., United-States AAPG-SEPM annual meeting, Houston, Tex., April 1-4, 1979 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).
Bolivia/economic geology/petroleum/organic materials/hydrocarbons/composition/South America/Santa Cruz Basin/geochemistry/genesis/migration/source rocks/reservoir rocks/fractionation/case studies/GEOREF.

249. Van Dorn WG, Hacker PW, Lam PK. Circulation around oceanic islands. Scripps Inst. Oceanogr. Ref. 1967
NPS/Physical oceanography/oceanography/currents.

250. Berk RA (Center for the Study of the Environment and Society, UCLA). Report on NATO Advanced Research Workshop: Modeling Sustainable Development for Santa Cruz Island: November 11-17, 1991. . UCLA; 1992 Jan. SCIR. fspub/management/Santa Cruz Island/.

251. Sorensen SS (Univ. Calif., Dep. Earth and Space Sci., Los Angeles, CA). A petrologic and geochemical study of mafic plutonites from the California continental borderland and Los Angeles Basin [abstract]. in Abstracts with Programs, GSA: The Geological Society of America, Cordilleran Section, 78th annual meeting; 1982 Apr 19; Anaheim, CA. ; 1982. 14 (4). p. p. 236.
fspub/petrology/igneous rocks/geochemistry/trace elements/rare earths/plutonic rocks/Los Angeles County/Santa Barbara County/Los Angeles Basin/continental borderland/Santa Cruz Island/Willows Complex/Santa Catalina Island/diorites/island arcs/mineral composition/gabbros/SRD.

252. Scire JS, Hanna SR, Murphy DJ, Chang J (Performer: Sigma Research Corp., Westford, MA. Funder: Minerals Management Service, Los Angeles, CA. Pacific OCS Region.) Characterization of Historical Ozone Episodes and Comparison with the SCCAMP 1985

Field Study. ; 1989. Report No.: OCSMMS890035. 218p. Sponsored by Minerals Management Service, Los Angeles, CA. Pacific OCS Region. PC A10/MF A02 Contract: DI1412000130329.

SCCCAMP 1985 was a comprehensive air quality and meteorological monitoring project conducted in the Santa Barbara Channel and adjacent areas from Point Sal to Point Dume. Among the tasks included in the study are analyses of a historical meteorological and ozone data base. The report describes the results of the historical data analysis task of the study. The objectives of this task are to (1) characterize meteorological and ozone concentration patterns during a six-year historical period (1979-1984), (2) identify relationships between meteorological variables and high ozone concentrations, and (3) compare the meteorological conditions and ozone concentrations observed during the SCCCAMP 1985 study with those during the same seasonal period in the historical data base in order to assess the representativeness of the SCCCAMP 1985 study period and individual high ozone events within the period. Concentration Composition/Comparison/Field tests/Seasonal variations/California/Ozone/Mathematical models/Meteorological data/Atmospheric chemistry/Coastal regions/Air pollution sampling/Air quality data/Regional analysis/South Central Coast Cooperative Aerometric Monitoring Program/Historical aspects/NTIS.

253. Pennings SC, Callaway RM. Salt marsh plant zonation: The relative importance of competition and physical factors. ECOLOGY 1992;VOL. 73, NO. 2:pp. 681-690

Mar. Lab., Univ. Guam, Mangilao, GU 96923, USA.

In Carpinteria Salt Marsh, *Salicornia virginica* (pickleweed) grows at lower marsh elevations than does *Arthrocnemum subterminale* (Parish's glasswort). Standing biomass of both species was greatest immediately adjacent to their abrupt border, suggesting that conditions for plant growth were best here. We utilized field experiments, in which growth rates of naturally occurring and transplanted individuals of both species were measured in four marsh zones, to investigate the role of edaphic factors and competition in maintaining this zonation pattern. The frequency of flooding, and hence soil waterlogging, was greatest at lower marsh elevations, whereas salinity was higher at higher marsh elevations. Consequently, it was not clear, a priori, which part of the marsh had the most severe physical conditions.

competition/abiotic factors/salt marshes/ecological zonation/INE, USA, California, Carpinteria/plant populations/salinity tolerance/*Salicornia virginica*/*Arthrocnemum subterminale*/flooding/Oceanic Abstracts.

254. Yamazaki H, Lueck R. Turbulence in the California Undercurrent. J. PHYS. OCEANOGR 1987;VOL. 17, NO. 9:pp. 1378-1396 Chesapeake Bay Inst., Johns Hopkins Univ., Baltimore, MD 21211, USA. Vertical profiles of microstructure velocity over the San Diego Trough showed enhanced levels of kinetic energy dissipation in the intrusive region between the California Undercurrent and the surface California Current. If the observed rate of dissipation is typical, then the kinetic energy of the undercurrent is extracted with a minimum time scale of 11 days. The time scale for the dissipation of total mechanical energy (kinetic plus potential) and the transit time from southern California to Vancouver Island are comparable. The vertical eddy diffusivity is less than $1.9 \times 10^{-5} \text{ m}^2 \text{ s}^{-1}$ and is not a factor in the mixing of the undercurrent.

INE, USA, California Undercurrent/dynamical oceanography/turbulence measurement/kinetic energy/energy dissipation/bottom topography effects/coastal currents/physical oceanography/INE, USA, California, San Diego Trough/OceanAbstracts.

255. LOVE CM. Seasonal mean transport of hypothetical oil slicks in southern California waters. Institute of Environmental Sciences: 21st Annual Technical Meeting: Vol. I: Energy and the Environment. Mt. Prospect, Ill.: Institute of Environmental Sciences, 1975. pp. 49-54 1975
Intersea Research Corp.
CALIFORNIA COAST/CURRENTS/OIL SLICKS/POLLUTANT DISPERSAL/SEASONAL VARIATIONS/SOUTHERN CALIFORNIA BIGHT/Pollution Abstracts.

256. Dawson EY. Marine red Algae of Pacific Mexico. Part 4. Gigartinales. Pacific Naturalist 1961;2:191-343
contains algal distributional records for the Southern California Islands.

257. NEIGHBORS MA. TRIACYLGLYCEROLS AND WAX ESTERS IN THE LIPIDS OF DEEP MIDWATER TELEOST FISHES OF THE SOUTHERN CALIFORNIA BIGHT. MAR BIOL (BERL) 98(1) 1988: 15-22, ILLUSTR.
* PISCES ** SUPERCLASS GNATHOSTOMATA *** CLASS TELEOSTOMI ****
DIVISION TELEOSTEI. MINOR ORGANS/GAS BLADDER/INFLATION, LIPID COMPOSITION & WATER RELATIONS, EASTERN PACIFIC/WHOLE ANIMAL PHYSIOLOGY/ION & WATER RELATIONS/WATER RELATIONS/WATER CONTENT EFFECT ON BUOYANCY & VERTICAL DISTRIBUTION, EASTERN PACIFIC/BIOCHEMISTRY/CHEMICAL COMPOSITION/LIPID & FATTY ACID CONTENT/COMPOSITION, SYSTEMATICS, DEPTH OCCURRENCE & BUOYANCY RELATIONS/BIOPHYSICS/BUOYANCY/REGULATION, ROLE OF LIPID COMPOSITION & WATER CONTENT, EASTERN PACIFIC/ENVIRONMENTAL FACTORS/PHYSICAL ENVIRONMENT/DEPTH/OCCURRENCE, LIPID COMPOSITION & BUOYANCY INTERRELATIONS, EASTERN PACIFIC/HABITAT/DISTRIBUTION WITHIN HABITAT/ VERTICAL DISTRIBUTION/LIPID COMPOSITION & BUOYANCY INTERRELATIONS, EASTERN PACIFIC/PACIFIC OCEAN/EASTERN PACIFIC/SOUTHERN CALIFORNIA BIGHT/LIPID COMPOSITION, SYSTEMATICS, DEPTH OCCURRENCE & BUOYANCY RELATIONS/Zoological Index.

258. MUNK WH. ON THE WIND-DRIVEN OCEAN CIRCULATION. J. METEOROL. 1950;7(2) METEOROLOGY/CURRENTS/PHYSICAL OCEANOGRAPHY/OCEANOGRAPHY.

259. Alldredge AL, Gotschalk C, MacIntyre S. Evidence for sustained residence of macrocrustacean fecal pellets in surface waters off southern California. Deep Sea Research 1987;34:1641-1652
fecal pellets/crustaceans/Crustacea/Santa Barbara/Southern California Bight/marine biology/oceanography.

260. Sorensen SS. Petrologic evidence for Jurassic, island arc like basement rocks in the southwestern Transverse Ranges and California continental borderland. Geological Society of America Bulletin 1985;96(8):997-1006 AUTH AFFL: Univ. Calif., Dep. Earth and Space Sci., Los Angeles, CA; 62 refs., illus., 2 tables, sketch map.
fspub/geochemistry /trace
elements/intrusions/plutons/emplacement/metamorphism/grade/low grade metamorphism/metamorphic rocks/rare earths/Santa Barbara County/Los Angeles County/Ventura County/Willows Plutonic Complex/Santa Cruz Island Schist/Santa Monica Formation/Channel Islands/Santa Monica Mountains/Transverse Ranges/Jurassic/petrology/island arcs/basement/minor elements/major elements/metaigneous rocks/metasedimentary rocks/greenschist facies/gabbros/P T conditions/amphibolite facies/SRD.

261. Sorensen SS (Smithson. Inst., Natl. Mus. Nat. Hist., Dep. Miner. Sci., Washington, DC). Petrology and distribution of the basement rocks of the Los Angeles Basin and inner Southern

California borderland [abstract]. in Abstracts with Programs, GSA: The Geological Society of America, Cordilleran Section, 82nd annual meeting; 1986 Mar 25; Los Angeles, CA. 18 (2). p. p.188.
fspub/metamorphic rocks/petrology/basement/Catalina Schist/Willows Plutonic Complex/Santa Cruz Island Schist/Santa Monica Formation/Los Angeles Basin/Mesozoic/distribution/schists/blueschist/greenschist/phyllites/slates/SRD.

262. Sorensen SS (Smithson. Inst., Natl. Mus. Nat. Hist., Dep. Miner. Resour., Washington, DC). Tectonometamorphic significance of the basement rocks of the Los Angeles Basin and the inner California continental borderland. Ernst WG. in Metamorphism and crustal evolution of the Western United States: Rubey colloquium on Metamorphism and crustal evolution of the Western United States; 1986 Jan; Los Angeles, CA. Englewood Cliffs, NJ: Prentice Hall; 1988. 7. p. 998-1022. 100 refs., illus., 1 table, sketch maps. (Rubey volume). Fspub/petrology/metamorphism/P T conditions/mineral assemblages/ Catalina Schist/Santa Cruz Island Schist/Willows Plutonic Complex/Los Angeles Basin/California Continental Borderland/Cretaceous/Jurassic/slates/schists/phyllites/chemical composition/basement/Transverse Ranges/faults/terranes/SRD.

263. State Water Resources Control Board DoPaRSaMS. Santa Cruz Island, Santa Barbara County. Sacramento; 1979. 109. (Water quality monitoring report; California marine waters areas of special biological significance reconnaissance survey report; 8 (no.79-8)).

Santa Cruz Island/natural history/marine park/SRD.

264. Steer BL, Abbott PL (Amoco Prod. Co., Denver, CO; San Diego State Univ.) Paleohydrology of the Eocene Ballena River, Sonora to San Diego [abstract]. in Abstracts with Programs, GSA: The Geological Society of America, Cordilleran Section, 77th annual meeting, international meeting; 1981 Mar 25; Hermosillo. ; 1981. 13 (2). p. p. 108.
stratigraphy/Eocene/Mexico/paleogeography/sedimentary rocks/clastic rocks/provenance/San Diego County/Poway Conglomerate/Jolla Vieja Formation/Ballena Gravels/San Diego/Santa Cruz Island/Peninsular Ranges/continental borderland/Sonora/Ballena River/Paleogene/Tertiary/paleohydrology/Imuris Volcanics/alluvium /clastic sediments/alluvial fans/submarine fans/channel geometry/grain size/stream transport/velocity/floods/reconstruction/SRD.

265. Sterner JD. Population characteristics, home range, and habitat use of feral pigs on Santa Cruz Island, CA [dissertation]. : UCB; 1990. Master's.
fspub/feral pigs/Santa Cruz Island/SRD.

266. Stuart CJ (Cont. Oil Co., Explor. Res. Div., Ponca City, OK). Source terrane of the San Onofre Breccia; preliminary notes. Howell DG, AFFL: U.S. Geol. Surv., Menlo park, CA. in Aspects of the geol. hist. of the Calif. Continental Borderland: Calif. Continental Borderland Symposium; 1975 Sep 22; Santa Cruz Island. : Am. Assoc. Pet. Geol., Pac. Sect.; 1976. Misc. Publ. 24. p. 309-325. 14 refs., illus., sect., sketch map.
fspub/San Diego County/Orange County/San Onofre Breccia/sedimentary petrology/sedimentary rocks/clastic rocks/terrigenous/breccia/Miocene/southwest/Channel Islands/Santa Cruz Island/Santa Catalina Island/Oceanside/Laguna Beach/conglomerate/clasts/petrography/lithofacies/provenance/SRD/

SRD.

267. Davis WS. Natural hybridization between *Malacothrix incana* and *M. saxatilis* var. *implicata* (Asteraceae: Lactuceae) on San Miguel Island, California. Madrono. Berkeley, Calif. : California Botanical Society. Oct 1986. 1986;33(4):p.253-263
Other-US Includes references. Article.
compositae/interspecific
hybridization/evolution/biosystematics/AGRICOLA.

268. Ferraro SP, Cole FA. Taxonomic level and sample size sufficient for assessing pollution impacts on the Southern California Bight macrobenthos. MAR. ECOL. (PROG. SER.) 1990;67(3):251-262.
Macrobenthic data from samples taken in 1980, 1983 and 1985 along a pollution gradient in the Southern California Bight (USA) were analyzed at 5 taxonomic levels (species, genus, family, order, phylum) to determine the taxon and sample size sufficient for assessing pollution impacts on 5 measures of community structure. Four replicate 0.1 m super(2) van Veen grabs per station were needed to ensure community-wide, unbiased estimates of Shannon's, 1-Simpson's and McIntosh's Index. Family-level identification appeared to be a good choice for assessing pollution impacts at the study site as it ensured a high probability (1-beta greater than or equal to 0.80) of detecting intermediate or larger impacts on most (impact effects design) or all (location effects design) of 5 measures of community structure when n sub(i) and n sub(i) greater than or equal to 4. pollution effects/indicator
species/approximation/community composition/statistical analysis/biological sampling/ISE/Southern California Bight/zoobenthos/ASFA.

269. KOBLINSKY C J, SIMPSON J J, DICKEY T D. AN OFFSHORE EDDY IN THE CALIFORNIA CURRENT SYSTEM PACIFIC OCEAN 2. SURFACE MANIFESTATION. PROG OCEANOGR13 (1). 1984. 51-70.
CODE 921, NASA/GODDARD SPACE FLIGHT CENTER, GREENBELT, MD. 20771, USA. BARRM. SATELLITE IR MEASUREMENT/Biosis.

270. Copelin EC. Crude oil like hydrocarbons in Recent sediments of Santa Barbara Basin. Am. Assoc. Pet. Geol., Bull. 1979;63(3):p.463 Union Oil Co. Calif., Brea, Calif., United-States AAPG-SEPM annual meeting, Houston, Tex., April 1-4, 1979 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).
California/geochemistry/organic materials/Pacific Ocean/hydrocarbons/occurrence/sediments/petroleum/genesis/interpretation/United States/Southern California/Santa Barbara Basin/cores/Holocene/Quaternary/chemical composition/composition/Northeast Pacific/GEOREF.

271. Volkman G, Knauss J, Vine A. The use of parachute drogues in the measurement of subsurface ocean currents. Trans. Amer. Geophys. Un. 1956;37(5):573-577
NPS/Physical oceanography/oceanography/currents.

272. Wehtje W. Response of Bishop Pine (*Pinus muricata*) to cessation of browsing by feral sheep on Santa Cruz Island, California [dissertation] [MA Thesis]. Los Angeles, CA: UCLA; 1991. 77 pp. SCIR/SBMNH
fspub/feral animals/management/restoration ecology/sheep/Santa Cruz Island/pines.

273. (Performer: Kinnetic Labs., Inc., Santa Cruz, CA.

Performer: Lawrence Livermore National Lab., CA. Environmental Sciences Div. Performer: Texas Univ. at Austin, Port Aransas. Marine Science Inst. Funder: Minerals Management Service, Los Angeles, CA. Pacific OCS Region.) Adaptations of Marine Organisms to Chronic Hydrocarbon Exposure. Volume 2 of 2. Final rept. ; 1989. 485p. See also Volume 1, PB90-263344. Prepared in cooperation with Lawrence Livermore National Lab., CA. Environmental Sciences Div., and Texas Univ. at Austin, Port Aransas. Marine Science Inst. Sponsored by Minerals Management Service, Los Angeles, CA. Pacific OCS Region. PC A21/MF A03 Contract: DI1412000130159. Volume II contains the appendices to Volume I. Volume I discusses a three-year study of trophic activities and relationships and reproductive strategies of organisms near a natural petroleum seep in the Santa Barbara Channel. The objectives were to provide an evaluation of the effects of chronic hydrocarbon exposure on bottom dwelling organisms in the Southern California Bight. The primary emphasis of the project was related to the meiofauna, those small organisms ranging in size from 0.1-1mm that live between sediment sand grains. The project included a one-year study of meiofauna food supplies and other potential controlling factors on their populations. Particular emphasis was given to the reproduction and life history of harpacticoid copepods, a class of meiofauna thought to be particularly susceptible to effects of oil. The second and third years of the study consisted of intra-annual comparisons of community metabolism, microbial activity, sediment geochemistry and meiofaunal grazing. Experiments of faunal recolonization of sediments and determinations of carbon sources for deposit feeders were also carried out. The strongest single theme emerging from the results is that petroleum is biologically oxidized by microbes, whose activities increase the rate of community metabolism and change the sedimentary environment. Those changes, in turn, define the types and activities of other microbes and the distribution of multicellular organisms.

Exposure/Sediments/Crude oil/Oil reservoirs/Benthos/Marine microorganisms/Biogeochemistry/Santa Barbara Channel/Hydrocarbons/Southern California Bight/Biological effects/Sediment water interfaces/Aquatic ecosystems/Water pollution effects/Biological adaptation/Meiofauna/Oil pollution/NTIS.

274. Fiedler RC. Offshore entrainment of anchovy spawning habitat, eggs, and larvae by a displaced eddy in 1985. REP. CCOFI 1986;VOL. 27:pp. 144-152 NMFS, Southwest Fish. Cent., P.O. Box 271, La Jolla, CA 92038, USA. In early 1985, a recurrent anticyclonic eddy, normally located about 40 km Southwest of Point Conception, was displaced toward the offshore limit of the northern anchovy spawning range in the Southern California Bight. The anomalous location of the eddy, and surface flow patterns associated with it were determined from hydrographic data and satellite imagery. Productive surface waters of 14 degree -15 degree C, characteristic of the preferred spawning habitat of northern anchovy, were entrained from within the Southern California Bight by the eddy. The eggs and subsequent larvae were removed from the usual larval feeding grounds within the bight. turbulent entrainment/oceanic eddies/spawning grounds/fish eggs/fish larvae/Engraulis mordax/INE, USA, California, Point Conception/ INE, Southern California Bight/OceanAbstracts.

275. Dawson EY. Marine red algae of Pacific Mexico. Part 7. Ceramiales: Ceramiaceae, Delesseriaceae. Allan Hancock Pacific Expeditions 1962;26(1):1-207 contains some distributional records for algae from the Southern California Islands.

276. NELSON JR. PHYTOPLANKTON PIGMENTS IN MACROZOOPLANKTON
FECES: VARIABILITY IN CAROTENOID ALTERATIONS. MAR ECOL PROG SER
52(2) 1989: 129-144, ILLUSTR.

* TUNICATA ** THALIACEA *** SALPIDA **** SALPIDAE ***** CYCLOSALPA
BAKERI, SALPA. BIOMETRICS/MEASUREMENTS/SIZE/PIGMENT ALTERATION
DURING DIGESTION, RELATIONSHIPS, CALIFORNIA (MARINE)/DIGESTION &
NUTRITION/DIGESTION/DIGESTIVE ENZYMES/PASSAGE OF FOOD/TRANSIT
TIME, EFFECTS ON PIGMENT ALTERATION, CALIFORNIA
(MARINE)/FAECES/PIGMENT CONTENT, DIETARY ORIGIN, INFLUENCING
FACTORS, CALIFORNIA (MARINE)/NUTRITION/DIET/FAECAL
ANALYSIS/PACIFIC OCEAN/NORTHERN PACIFIC/SOUTHERN CALIFORNIA
BIGHT/FAECAL PIGMENT CONTENT, DIETARY ORIGIN, INFLUENCING
FACTORS/Zoological Index.

277. MUNK WH, MILLER GR, SNODGRASS. LONG PERIOD WAVES OVER
CALIFORNIA'S CONTINENTAL BORDERLAND. J. MAR. RES. 1962;20
METEOROLOGY/WAVES/TSUNAMIS/PHYSICAL OCEANOGRAPHY/OCEANOGRAPHY.

278. Alldredge AL, Robison BH, Feminger A., Torres J.J.,
King J.M., Hamner W.M. Direct sampling and in situ observation of
a persistent copepod aggregation in the mesopelagic zone of the
Santa Barbara Basin. Marine Biology 1984;?:75-81
aggregations/distribution/mesopelagic zone/copepods/Santa Barbara
Channel/marine biology/oceanography.

279. Sung LY, Jackson DD (Univ. Calif., Dep. Earth and Space
Sci., Los Angeles, CA). Lateral structure variations in the crust
and upper mantle under Southern California [abstract]. in Eos
Transactions, AGU: American Geophysical Union; 1988 Dec 6; San
Francisco, CA. ; 1988. 69 (44). p. p. 1324.
seismology/interior/lateral heterogeneity/crust/upper
mantle/mantle/P waves/body waves/elastic
waves/traveltime/velocity/Fourier analysis/variations/statistical
analysis/Colorado Desert/San Jacinto Mountains/Riverside County/San
Gabriel Mountains/Mojave Desert/Ventura Basin/Santa Cruz
Island/Sierra Nevada/Santa Monica Mountains/isostasy/teleseismic
signals/Transverse Ranges/Peninsular Ranges/arrays/SRD.

280. Allen MJ, Mearns AJ. Bottom fish populations below 200
m. Annual Report 1977;:109-115.
TEXT/CROSS/ALLEN/FISH/population characteristics/aquatic
community/sewage disposal/environmental effects/benthos/deep
water/Pisces/algae/spermatophytes/Bray/Murray/anthropogenic
Anderson/Southern California Bight/outfalls/MINERALS MANAGEMENT
SERVICE.

281. Tajima F (Univ. Tex. at Austin, Inst. Geophys., Austin,
TX; Scripps Inst. Oceanogr., Inst. Geophys. and Planet. Phys., La
Jolla, CA; Maharshi Dayanand Univ., India). Earthquake source
ruptures in the collision zones [abstract]. Brune JN, Schmitt RJ,
Singh SJ. in International Association of Seismology and Physics of
the Earth's Interior: International Association of Seismology and
Physics of the Earth's Interior, regional assembly; 1977 Oct 31;
Natl. Geophys. Res. Inst., Hyderabad, India. Amsterdam: Elsevier;
1977. p. p.250.
tectonophysics/plate tectonics/Costa Rica/Mexico/Central
America/Santa Cruz Island/plate collision/rupture/seismic
sources/North American Plate/Cocos Plate/Costa Rica earthquake
1983/Mexico earthquakes/Oaxaca earthquake 1978/Petatlan earthquake
1979/Guerro earthquake 1982/subduction/SRD.

282. Tajima F, Ruff LJ, Kanamori H (Univ. Tex., Inst.
Geophys., Austin, TX; Univ. Mich.; Calif. Inst. Technol.)

Subduction in the Santa Cruz Islands; source process of the 1966 and 1980 earthquakes [abstract]. in Eos Transactions, AGU: American Geophysical Union; 1986 May 19; Baltimore, MD. ; 1986. 67 (16). p. 310. seismology/earthquakes/P waves/Santa Cruz Island/body waves/elastic waves/subduction/SRD.

283. Van Vuren D, Coblentz BE. Population characteristics of feral sheep on Santa Cruz Island. J. WILDL. MANAGE. 1989;53(2):306-313
AUTH AFFL: Dep. Syst. and Ecol., Univ. Kansas, Lawrence, KS 66045. The authors evaluated population characteristics of feral sheep (*Ovis aries*) on Santa Cruz Island from 1979 to 1981. Santa Cruz Island supported an estimated 21,240 feral sheep on 22,000 ha; mean densities were as high as 2.1 sheep/ha. Sheep attained adult weight by 2.5 years. Physical condition varied seasonally according to reproductive chronology, with no evidence of emaciation. A young age structure suggested an increasing population, and female-biased sex ratios probably resulted from higher mortality of reproductively active males. Lambing occurred during a 1-month period that coincided with the onset of the growing season; lamb survival was close to 100%. The authors concluded that feral sheep were maintaining a healthy population despite habitat degradation due to long-term overgrazing, and recommended that feral sheep be removed from the island. That recommendation was carried out.
fspub/population structure/sheep/Santa Cruz Island/feral population/wildlife management/demography/SRD.

284. Van Vuren D, Coblentz BE. Some ecological effects of feral sheep on Santa Cruz Island, California, USA. Biol. Conserv. 1987;41(4):253-268 AUTH AFFL: Dep. Syst. and Ecol., Univ. Kansas, Lawrence, KS 66045; ref. ill. map.
Long-term overgrazing by feral sheep has resulted in moderate to severe ecological impacts to about one-half of Santa Cruz Island. Feral sheep were generalist herbivores, consuming a variety of plants according to availability and phenology. Insular endemic species in particular were preferred, and sheep reared on their hind legs to reach leaves of endemic shrubs. Effects of sheep on a grassland community included reduced herbaceous cover, increased bare ground, altered community structure, decreased litter, and increased erosion. Sheep browsing impacted shrubs by altering growth form and preventing regeneration, and by completely defoliating lower-growing shrubs.
fspub/grazing/plant communities/environmental degradation/feral populations/sheep/Santa Cruz Island/SRD.

285. Vedder JG, Howell DG (U. S. Geol. Surv., Menlo Park, CA). Review of the distribution and tectonic implications of Miocene debris from the Catalina Schist, California Continental Borderland and adjacent coastal areas. Howell DG, AFFL: U. S. Geol. Surv., Menlo Park, CA. in Aspects of the geol. hist. of the Calif. Continental Borderland: Calif. Continental Borderland Symposium; 1975 Sep 22; Santa Cruz Island. : Am. Assoc. Pet. Geol., Pac. Sect.; 1976. Misc. Publ. 24. p. 326-340.
sketch map.
fspub/Catalina Schist/San Onofre Breccia/sedimentary petrology/sedimentary rocks/clastic rocks/terrigenous/Miocene/southwest/coastal/Santa Monica Mountains/Long Beach/Oceanside/Channel Islands/Santa Cruz Island/Santa Rosa Island/Anacapa Island/offshore/Patton Ridge/Santa Rosa Cortes Ridge/paleogeography/faults/plate tectonics/middle Miocene/upper Miocene/distribution/Mexico/Tijuana/provenance/displacements/San Andreas Fault/effects/sedimentation/SRD/SRD.

286. Warren EJ. The agriculture of Santa Cruz Island, with a survey of California's other coastal islands. Davis?; 1952. under the supervision of James F. Wilson, maps. Santa Cruz Island/agriculture/SRD.

287. Gallegos GA, Barberan FJM, Fernandez EA. (Oceanographic conditions surrounding Socorro Island, Revillagigedo archipelago, in July 1981.). REV. GEOFIS. (MEX.). 1988;(28):41-58. Socorro Island is located within the transition zone of the north equatorial eastern Pacific. Surface and subsurface water masses transported by the California Current and by the north equatorial extension of the eastern Equatorial Pacific current system converge in this zone. Based on hydrographic data, identification of the surrounding water masses in the upper 1000 m was accomplished. Observations were made to estimate the local average advection of the mixed layer and meso-scale motion was detected superimposed on this average displacement. It was concluded that Socorro Island produces an "island effect" which is observed in the thermohaline structure of the water columns that slide over the slope and shelf of the island. oceanic convergences/mesoscale features/thermohaline circulation/ISE/ Mexico/Socorro Island/ocean currents/ASFA.

288. SIMPSON J J, DICKEY T D, KOBLINSKY C J. AN OFFSHORE EDDY IN THE CALIFORNIA CURRENT SYSTEM PACIFIC OCEAN 1. INTERIOR DYNAMICS. PROG OCEANOGR13 (1). 1984. 5-50. MARINE LIFE RESEARCH GROUP, SCRIPPS INSTITUTION OF OCEANOGRAPHY, LA JOLLA, CALIFORNIA 92093, USA. BARRM. Biosis.

289. Howell DG, McLean H. Basin analysis of provincial lower and middle Miocene strata, Santa Rosa and Santa Cruz islands, California. Ujiie H, Saito T. Proceedings of the First international congress on Pacific Neogene stratigraphy. ; 1977. p. p.344-345. U. S. Geol. Surv., Menlo Park, Calif., United-States Sci. Council. Japan, Tokyo First international congress on Pacific Neogene stratigraphy, Tokyo, May 16-21, 1976 Analytic; Book; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). California/stratigraphy/Miocene/sedimentary rocks/clastic rocks/lithostratigraphy/structural geology/tectonics/Santa Barbara County/United States/Santa Cruz Island/Santa Rosa Island/Neogene/Tertiary/lower Miocene/middle Miocene/continental borderland/lithofacies/basins/breccia/models/nearshore environment/shelf environment/conglomerate/GEOREF.

290. Weigand JG, Farmer HG, Prinsenber SJ, Rattray J. Effects of friction and surface tide angle of incidence on the coastal generation of internal tides. . J. Mar. Res. 1969;27:241-259 NPS/Physical oceanography/oceanography/waves.

291. Laughrin L (Santa Cruz Island Reserve, Univ. of Calif., Santa Barbara). California Channel Islands: Non-native species considerations. Non-Native Species in Island Ecosystems/Southern California Academy of Sciences/Annual Meeting; 1992 May 1; Occidental College, Los Angeles, CA. ; 1992 May 1. p. No. 15 in Abstracts. SCIR. fspub/non-natives/exotics/management.

292. Weaver DW et al. The pre-Tertiary rocks. in Geology of the northern Channel Islands. Weaver, D. W.//// ed. Los Angeles, CA: Am. Assoc. Petroleum Geologists and Soc. Econ. Paleontologists and Mineralogists, Pacific Sec.; 1969. p. 11-13.

fspub/absolute age/dates/diorite/general description/igneous rocks/k-ar/metamorphic rocks/petrology/pre-Tertiary rocks/Santa Cruz Island/Santa Cruz Island schist/schist/Willows diorite/SRD.

293. (Performer: Kinnetic Labs., Inc., Santa Cruz, CA. Performer: Lawrence Livermore National Lab., CA. Environmental Sciences Div. Performer: Texas Univ. at Austin, Port Aransas. Marine Science Inst. Funder: Minerals Management Service, Los Angeles, CA. Pacific OCS Region.) Adaptations of Marine Organisms to Chronic Hydrocarbon Exposure. Volume 1 of 2. Final rept. ; 1989. Report No.: OCSMMS890089VOL1. 392p.

See also Volume 2, PB90-263351. Prepared in cooperation with Lawrence Livermore National Lab., CA. Environmental Sciences Div., and Texas Univ. at Austin, Port Aransas. Marine Science Inst. Sponsored by Minerals Management Service, Los Angeles, CA. Pacific OCS Region. PC A17/MF A03 Contract: DI1412000130159.

A three-year study was undertaken of trophic activities and relationships and reproductive strategies of organisms near a natural petroleum seep in the Santa Barbara Channel. The objectives were to provide an evaluation of the effects of chronic hydrocarbon exposure on bottom dwelling organisms in the Southern California Bight. The primary emphasis of the project was related to the meiofauna, those small organisms ranging in size from 0.1-1mm that live between sediment sand grains. The project included a one-year study of meiofauna food supplies and other potential controlling factors on their populations. Particular emphasis was given to the reproduction and life history of harpacticoid copepods, a class of meiofauna thought to be particularly susceptible to effects of oil. The second and third years of the study consisted of intra-annual comparisons of community metabolism, microbial activity, sediment geochemistry and meiofaunal grazing. Experiments of faunal recolonization of sediments and determinations of carbon sources for deposit feeders were also carried out. The strongest single theme emerging from the results is that petroleum is biologically oxidized by microbes, whose activities increase the rate of community metabolism and change the sedimentary environment. Those changes, in turn, define the types and activities of other microbes and the distribution of multicellular organisms.

Exposure/Sediments/Crude oil/Oil reservoirs/Benthos/Marine microorganisms/Biogeochemistry/Santa Barbara Channel/Hydrocarbons/Southern California Bight/Biological effects/Sediment water interfaces/Aquatic ecosystems/Water pollution effects/Biological adaptation/Meiofauna/Oil pollution/NTIS.

294. Yoklavich MM, Cailliet GM, Barry JP, Ambrose DA, Antrim BS. Temporal and spatial patterns in abundance and diversity of fish assemblages in Elkhorn Slough, California. ESTUARIES 1991;VOL. 14, NO. 4:pp. 465-480 NOAA-Pacific Fish. Environ. Group, P.O. Box 831, Monterey, CA 93942, USA. Assemblages of ichthyofauna of shallow inshore habitats along California's central coast are described in terms of species composition, abundance, and life-style categories. A total of 22,334 fishes from 65 species and 27 families was collected with otter trawls at six sites in the main channel and tidal creeks of Elkhorn Slough, a tidal embayment and seasonal estuary, and two nearshore ocean stations in Monterey Bay during 44 months between August 1974 and June 1980. Greater than 90% of the catch comprised 10 species. The four dominant species, *Cymatogaster aggregata*, *Leptocottus armatus*, *Phanerodon furcatus* ,

and *Embiotoca jacksoni*, occurred during most or all seasons and were classified as residents or partial residents. Several abundant species were marine immigrants that seasonally use the slough as spawning and nursery grounds; this resulted in higher abundance and species richness during summer. Species collected during winter largely were slough residents. Species composition and richness varied with distance from the slough entrance. The ocean assemblage was most different, and its similarity to other stations decreased progressively with distance inland and into the tidal creeks. species diversity/INE, USA, California, Monterey Bay, Elkhorn Slough/ abundance/community composition/Pisces/distribution/temporal variations/spatial variations/biological surveys/Oceanic Abstracts.

295. Chen YQ. The vertical distribution of some pelagic copepods in the eastern Tropical Pacific. REP. CCOFI 1986;VOL. 27:pp. 205-227 East China Sea Fish. Res. Inst., 300 Jun Gong Rd., Shanghai, People's Rep. China. This study was based on zooplankton samples collected with standard, opening-closing bongo nets through eight depth intervals to 600 m or 800 m at 10 stations along a transect from 23 degree N to 3 degree S in the eastern tropical Pacific during May-Jun. 1974. The investigation covered four environments: (1) the mouth of the Gulf of California, where some California Current species occurred at their southern limits: (2) the oxygen-deficient region (0 sub(2) <0.1 ml/l); (3) the North Equatorial Countercurrent; and (4) the Equatorial Undercurrent. More than 60 species of calanoid copepods were identified and counted. The numerically dominant species -- *Eucalanus subtenius*), *Eucalanus subcrassus*, and *Rhincalanus nasutus* -- constituted respectively 33.5%, 12.8%, and 9.5% of the total numbers. The quantitative, geographical, and vertical distributions of the most common and abundant species are described. vertical distribution/pelagic environment/zooplankton/distribution records/Calanoida/ISE/*Eucalanus subtenius*/*Eucalanus subcrassus*/*Rhincalanus nasutus*/check lists/OceanAbstracts.

296. THOMAS WH. Phytoplankton enrichment experiments and bioassays in natural coastal sea water and in sewage outfall receiving waters off southern California. Estuarine and Coastal Marine Science, 2(3): 191-206, July 1974 1974 SIO, P.O. Box 1529, La Jolla, CA 92037. CALIFORNIA COAST/GROWTH RATE/NUTRIENTS/OUTFALLS/PHYTOPLANKTON/SEWAGE/WASTE WATERS/SOUTHERN CALIFORNIA BIGHT/PollutionAbstracts.

297. Dawson EY. On the recognition of a second species of the genus *Pelagophycus*. Bulletin of the Southern California Academy of Sciences 1962;61:153-160 Description of a 2nd species of *Pelagophycus* (elk kelp) based in part on specimens obtained from Santa Catalina, San Clemente and Santa Cruz Islands. *Pelagophycus giganteus*, the species established in this paper has since been placed in synonymy with *P. Porra*. Marine algae.

298. NELSON CS. WIND STRESS AND WIND STRESS CURL OVER THE CALIFORNIA CURRENT. NOAA TECHNICAL REPORT. 1977;NMFS SSRF-714 METEOROLOGY/CURRENTS/PHYSICAL OCEANOGRAPHY/OCEANOGRAPHY/WAVES.

299. Alvarino A. *Spadella pimukatharos*, a new benthic chaetognath from Santa Catalina Island, California. Proc. Biol. Soc. Wash. 1987;100(1):125-133 Address: NMFS, NOAA, Southwest Fish. Cent., P.O. Box 271, La Jolla, CA 92038. *Spadella pimukatharos* is described and compared with closely related species

Spadella legazpichessi , S. nana , and S. schizoptera . These species are related in part by the structure fo the adhesive digital organs. The substratum apparently preferred by S. pimukatharos is a sediment rich in fragments of coralline algae.
new species/animal
morphology/taxonomy/habitat/chaetognath/Chaetognatha/Spadella
pimukatharos/Santa Catalina Island/marine biology.

300. Weaver DW, Griggs G, Mcclure DV, Mckey JR.
Volcaniclastic sequence, south central Santa Cruz Island. in
Geology of the northern Channel Islands. Weaver, D. W.//// ed. Los
Angeles, CA: Am. Assoc. Petroleum Geologists and Soc. Econ.
Paleontologists and Mineralogists, Pacific Sec.; 1969. p. 85-90.
fspub/general description/igneous rocks/Santa Cruz
Island/sedimentary petrology/stratigraphy/Tertiary/Tertiary
volcaniclastic rocks/volcaniclastic rocks/volcaniclastic
sequence/volcanics/SRD.

301. Weaver DW, Meyer GL. Stratigraphy of northeastern Santa
Cruz Island. in Geology of the northern Channel Islands. Weaver, D.
W.//// ed. Los Angeles, CA: Am. Assoc. Petroleum Geologists and
Soc. Econ. Paleontologists and Mineralogists, Pacific Sec.; 1969.
p. 95-104.
fspub/foraminifera/Miocene fauna/northeastern/Quaternary/Santa Cruz
Island/stratigraphy/Tertiary/SRD.

302. Wells H. A distance coefficient as a hybridization
index: an example using Mimulus longiflorus and Mimulus flemingii
(Scrophulariaceae) from Santa Cruz Island, California. Taxon.
(Utrecht, Netherlands) 1980 Feb;29(1):53-65 bibliography.
fspub/Santa Cruz Island/hybridization index/SRD/SRD.

303. Wenner AM. "Bee lining" and ecological research on
Santa Cruz Island. Am. Bee Journal 1989 Dec;129(12):808-809
ref., maps.
fspub/Apis mellifera/feral varieties/honeybee colonies/hunting/pest
control/ research projects/ Apis mellifera scutellata/african
honeybee control/Santa Cruz Island/SRD/SRD.

304. Yeaton RI. An ecological analysis of chaparral and pine
forest bird communities on Santa Cruz Island and mainland
California [dissertation] [photocopy]. Los Angeles, CA: University
of California; 1972. 117 p., bibliography: 96-101. available from:
SCIR-R/University Microfilms, Ann Arbor, MI (1973)
Doctoral.
fspub/Santa Cruz Island/bird communities/SRD/SRD.

305. Yeaton RI. An ecological analysis of chaparral and pine
forest bird communities on Santa Cruz Island and mainland
California. Ecology Durham 1974 Jun;55(5):959-973
ref.
fspub/bird communities/Santa Cruz Island/SRD/SRD.

306. Yeats RS (Ohio Univ., Dep. Geol., Athens, Ohio).
Extension versus strike slip origin of the southern California
Borderland. Howell DG, AFFL: U.S. Geol. Surv., Menlo Park, CA. in
Aspects of the geol. hist. of the Calif. Continental Borderland:
Calif. Continental Borderland Symposium; 1975 Sep 22; Santa Cruz
Island. : Am. Assoc. Pet. Geol., Pac. Sect.; 1976. Misc. Publ. 24.
p. 455-485.
82 refs., illus., table, sects., sketch maps.
Los Angeles County/Ventura County/Sespe Formation/San Onofre
Breccia/Vaqueros Formation/Rincon Formation/structural

geology/faults

/displacements/southwest/Channel Islands/Santa Cruz Island/Santa Rosa Island/Santa Monica Mountains/Los Angeles/Ventura/horizontal/extension/effects/sedimentary rocks/distribution/Eocene/Miocene/paleogeography/Tertiary/reconstruction/palins pastic/SRD/SRD.

307. Martin Pl, Berenbrock C. Ground water monitoring at Santa Barbara, California : phase 3 development of a three dimensional digital ground water flow model for storage unit I of the Santa Barbara ground water basin. Sacramento, Calif. : U.S. Dept. of the Interior, Geological Survey ; Denver, CO : Books and Open-File Reports [distributor], 1986. 1986;v:p.58 Water-resources investigations report ; 86-4103. Other-US Bibliography: p. 58. Monograph; Bibliography. Water quality management/California/Santa Barbara/Water/Underground/Santa Barbara Channel/AGRICOLA.

308. DEVRIES T J, PEARCY W G. FISH DEBRIS IN SEDIMENTS OF THE UPWELLING ZONE OFF CENTRAL PERU A LATE QUATERNARY RECORD. DEEP-SEA RES PART A OCEANOGR RES PAP29 (1). 1982. 87-110. DEP. GEOL. MINERALOGY, INST. POLAR STUDIES, OHIO STATE UNIV., COLUMBUS, OHIO 43210, USA. BA. Scales of the anchoveta [*Engraulis ringens*] were abundantly represented among fish remains preserved in partly laminated marine sediments on the upper continental slope of Peru. Hake scales were less common. Sardine scales occurred only sporadically. Recent accumulation rates of scales indicate that prior to exploitation the anchoveta standing stock off Peru was .apprx. 5 times that of northern anchovy off California [USA]. During glacial time, clupeoids were less abundant off Peru and were more evenly distributed among sardines and anchoveta. Evidence from fish scales and phytoplankton assemblages suggests that the coastal waters off Peru did not respond to continental glacial and neoglacial advances simply by cooling. High accumulation rates of scales from warm-water fishes and tests of cool-water phytoplankton preceded and succeeded an interval containing low numbers of dominantly warm-water taxa. This interval coincided with the 2nd neoglacial advance (2000-2700 yr. B.P.). Similar but less well-defined warm-water and cool-water assemblages coincided with the 3rd neoglacial advance (200-400 yr B.P.) and the last glacial retreat. Upwelling intensity probably fluctuated more widely during early and late phases of glacial and neoglacial cooling episodes, accounting for the mix of distinctly warm-water and cool-water assemblages and perhaps for an enhanced productivity. A weakened Intertropical Convergence Zone or strengthened coastal countercurrent may explain the warm-water marine faunas and floras and wet climates on the mainland of Peru inferred by others for neoglacial or glacial time. ENGRAULIS-RINGENS ANCHOVETA CLUPEOID SARDINE SCALE PHYTO PLANKTON GLACIATION PALEO CLIMATOLOGY MARINE ENVIRONMENT CALIFORNIA USA/Biosis.

309. Kamerling MJ, Luyendyk BP. Tectonic rotations of the Santa Monica Mountains region, western Transverse Ranges, California, suggested by paleomagnetic vectors. Geol. Soc. Am., Bull. 1979;90(4):p.I 331-I 337 Univ. Calif., Dep. Geol. Sci., Santa Barbara, Calif., United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present). California/stratigraphy/Miocene/paleomagnetism/sedimentation/provenance/paleocurrents/Pacific Coast/tectonophysics/plate tectonics/Los Angeles County/Ventura County/United States/Southern California/Neogene/Tertiary/Santa Monica Mountains/Transverse Ranges/rotation/block structures/volcanic rocks/movement/Conejo

Hills/Anacapa Island/pole positions/reversals/data/middle
Miocene/GEOREF.

310. Welday EW. Natural hazards - tsunamis. Division of
Mines and Geology for California comprehensive ocean area plan.
Appendix V. 1971;1:59-78 NPS/Physical
oceanography/oceanography/waves/tsunamis.

311. Junak S, Halvorson W, Philbrick R (Santa Barbara
Botanic Garden/Channel Islands National Park). No-native plants on
the Southern California Islands: an overview. Non-Native Species in
Island Ecosystems/Southern California Academy of Sciences/Annual
Meeting; 1992 May 1; Occidental College, Los Angeles, CA. ; 1992
May 1. p. No. 16 in Abstracts.
SCIR.
fspub/flora/non-natives/management/Santa Cruz Island/Channel
Islands.

312. Tsai CM. Submesoscale Structure of the California
Current Near San Clemente Island. Master's thesis. [dissertation]
; 1990. 127p. Performer: Naval Postgraduate School, Monterey, CA
The purpose of the San Clemente Basin Experiment (SCBE) was to
survey the upper ocean currents and temperature in a region
southwest of San Clemente Island (SCI). To accomplish this, two
cruises were made in this area during which currents were measured
by using a shipboard mounted Acoustic Doppler Current profile
(ADCP), and temperature was measured during the second cruise by
deploying Expendable Bathythermographs (XBT). The first cruise took
place during 17-21 July 1989 and the second one during 2-6
September 1989. Data indicate a variety of features. Two different
flow patterns were observed. Strong poleward alongshore flow (about
40 cm/s) occurred 5-15 km west of SCI and small scale eddies were
seen further offshore, i.e., farther than 15 km west of SCI. The
alongshore flow intensified poleward, reaching 300 m depth. The
small scale eddies have a length scale of about 10 km and are
believed to be associated with larger scale horizontal shear due to
the California current. Keywords: Coastal circulation; Nearshore
eddies; Ocean current structure; Geostrophic flow; Thermal
properties; Sea water; Theses. (edc).

Acoustic detectors/Basins
Geographic/Bathythermographs/California/Circulation/Coastal
regions/Doppler systems/Expendable/Water flow/Geostrophic
currents/Horizontal orientation/Inshore areas/Length/Patterns/Santa
Barbara Islands/Scale/Sea water/Shear properties/Structural
properties/Thermal properties/Theses/Eddies Fluid mechanics/Ocean
currents/Nearshore eddies/San Clemente Island
California/ADCP/Acoustic Doppler Current Profile/Coastal
circulation/Nearshore eddies/Ocean current structure/Geostrophic
flow/Thermal properties/Sea water/NTIS.

313. Falavigna da Rocha CE. A new species of Halicyclops
(Copepoda, Cyclopidae) from California, and a revision of some
Halicyclops material in the collections of the US Museum of Natural
History. HYDROBIOLOGIA 1991;VOL. 226, NO. 1:pp. 29-37
Dep. Zool., Inst. Biocienc., Univ. Sao Paulo, C.P. 20520, 01498 Sao
Paulo, Brazil. Halicyclops hurlberti, a new species of cyclopoid
copepod, is described from San Diego, California. Specimens
identified by C.D. Marsh as *H. aequoreus* kept in the US Museum of
Natural History were checked and placed in the species *H. cf.*
clarkei Herbst and *H. fosteri* M.S. Wilson. The description of these
two species is being emended.
new species/taxonomy/animal morphology/Halicyclops hurlberti/Halicy
clops aequoreus/Halicyclops clarkei/Halicyclops fosteri/INE, USA,

California, San Diego/Oceanic Abstracts.

314. YOUNG DR. Mercury in the environment: A summary of information pertinent to the distribution of mercury in the Southern California Bight. Mercury in the Environment: A Summary of Information Pertinent to the Distribution of Mercury in the Southern California Bight. Report. Southern California Coastal Water Research Project, Los Angeles. 37 pages. Nov. 1971 1971 Southern California Coastal Water Research Project, Los Angeles. SEDIMENTS/MERCURY/CALIFORNIA/MARINE ORGANISMS/SOUTHERN CALIFORNIA BIGHT/Pollution Abstracts.

315. Dawson EY. Marine red algae of Pacific Mexico. part 6. Rhodymeniales. Nova Hedwigia 1963;6:437-476 Contains some algal distributional records from the Southern California Islands. Marine algae.

316. NEUSHUL M. FINAL REPORT DEALING WITH THE EARLY STAGES OF THE SANTA BARBARA OIL SPILL. U.S. DEP. INTERIOR 1969;CONTRACT NO. 14-12-516 POLLUTION/CURRENTS/PHYSICAL OCEANOGRAPHY/OCEANOGRAPHY.

317. Ambrose RF. Importance of octopus predation in a Southern California subtidal community. American Zoologist 1980;20:884 Abstract. predation/community structure/Mollusca/Cephalopoda/Octopus bimaculatus/Santa Catalina Island/marine biology/ecology/malacology.

318. Allen JC. A population study of the Pyrrhocorid bug, Euryopthalmus convivus [dissertation]. Santa Barbara: UCSB; 1967. SCIR Masters. fspub/entomology, population ecology/SRD.

319. Bergen M. Growth, feeding and movement in the black abalone, Haliotis cracherodii Leach, 1817 [dissertation]. Santa Barbara: UCSB; 1971. SCIR Masters. fspub/biology/marine biology/growth/molluscs/abalone/Santa Cruz Island/SRD.

320. Bills AR. A study of the distribution and morphology of the mice of Santa Cruz Island: an example of divergence [dissertation]. Santa Barbara: UCSB; 1969. SCIR Masters. fspub/Santa Cruz Island/mice/Peromyscus/Reithrodontomys/SRD.

321. Brumbaugh RW (UCLA, Dept. Geography). Erosion and Soils, Santa Cruz Island, California. Santa Barbara: The Nature Conservancy; 1980. Report No.: The Nature Conservancy. SCIR-R. unpublished report. fspub/geography/erosion/soils/Santa Cruz Island/SRD.

322. Brady T. Boating traffic at Santa Cruz Island [dissertation]. Santa Barbara: UCSB; 1979. SCIR-R Senior thesis. fspub/recreation/visitation/Santa Cruz Island/boating/SRD.

323. Alvarino A. Distributional atlas of Chaetognatha in the California current region. Calif. Coop. Oceanic Fish. Invest. Atlas No. 3 1965;;:291. atlases/plankton distribution/population density/temperature profiles/data compilation/oxygen

profiles/chaetognaths/calcofi atlases/cruise reports/water masses/california current/seasonal variations/california coast/zooplankton/Pieper fish/MINERALS MANAGEMENT SERVICE.

324. Collins PW. Origin and differentiation of the island fox: a study of evolution in insular populations [dissertation]. Santa Barbara: UCSB; 1982. SCIR-R Masters. fspub/taxonomy/Urocyon/biogeography/SRD.

325. Alvarino A. Indicadores planctonicos y la oceanografia de la region de California. (Planktonic indicators and oceanography of the California region). The Fifth Congress Nacional de Oceanografia, Guaymas (Mexico), 22 Oct 1974 1977;:52-77. USA/California/Sagitta/community composition/plankton/abundance/water/zooplankton/Pieper/current/seasonal variations/water temperature/thermocline/diurnal variation/vertical distribution/vertical migrations/Chaetognatha/fishery oceanography/MINERALS MANAGEMENT SERVICE.

326. Douros WJ. Density, growth, reproduction and recruitment in an intertidal abalone: effects of intraspecific competition and prehistoric predation [dissertation]. Santa Barbara: UCSB; 1985. SCIR-R Masters. fspub/marine biology/ecology/archaeology/SRD.

327. Hart SD. The decomposition of leaves in two southern California streams [dissertation]. Santa Barbara: UCSB; 1975. SCIR-R Masters. fspub/Santa Cruz Island/ecology/freshwater/SRD.

328. Clark R, Halvorson WL. The recovery of the Santa Barbara Island live forever. Fremontia. Berkeley, Calif. : California Native Plant Society. Jan 1987. 1987;14(4):p.3-6 Other-US Article. crassulaceae/endangered species/protected species/national parks/conservation areas/islands/pest control/plant ecology/california/AGRICOLA.

329. Trites AW. Thermal budgets and climate spaces: The impact of weather on the survival of Galapagos (Arctocephalus galapagoensis Heller) and northern fur seal pups (Callorhinus ursinus L.). FUNCT. ECOL 1990;4(6):753-768. The ability of fur seal pups to cope with diverse climatic conditions on land was investigated by constructing a thermal budget based on published physiological studies. The model was applied to northern fur seals (Callorhinus ursinus L.) breeding on the Pribilof Islands, Alaska, and on San Miguel Island, California; also to the Galapagos fur seal pup (Arctocephalus galapagoensis Heller) on the Galapagos Islands. A healthy, average-sized pup on the Pribilofs could have tolerated any combination of air temperature, wind speed and level of humidity recorded since the mid 1950s; pups with low birth weights could have succumbed during periods of cold, wet and windy weather. On San Miguel Island, the model predicts high mortalities of large pups during hot, dry weather, which suggests strong selection pressures towards the survival of smaller animals. The model further suggests that the success of the Galapagos fur seal at the equator is related to its small body size and behavioural attributes, such as seeking shade and periodically wetting its fur. climatic conditions/thermoregulation/USA/Alaska/Pribilof

Island/USA/ California/San Miguel Island/Galapagos/pups/marine
mammals/heat balance/weather/Arctocephalus
galapagoensis/Callorhinus
ursinus/survival/models/bioenergetics/environmental
effects/INE/USA/Alaska/Pribilof Island/ISE/
Galapagos/INE/USA/California/San Miguel I./ASFA.

330. BRINTON E. PARAMETERS RELATING TO THE DISTRIBUTIONS OF
PLANKTONIC ORGANISMS ESPECIALLY EUPHAUSIIDS IN THE EASTERN TROPICAL
PACIFIC. PROG OCEANOGR8 (3). 1979. 125-189.
SCRIPPS INST. OCEANOGR., LA JOLLA, CALIF. 92093, USA. BA.
Zooplankton was sampled through 8 depth intervals above about 500
m along a transect of the eastern tropical Pacific (ETP),
23.degree. N-3.degree. S, encompassing 4 environments. The
California Current-ETP transition off Baja California [Mexico] and
the mouth of the Gulf of California is inhabited by California
Current species at their southern limits, and by the galatheid red
crab *Pleuroncodes planipes* together with euphausiids (e.g.,
Euphausia eximia) of an abundance-based recurrent group of species,
distinguished using the criterion of $> .hivin.x$ [mean] abundance
(numbers under unit area of sea surface) at common localities,
adapted to productive zones marginal to the O₂-deficient part of
the ETP. Tropical species appear here where water with surface
temperature > 26 .degree. C and O₂ concentration of < 0.1 ml l⁻¹
beneath a shoaling thermocline replaces the upwelling environment
off Baja California. The zone 22.degree.-10.degree. N harbors
euphausiids of 2 groups: the vertically migrating tropical species
(e.g., *E. diomedae*) which tolerate intense O₂-deficiency at their
daytime depths and enter the oxygenated mixed layer at night, and
non-migrating *Stylocheiron* species [*S. elongatum*, *S. carinatum*, *S.*
affine, *S. longicorne* and *S. maximum*] which have vertical ranges
extending up into the mixed layer. Most of these ETP-adapted
species are denser farther south, in the north equatorial
countercurrent, but 3 ETP endemics (e.g., *E. distinguenda*), all
vertical migrators belonging in 1 subgeneric division of *Euphausia*,
are densest in the most O₂-deficient regions. The zone of the North
Equatorial Countercurrent maintains high densities of 3 groups: the
widely-ranging, ETP-adapted tropical species, the 4 common
Stylocheiron species [*S. carinatum*, *S. affine*, *S. longicorne* and *S.*
maximum] which, while recurring in abundance at the same
localities, differ in depth and the mesopelagic tropical-
subtropical species, not tolerant of O₂-deficiency, which occur
here in easterly tongues of range. At the equator (93.degree. W),
westerly ranging species (e.g., *E. paragibba*) and westerly
Nyctiphanes simplex appear to migrate between equatorial currents
which differ in direction with depth, thereby maintaining their
narrow ranges along the equator. The marginal proliferators such as
E. eximia, prominent off Baja California, are again abundant here,
availing of the equatorial divergence for high productivity and of
the oppositely-directed currents for geographical stability. A 2nd
recurrent grouping of species, based on presence of their larvae at
common localities, yielded groups also distinguishable by whether
the larvae lived within or beneath the mixed layer. Ontogenetic
strengthening of vertical migration capability is demonstrated by
many species, with older larvae, juveniles and adults showing
ranges, respectively, increasing from a few meters to up to 400 m.
The pattern is the same in O₂-deficient regions as elsewhere.
Regional distribution of euphausiid volume (wet displacement
biomass) tended to agree with zooplankton volume, with maxima at
the equator, 8.degree. N, and at some localities off Baja
California and the Gulf of California where red crab volume peaked.
The depth at which euphausiid volume is equal in amount day and
night, across which vertical migration takes place, is designated

the equilibrium depth (EqD) for euphausiid volume. EqD for euphausiids generally agreed with EqD for zooplankton volume, indicating that euphausiids play a role in determining depth of EqD for zooplankton volume. Euphausiids comprised 13% (.hivin.x) of zooplankton volume. Eighty percent (.hivin.x) of euphausiid volume migrated across EqD, the value showing no significant regional differences. Thirty-seven percent (.hivin.x) of zooplankton volume engaged in such migration, but in the region south of 14.degree. N encompassing the broad O2-deficient zone, the value was 26%, which compares with 18% previously determined for biomass transferring in a comparable way between epiplankton and planktostad in the same region. EUPHAUSIA-EXIMIA EUPHAUSIA-DIOMEDEAE EUPHAUSIA-DISTINGUENDA EUPHAUSIA-PARAGIBBA STYLOCHEIRON-ELONGATUM STYLOCHEIRON-CARINATUM STYLOCHEIRON-AFFINE STYLOCHEIRON-LONGICORNE STYLOCHEIRON-MAXIMUM NYCTIPHANES-SIMPLEX PLEURONCODES-PLANIPES ZOO PLANKTON BAJA-CALIFORNIA MEXICO GULF OF CALIFORNIA NORTH EQUATORIAL COUNTERCURRENT MIGRATION ONTOGENY/Biosis.

331. Rintoul B. California offshore. Pac. Oil World. 1978;71(1):p.94 Analytic; Serial B; Bibliography and Index of Geology (1969-present). California/economic geology/petroleum/United States/offshore/Santa Barbara Channel/San Pedro Bay/resources/reserves/continental shelf/production/GEOREF.

332. Wooster EW, Cromwell T. An Oceanographic description of the eastern tropical Pacific. Scripps Inst. Oceanogr. 1958;7(3):169-282 NPS/Physical oceanography/oceanography/water masses.

333. Wenner AM (Univ . of Calif., Santa Barbara). Feral Honey bees (*Apis mellifera*) on Santa Cruz Island. Non-Native Species in Island Ecosystems/Southern California Academy of Sciences/annual Meeting; 1992 May 1; Occidental College, Los Angeles, CA. ; 1992 May 1. p. No. 21 in Abstracts. SCIR. fspub/bees/feral bees/exotics/non-natives.

334. MacCracken MC (Performer: Lawrence Livermore National Lab., CA. Funder: Department of Energy, Washington, DC.) Climate Caucus report: Opportunities for bridging the gaps from effects to impacts. ; 1990. Report No.: UCRL101735, CONF89071911. 12p. Workshop on global climate change and its effects on California, Davis, CA (USA), 10-12 Jul 1989. Sponsored by Department of Energy, Washington, DC. Portions of this document are illegible in microfiche products. PC A03/MF A01 Contract: W7405ENG48. The workshop provided an important opportunity for those studying climate research to meet with those evaluating potential impacts as a bridge to formulating and developing effective policy responses. Participants identified an extensive range of capabilities at the University of California campuses and laboratories, spanning experience in biogeochemical cycling, atmospheric and oceanic modeling, data and model analysis and intercomparison, monitoring and observation capabilities, and hydrology and surface processes. These diverse capabilities together create a significant strength in study of our physical and chemical environment. Climate Caucus members identified a number of important initiatives that could extend understanding of potential changes in California. More detailed analysis of existing model simulations, model improvements including nesting of mesoscale models, and more extensive analyses of available data sets could provide important insights into potential changes in hydrology and in the intensity of the California current. Increased computer resources could provide both an incentive and the glue to enhance collaboration between physical

and biological studies. A strong commitment to pursue these opportunities could assure significantly more definitive assessments of the potential impacts of climate change on California and provide a firmer basis for policy consideration. (ERA citation 15:033103). California/Carbon Dioxide/Climate Models/Emission/Environmental Impacts/Forecasting/General Circulation Models/Geochemistry/Global Aspects/Meteorology/Seasonal Variations/Variations/Meetings/Climates/Greenhouse Effect/EDB/540120/Climatic changes/Air pollution/NTIS.

335. Schmidt H, Reimers CE. The recent history of trace metal accumulation in the Santa Barbara Basin, southern California borderland. ESTUAR. COAST. SHELF. SCI 1991;VOL. 33, NO. 5:pp. 485-500
Fachber. Geowiss., Univ. Bremen, Postfach 330440, 2800 Bremen 33, FRG. A new 56-year record, spanning the years 1931-86, of trace metal accumulation rates for Cd, Cu, Ni, Pb and Zn is constructed from the laminated sediments of the Santa Barbara Basin, southern California. The sedimentary record yields information on short-term climatic changes and allows a resolution of 1 year (plus or minus 2 years) for age assignments. Concentrations of Cu, Ni and, especially Pb, in bulk sediment solids reflect anthropogenic input. The Pb sediment profile reflects recent developments in Pb consumption: the introduction of unleaded gasoline in the U.S.A. is documented by a levelling off of the Pb concentrations in the sediments. Within the Cd and Zn profiles, there is no suggestion of anthropogenic input. However, flux calculations indicate that industrial pollution does contribute to the accumulation of Zn in the basin sediments, while the Cd content can be attributed entirely to contributions from natural sources.
marine pollution/heavy metals/INE, USA, California, Santa Barbara Basin/sediment
pollution/copper/nickel/lead/zinc/cadmium/sedimen/Oceanic Abstracts.

336. Ledwell JR, Watson AJ, Broecker WS. A deliberate tracer experiment in Santa Monica Basin. NATURE 1986;VOL. 323, NO. 6086:pp. 322-324 Lamont-Doherty Geol. Obs., Columbia Univ., Palisades, NY 10964, USA. The authors are developing a tracer technique which, in conjunction with fluid dynamical measurements, promises to improve our understanding and our estimates of such diapycnal mixing. In a prototype tracer experiment in Santa Monica Basin, 50 km west of Los Angeles, two tracers, sulphur hexafluoride (SF₆) and perfluorodecalin (PFD), have been injected on an isopycnal surface near the centre of the basin. After 50 days, the tracers had mixed along the isopycnal surface to nearly every part of the basin, although relatively little had penetrated to the basin walls. The diapycnal spreading of the tracer distributions during this first stage of the experiment yielded an apparent eddy diffusivity of 0.33 plus or minus 0.08 cm² s⁻¹ at the ambient density gradient of 4.0 plus or minus 0.5 x 10⁻⁹ g cm⁻⁴.
heat transfer/ocean circulation/tracer techniques/isopleths/isopycnic surfaces/INE, USA, California, Santa Monica Basin/OceanAbstracts.

337. Dawson EY. Marine red algae of Pacific Mexico. Part 8. Ceramiales: Dasyaceae, Rhodomelaceae. Nova Hedwigia 1963;6:401-481 contains some algal distributional records from the Southern California Islands.

338. NEUSHUL M, CLARKE WD, BROWN DW. SUBTIDAL PLANT AND ANIMAL COMMUNITIES OF SOUTHERN CALIFORNIA ISLANDS. PROC. SYMP.

BIOLOGY OF THE CALIFORNIA ISLANDS MARINE INVERTEBRATES/ALGAE/WATER
MASSES/CURRENTS/PHYSICAL
OCEANOGRAPHY/OCEANOGRAPHY.

339. Ambrose RF. Observations on the embryonic development and early post-embryonic behavior of *Octopus bimaculatus* (Mollusca: Cephalopoda). *Veliger* 1981;24:139-146
embryonic development/behavior Mollusca/Cephalopoda/Octopus bimaculatus/Santa Catalina Island/marine biology/malacology.

340. Daily M, Stanton C. Santa Cruz Island: a brief history of its buildings. Santa Barbara; 1981. SCIR-R.
unpublished manuscript.
fspub/SRD.

341. Hagestad EL (UCLA, Dept of Biology). Telemetric determination of the den site temperature of the the Santa Cruz Island fox. Los Angeles; 1979. SCIR-R. Honors thesis.
fspub/Urocyon/ecology/behavior/SRD.

342. Hochberg MC. Factors affecting leaf size of the chaparral shrubs *Ceanothus megacarpus*, *Dendromecon rigida*, and *Prunus ilicifolia* on the California Islands [dissertation]. Santa Barbara: UCSB; 1980. SCIR-R
Masters.
fspub/ecology/systematics/Santa Cruz Island/SRD.

343. Kamerling MJ. Paleomagnetism of the middle Miocene volcanics and tectonic rotation of the Santa Monica Mountains Region, Western Transverse Ranges, California [dissertation]. Santa Barbara: UCSB; 1980. SCIR-R Masters.
Paleomagnetic directions for middle Miocene volcanic rocks in the Santa Monica Mts, Conejo Hills, and Anacapa Island indicate a 73 degree clockwise deflection from expected Miocene direction. Possible crustal block rotation discussed. fspub/geology/SRD.

344. Krosniunas EH. Social facilitation and foraging behavior of the feral pig (*Sus scrofa*) [dissertation] [on Santa Cruz Island, California]. Davis: UCD; 1982. SCIR-R
Masters.
fspub/SRD.

345. Laughrin LL (UC Santa Cruz Island Reserve). The vertebrates of Santa Cruz Island. Review, current status, and management recommendations. Santa Barbara: The Nature Conservancy; 1982. SCIR-R.
unpublished manuscript.
fspub/reptiles, amphibians, birds, mammals/SRD.

346. Maskel SA. An analysis of field cricket (*Gryllus* spp.) calling songs recorded along coastal southern California [dissertation]. Santa Barbara: UCSB; 1975. SCIR-R
Masters.
fspub/insects/entomology/SRD.

347. Matson RH. Genetic variation in two insular populations of the house finch, *Carpodacus mexicanus* (Aves: Fringillidae) [dissertation]. Long Beach: CSULB; 1980. SCIR-R
Masters.
fspub/birds/systematics/evolution/SRD.

348. Nixon KC. A systematic study of *Quercus parvula* Greene on Santa Cruz Island and mainland California [dissertation].

Santa Barbara: UCSB; 1980. SCIR-R Masters.
fspub/SRD.

349. Bennett SG. A new record of a short tailed whip scorpion from Santa Catalina Island, California (Schizomida: Schizomidae). Pan Pac Entomol. San Francisco, Calif. : Pacific Coast Entomological Society. Oct 1985. 1985;61(4):p.321-322
Other-US Includes references. Article.
schizomida/habitats/biogeography/taxonomy/california/islands/new records/AGRICOLA.

350. Hood RR, Abbott MR, Huyer A, Kosro PM. Surface patterns in temperature, flow, phytoplankton biomass, and species composition in the coastal transition zone off northern California. J. GEOPHYS. RES. (C OCEANS) 1990;95(C10):18081-094.
Satellite thermal imagery and in situ biological and physical data are presented that describe the spatial variability of phytoplankton biomass and species composition in relation to the physical structure at the sea surface during persistent upwelling off northern California. Surface patterns in temperature, geostrophic velocity, chlorophyll, and particle size structure show that the coastal zone was dominated by two water masses separated by a well-defined physical boundary. This boundary is apparent in satellite thermal imagery as a cold front and in dynamic height as a meandering jet in the California Current. Broad tongues and narrow filaments of cold, chlorophyll-rich water that extended over 100 km offshore were present in our study area. These features were bounded by the meandering coastal jet.
biomass/phytoplankton/INE/USA/California/coastal upwelling/coastal jets/current meandering/satellite sensing/INE/California Current/nearshore dynamics/ASFA.

351. EPPLEY R W, RENGER E H, HARRISON W G. NITRATE AND PHYTO PLANKTON PRODUCTION IN SOUTHERN CALIFORNIA COASTAL WATERS. LIMNOL OCEANOGR24 (3). 1979. 483-494.
INST. MAR. RESOUR., A-018, SCRIPPS INST. OCEANOGR., UNIV. CALIF. SAN DIEGO, LA JOLLA, CALIF. 92093, USA. BA.
The transport of nitrate into the euphotic zone appears to be a major factor regulating the standing stock and production of phytoplankton in southern California [USA] coastal waters. The rate of photosynthetic C assimilation is proportional to the rate of nitrate assimilation and to the ratio of nitrate:total N assimilated. The phytoplankton standing stock (g C.cntdot.m-3) and its production rate are related to the depth of the vertical nitrate concentration gradient. The chemical composition of the particulate organic matter, as the POC:PON ratio, is related to the C:N assimilation ration of the phytoplankton. Regenerated production, measured as ammonium assimilation, is proportional to the nitrate assimilation rate, implying parallel and concurrent increases in the production of heterotrophic microplankton and phytoplankton attending new inputs of nitrate into the euphotic zone. The vertical diffusion of nitrate, when calculated from the vertical nitrate concentration gradients and nitrate assimilation rates, appears to give reasonable estimates of the vertical eddy diffusivity coefficient for nitrate.
USA PHYTO PLANKTON MICRO PLANKTON PHOTOSYNTHETIC CARBON ASSIMILATION/Biosis.

352. Sweeney RE, Liu KK, Kaplan IR. Oceanic nitrogen isotopes and their uses in determining the source of sedimentary nitrogen. Robinson, B. W. Stable isotopes in the earth sciences. N.-Z.,-Dep.-Sci.-Ind.-Res.,-Bull. 1978(220):p.9 Univ. Calif., Dep. Earth and Space Sci., Los Angeles, Calif., United-States

International stable isotope conference ; Stable isotopes in the earth sciences, Lower Hutt, Aug. 4-6, 1976 Analytic; Serial; Conference publication B; Bibliography and Index of Geology (1969-present).

nitrogen/isotopes/N 15/N 14/sediments/geochemistry/ocean floors/sedimentation/genesis/stable isotopes/applications/analysis/fractionation/distribution/models/marine environment/cycles/tracers/surveys/organic nitrogen/California/United States/San Pedro Shelf/Santa Barbara Basin/GEOREF.

353. Wooster WS, Taft BA. On the reliability of field measurements of temperature and salinity in the ocean. J. Mar. Res. 1958;17:552-556 NPS/Physical oceanography/oceanography/water masses.

354. Wehtje W (Western Foundation of Vertebrate Zoology). Response of Bishop pine (*Pinus muricata*) to cessation of browsing by feral sheep on Santa Cruz Island, California. Southern California Academy of Sciences/Annual Meeting; 1992 May 1; Occidental College, Los Angeles, CA. p. No 22 in Abstracts. SCIR. fspub/pines/non-natives/restoration ecology.

355. Morgan RP (Santa Barbara Museum of Natural History). Channel Islands Photographic Survey. Santa Barbara: Santa Barbara Museum of Natural History; 1979. SCIR-R. unpublished report. fspub/Santa Cruz Island/history/buildings/SRD.

356. Ashley M. Absence of differentiation in mitochondrial DNA of island and mainland harvest mice, *Reithrodontomys megalotis*. J. MAMMAL 1989;70(2):383-386. *Reithrodontomys megalotis*, the western harvest mouse, is found throughout much of the western United States, including three of the eight California Channel Islands. It is believed to be a recent introduction to San Clemente Island but has been recognized as separate subspecies on Santa Catalina and Santa Cruz Islands. I examined mitochondrial DNA isolated from *R. megalotis* specimens from Santa Catalina Island and two mainland locations. The mitochondrial genome of vertebrates is a relatively small, circular molecule fairly easy to isolate from fresh or frozen tissue samples. It is inherited maternally without recombination so it provides a definitive marker of maternal phylogeny. mitochondria/evolutionary genetics/*Reithrodontomys megalotis*/DNA/CSA Life Sciences Collection.

357. Tsai CM, Jessen PF, Chu PC, Collins CA (Performer: Naval Postgraduate School, Monterey, CA). Submesoscale Structure of the California Current Near San Clements Island. Data rept. 17 Jul-6 Sep 89. ; 1990. Report No.: NPS6890003. 98p. The purpose of the San Clemente Basin Experiment (SCBE) was to survey the upper ocean currents and temperature in a region southwest of San Clemente Island (SCI). To accomplish this, two cruises were made during which currents were measured by using a shipboard mounted Acoustic Doppler Current Profile (ADCP). Temperature was measured during the second cruise by deploying expendable bathythermographs. The first cruise took place during 17-21 July 1989 and the second one during 2-6 September 1989. Data indicate a variety of features. Two different flow patterns were observed: Strong poleward alongshore flow (about 40 cm/s) occurred 40-60 km west of SCI and small scale eddies were seen further offshore, i.e. farther than 60 km west of SCI. The alongshore flow intensified poleward, reaching 300 m depth. The smaller scale eddies have a length scale of about

10 km and are believed to be associated with larger scale horizontal shear due to the California Current. Keywords: Coastal circulation; Upper ocean currents; Nearshore eddies. (edc). Basins Geographic/Bathythermograph data/California/Circulation/Coastal regions/Currents/Meters/Eddies Fluid mechanics/Directional/Doppler systems/Expendable/Water flow/Horizontal orientation/Inshore areas/Length/Oceanographic data/Patterns/Scale/Santa Barbara Islands/Sea testing/Sea water/Shear properties/Structural properties/Summer/Temperature/Ocean currents/Ocean circulation/San Clemente Basin California/NTIS.

358. Reimers CE, Lange CB, Tabak M, Bernhard JM. Seasonal spillover and varve formation in the Santa Barbara Basin, California. LIMNOL. OCEANOGR 1990;VOL. 35, NO. 7:pp. 1577-1585 Scripps Inst. Oceanogr., A-015, Univ. California at San Diego, La Jolla, CA 92093-0215, USA.

A temporal record of oxygen and NO₃⁻ concentrations in the bottom water of the Santa Barbara Basin indicates that outside waters spill over into the basin seasonally. It is proposed that an annual bottom-water cycle leads ultimately to varve production. The greater degree of bottom-water oxygen depletion that occurs regularly in late summer and fall was coincident with a smaller pool of pore-water Fe, penetration of Sigma H₂S up to the sediment-water interface, maximal numbers of benthic Foraminifera, and bacterial mat growth. The latter was indicated by increases in concentrations of extractable ATP, organic C, and total N in sediments from the depth intervals 0-0.25 and 0.25-0.5 cm. The greatest numbers of siliceous phytoplankton skeletons were found on the sea floor soon after the late spring, surface-water, Chl a maximum. This event coincides with additions of new and more-oxygenated seawater to the deep basin.

varves/marginal basins/sediment analysis/bottom water/sediment-water interface/oxygen/benthos/INE, USA, California, Santa Barbara Basin/chlorophylls/seasonal variations/Oceanic Abstracts.

359. Chow TJ, Earl JL, Reed JH, et al. Barium content of marine sediments near drilling sites: A potential pollution indicator. MARINE POLLUTION BULLETIN 1978 Apr;9(4):97-99 SIO, P.O. Box 1529, La Jolla, CA 92093.

Since barite is commonly used as weighting agent in oil- and gas-well drilling mixtures, the distribution pattern of Ba in marine sediments near drilling sites may provide an indicator of anthropogenic chemical contamination from these operations. Barium content of benthic sediments (as determined by isotope dilution and NAA) from different regions of the South California Bight ranged from 43 to 1,899 ppm, averaging 627 ppm, and grouped as follows: outer shelves, 370 ppm; inner shelves, 835 ppm; outer basin, 714 ppm; and inner basin 686 ppm. In general, the outer shelves have the lowest Ba concentrations of the 4 regions, as might be expected from their relative distance from the mainland, with its sources of Ba compounds, both natural and anthropogenic. Highest individual Ba concentrations were found in the sediment of deep basins. Contents of the mainland and channel island intertidal sediments averaged 879 and 388 ppm, respectively. At present, it is uncertain whether the high Ba content in the intertidal sediments along the mainland is of natural or anthropogenic origin. FT & AM.

Barium/Sediments/Water pollution/Offshore operations/Pacific Ocean/California Coast/Chemical pollutants/Southern California Bight/pollutant indicators/PollutionAbstracts.

360. Dawson EY, Neushul M. New records of marine algae from Anacapa Island, California. Nova Hedwigia 1966;12:173-187 Reports a number of new algal distributional records and species

descriptions from collections obtained during ecological investigations of subtidal algal communities of the southern side of Anacapa Island. Included are 80 taxonomic entities of which 6 are new species and one is a new subspecies. Northern and southern range extensions are also reported.

Marine algae, Anacapa Island.

361. NICHOLSON NI, CIMBERG RL. THE SANTA BARBARA OIL SPILLS OF 1969: A POST-SPILL SURVEY OF THE ROCKY INTERTIDAL. 1971
PHYSICAL OCEANOGRAPHY/OCEANOGRAPHY.

362. Ambrose RF. Shelter utilization by the molluscan cephalopod *Octopus bimaculatus*. Mar. Ecol. Prog. Ser. 1982;7(1):67-74
Address: Marine Science Institute, University of California, Santa Barbara, CA 93101.

O. bimaculatus, a common member of subtidal and intertidal communities of southern California (USA), is found in a wide range of habitats at Santa Catalina Island, where it is equally abundant in holes, under rocks and in crevices. Although shelters may be scarce in some areas, it appears that shelters generally do not limit the size of *O. bimaculatus* populations. Shelters suitable for habitation by adult and juvenile *O. bimaculatus* were always in excess during the study. Nearly half of the population studied inhabited their shelter for > 1 mo. and a few octopuses occupied the same shelter for at least 5 mo. One fourth of the population spent < 1 wk in the same shelter, and many of these may have changed shelters every day. Nearly all octopuses remained in the same area. The nontransient behavior of *O. bimaculatus* may have important implications for resource utilization, mating and agonistic behavior.

behavior/juvenile/mating/shelter utilization/population limitation/protective behavior/population size/habitat utilization/Mollusca/Cephalopoda/cephalopod/Octopus bimaculatus/octopuses/Santa Catalina Island/marine biology/ecology/malacology.

363. Rudolph DC. Predation ecology of the barn owl, *Tyto alba* [dissertation]. Santa Barbara: UCSB; 1970. SCIR-R Masters.
fspub/Santa Cruz
Island/Peromyscus/Reithrodontomys/birds/foraging/food habits/SRD.

364. Shelton JL. Petrology of the middle Miocene Blanca formation, Santa Cruz Island, California [dissertation]. Northridge: CSUN; 1988. SCIR-R Senior Thesis.
fspub/geology/volcanics/SRD.

365. Van Vuren D. The feral sheep on Santa Cruz Island: status and impacts. Santa Barbara: The Nature Conservancy; 1981. 131 pp. SCIR-R. unpublished report.
fspub/feral animals/SRD.

366. von Bloeker JC. Progress Report of the Los Angeles Museum Channel Islands Biological Survey. Fourth Expedition: San Nicolas, San Miguel, Santa Rosa, and Santa Cruz Islands. July 21 to August 19, 1939. Los Angeles: Los Angeles County Museum of Natural History; 1939. SCIR-R.
unpublished report.
birds/mammals/reptiles/amphibians/botany/archaeology/SRD.

367. Zaitlin JA. Geographical variation in the life history of *Sebastes chrysomelas* [dissertation]. San Francisco: CSUSF;

1986. SCIR-R Masters.

fpub/fish/marine biology/ecology/Santa Cruz Island/rock fish/SRD.

368. Ashley MV. Analysis of mitochondrial DNA polymorphisms among Channel Island deer mice, *Peromyscus maniculatus* [dissertation]. San Diego: UCSD; 1986. 118 pp. SCIR-R Doctoral.

fpub/systematics/evolution/genetics/SRD.

369. Fausett LL. Activity and movement patterns of the Island Fox, *Urocyon littoralis*, Baird 1857 (Carnivora: Canidae) [dissertation]. Los Angeles: UCLA; 1982. 132 pp. SCIR-R Doctoral.

fpub/Santa Cruz Island/behavior/SRD.

370. Edwards LN. Geology of the Vaqueros and Rincon formations, Santa Barbara Embayment, California [dissertation]. Ann Arbor, Michigan: UCSB; 1971. 240 pp +append. SCIR-R Doctoral.

fpub/Santa Cruz Island/SRD.

371. Boynton RD, Fallert RF. Impacts of nationwide adoption of the California solids standards for fluid milk products. Dairy Outlook Situat DS U S Dep Agric Econ Res Serv. Washington, D.C. : The Service. Sept 1984. 1984(398):p.21-24
USDA Article AGE.

Extract: Nationwide adoption of standards similar to the current California standards would raise retail prices for fluid milk products about 3.5 cents per half-gallon (3 percent). The change would generally increase the nutrient content of milk, but would cost an estimated \$5.9 million annually to enforce effectively. It could result in somewhat increased sales of butterfat and solids-not-fat in fluid milk products, but the magnitude is unclear. In addition, it likely would result in only a small reduction in Government purchases of surplus dairy products.

milk products/milk standardization/milk prices/milk quality/milk consumption/nutrition/market
economics/performance/expenditure/california/AGRICOLA.

372. Norton J. Ocean climate influences on groundfish recruitment in the California Current. LOWELL WAKEFIELD FISHERIES SYMPOSIUM: PROCEEDINGS OF THE INTERNATIONAL ROCKFISH SYMPOSIUM, ANCHORAGE, ALASKA USA, OCTOBER 20-22 1986.; ALASKA SEA GRANT REP. 1987;(87-2):73-98.

In this study, patterns of rockfish (genus *Sebastes*) recruitment variation are shown to be similar to patterns of variation in physical parameter values which describe the rockfishes' environment. The focus is on the large amplitude recruitment fluctuations that remain apparent years and even decades later in the data obtained from commercial fishery samples.
Sebastes/recruitment/ocean currents/fish catch statistics/long-term records/environmental effects/INE/California Current/demersal fisheries/ASFA.

373. OMORI M, GLUCK D. LIFE HISTORY AND VERTICAL MIGRATION OF THE PELAGIC SHRIMP *SERGESTES-SIMILIS* OFF THE SOUTHERN CALIFORNIA COAST USA. U S NATL MAR FISH SERV FISH BULL77 (1). 1979. 183-198. DIV. MAR. SCI., UNESCO, PL. DE FONTENOY, 75700 PARIS, FR. BA. S. similis in the southern California [USA] eddy was observed regarding reproduction, daily and ontogenetic vertical migrations, growth and longevity. The period of highest spawning activity occurs between late Dec. and early April, but small pulses of spawning are occasionally observed in late spring and summer. The

release of eggs takes place close to shore above the continental slope and then the eggs sink to 200 m or deeper. Nauplius larvae ascend and protozoal and zoeal larvae stay mostly above 100 m. The daily vertical migration becomes evident after the 2nd protozoal stage. Adults are abundant between 50 and 200 m at night and 250 and 600 m in the daytime. The spawning activity of *S. similis* becomes highest when the vertical thickness of the optimum temperature zone (10.degree.-15.degree. C) is the greatest. The local population off the southern California coast may be joined by the subarctic population. Multiple spawnings occur possibly from females of the southern California population. The lifespan of *S. similis* is 2.0-2.5 yr for females and about 1.5 yr for males. Sexual maturity is reached at about 1 yr in both sexes. Females reproduce in 2 successive spawning seasons and males seem to accomplish multiple fertilizations. Growth trends are similar to those reported for *S. similis* off Oregon [USA]. Growth rates are described using growth curves fitted by the von Bertalanffy and logistic equations.

REPRODUCTION VERTICAL MIGRATION GROWTH RATES LONGEVITY SPAWNING
ACTIVITY POPULATIONS FERTILIZATION LOGISTIC EQUATION TEMPERATURE
ZONE/Biosis.

374. Wooster WS, Reid JL. Eastern boundary currents. The Sea
1963;2 NPS/Physical oceanography/oceanography/currents/water
masses.

375. Wenner A. Swarm movement : a mystery explained.
American Bee Journal 1992 Jan;132(1):27-31
SCIR.
fspub/honey bees/Santa Cruz Island.

376. Green DS. Ecology and host-specificity of parasitoids
of leaf-mining Lepidoptera on *Quercus agrifolia* (Fagaceae) in
California [dissertation]. Berkeley: UCB; 1979. 205 pp. SCIR-R
Doctoral.
fspub/insects/entomology/live oak/parasites/SRD.

377. Daggett FL. Study of the Velocity Structure Near a Cold
Filament from ADCP and CTD Measurements. [dissertation] ; 1989.
123p.

Performer: Naval Postgraduate School, Monterey, CA
Master's thesis.

CTD and ADCP data from the Coastal Transition Zone (CTZ) pilot
cruise off Point Arena, California, during June 1987, were combined
to make optimal estimates of the current velocity field. The region
was characterized by upwelling over the shelf, a single strong
offshore geostrophic jet to the north, and meandering equatorward
flow which advected upwelled water from the coastal region up to
150 km offshore. Geostrophic velocity profiles referenced to 500
dbar were adjusted to the ADCP-measured velocity in the 190-274 m
layer. Comparison of the unadjusted and adjusted profile sets
showed generally good agreement below 200 m but marked differences
in several of the profiles above 200 m. Sections of geostrophic and
ADCP velocity indicated that the flow in the region was highly
geostrophic, but ageostrophic flow components were also present,
particularly in the high velocity regions. Volume transport was
computed for a portion of the survey area using the two velocity
data sets and the Ekman transport, computed from the observed wind
data. Transport in the chosen subregion was not balanced due to 1)
rapid temporal changes in the meandering upwelling jet, and 2) the
influence of high frequency variability which impacted both the CTD
and the ADCP data. Keywords: Cold filaments; Ocean currents;
California current; Filament mapping; ADCP; Military theses. (kt).

California/Data bases/Estimates/Filaments/High frequency/High velocity/Low temperature/Mapping/Meteorological data/Optimization/Profiles/Regions/Surveys/Theses/Transitions/Transport/Upwelling/Variations/Velocity/Volume/Water/Wind/Coastal regions/Geostrophic currents/Geostrophic wind/Ocean currents/Cold filaments/Air water interactions/A ship mounted acoustic doppler current profiler/Conductivity temperature depth profiler/NTIS.

378. Rothans TC, Miller AC. A link between biologically imported particulate organic nutrients and the detritus food web in reef communities. MAR. BIOL 1991;VOL. 110, NO. 1:pp. 145-150
Dep. Biol., California State Univ., Long Beach, CA 90840-3702, USA. Previous work with planktivorous fishes has shown that they import particulate organic and inorganic material to reefs in the form of fecal pellets, which, in part, are deposited in crevices on the reef where these fishes shelter during their inactive period. We examined the attractiveness of fish feces to potential reef detritivores by placing traps baited with planktivorous fish feces, along with unbaited control traps, in crevices on rocky reefs at Santa Catalina Island, California, USA, between June 1982 and November 1983, and on coral reefs at St. Croix, U.S. Virgin Islands, during June 1983. Significantly more animals (the majority being crustaceans) were trapped in the baited traps compared to the unbaited controls on both reefs. There was also a significant association between the presence of trapped animals and fish feces at Santa Catalina Island ($p = 0.009$).
food webs/particulate organic matter/predation/detritus/fecal pellets/reef fish/INE, USA, California, Santa Catalina I./biogeochemical cycle/Oceanic Abstracts.

379. Robinson AR, Carton JA, Mooers CNK, Walstad LJ, Carter EF, Rienecker MM, Smith JA, Leslie WG. A real-time dynamical forecast of ocean synoptic/mesoscale eddies. NATURE 1984;VOL. 309, NO. 5971:pp. 781-783 Cent. Earth and Planet. Phys., Harvard Univ., Cambridge, MA 02138, USA. Energetic eddy currents are the oceanic analogue of atmospheric weather and have time scales of days to weeks and space scales of tens to hundreds of kilometres. The authors have predicted their evolution in time by internal dynamical processes. For the forecasts the transferred initialization data from ship- to shore-based computers, during two 2-week periods in June and July of 1983 from an approximately (150 km) super(2) region in the deep north-east Pacific off California. This may be the first such real-time forecast at sea. The results were substantially successful; the dynamics predicted a prominent zonal jet absent in the initial flow. Also, the model forecast revealed a strong eddy merger event otherwise obscured in the data. Prospects are encouraging for future forecasting, which should have important implications for research and practical operations at sea.
oceanic eddies/mesoscale eddies/evolution/prediction/dynamical oceanography/models/OceanAbstracts.

380. Dawson EY. Intertidal Algae. : Publications of the California State Water Quality Control Board; 1965. (A Oceanographic and biological survey of the southern California mainland shelf.; 27 (pp 230-231 and Appendix pp. 351-438.)). contains limited observations of the occurrence and vertical distributions of the more conspicuous species of benthic algae at two stations on the Southern California Islands, one near Isthmus Cove, Santa Catalina Island and one at Scorpion Harbor, Santa Cruz Island.
Marine Algae.

381. McEwen GF. THE DYNAMICS OF LARGE HORIZONTAL EDDIES IN THE OCEAN OFF SOUTHERN CALIFORNIA. J. MAR. RES. 1948;7(3) CURRENTS/WATER MASSES/ PHYSICAL OCEANOGRAPHY/OCEANOGRAPHY.

382. LOVE MS, AXELL B, MORRIS P, COLLINS R, BROOKS A. LIFE HISTORY AND FISHERY OF THE CALIFORNIA SCORPIONFISH, SCORPAENA GUTTATA, WITHIN THE SOUTHERN CALIFORNIA BIGHT. U S FISH WILDL SERV FISH BULL 85(1) 1987: 99-116, ILLUSTR. * PISCES ** SUPERCLASS GNATHOSTOMATA *** CLASS TELEOSTOMI **** DIVISION TELEOSTEI ***** SUPERORDER ACANTHOPTERYGII ***** SCORPAENIFORMES ***** SUBORDER SCORPAENOIDEI ***** SCORPAENIDAE ***** SCORPAENA GUTTATA. BIOMETRICS/MEASUREMENTS/AGE/SEXUAL MATURATION, CALIFORNIA (MARINE)/SIZE/RELATIVE MEASUREMENTS/LENGTH WEIGHT RELATIONSHIP, SEXUAL DIMORPHISM, CALIFORNIA (MARINE)/MEASURING TECHNIQUES/AGE DETERMINATION/PTERYGIOPHORE SECTIONS USE EVALUATION, CALIFORNIA (MARINE)/SKELETON/APPENDICULAR SKELETON/FIN SKELETON/PTERYGIOPHORE SECTIONS VALIDITY FOR AGE DETERMINATION, CALIFORNIA (MARINE)/FEEDING/ CARNIVOROUS FEEDING/PREDATION/PREY/DIET COMPOSITION, CALIFORNIA (MARINE)/PREDATOR PREY INTERACTIONS/CRUSTACEAN PREY ABUNDANCE INFLUENCE ON DISTRIBUTION, CALIFORNIA (MARINE)/FOOD AVAILABILITY/CRUSTACEAN PREY DENSITY EFFECT ON DISTRIBUTION, CALIFORNIA (MARINE)/DIGESTION & NUTRITION/NUTRITION/DIET/GUT CONTENTS/PREY COMPOSITION, CALIFORNIA (MARINE)/WHOLE ANIMAL PHYSIOLOGY/GENERAL PHYSIOLOGICAL CONDITION/SEASONAL VARIATION & SEX DIFFERENCES, CALIFORNIA (MARINE)/REPRODUCTION/SEXUAL DIMORPHISM/CONDITION, GROWTH, LONGEVITY & MEASUREMENTS, CALIFORNIA (MARINE)/REPRODUCTIVE CONDITION/SEXUAL MATURATION/AGE & SIZE RELATIONSHIPS, CALIFORNIA (MARINE)/REPRODUCTIVE BEHAVIOUR/BREEDING SEASON/SPAWNING PERIOD INFERRED FROM GONADAL CONDITION, CALIFORNIA (MARINE)/BREEDING PLACE/SPAWNING SITES LOCATION & USE, CALIFORNIA (MARINE)/SPAWNING/BEHAVIOUR, TIMING & SITES, CALIFORNIA (MARINE)/LIFE CYCLE & DEVELOPMENT/LIFE CYCLE/LONGEVITY/SEXUAL DIMORPHISM, CALIFORNIA (MARINE)/DEVELOPMENT/GROWTH/GROWTH RATE/VON BERTALANFFY CURVES, SEX DIFFERENCES, CALIFORNIA (MARINE)/ECOLOGICAL/COMMUNITY/COMMUNITY STRUCTURE/RELATIVE ABUNDANCE/CATCH STATISTICS, CALIFORNIA (MARINE)/POPULATION STUDY/POPULATION STRUCTURE/AGE CLASS DISTRIBUTION/SIZE FREQUENCIES IN SEASONAL CATCHES, CALIFORNIA (MARINE)/POPULATION DYNAMICS/POPULATION SIZE/LONG TERM FLUCTUATIONS INFERRED FROM CATCH DATA, CALIFORNIA (MARINE)/POPULATION CHANGES/SEASONAL ABUNDANCE/HABITAT/DISTRIBUTION WITHIN HABITAT/VERTICAL DISTRIBUTION/CATCH STATISTICS, SEASONAL VARIATION, CALIFORNIA (MARINE)/HABITAT EXPLOITATION/HABITAT PREFERENCE/CRUSTACEAN PREY DENSITY RELATIONSHIP, CALIFORNIA (MARINE)/BEHAVIOUR/MIGRATION/SEASONAL PATTERNS DETERMINATION FROM CATCH STATISTICS, CALIFORNIA (MARINE)/PACIFIC OCEAN/NORTHERN PACIFIC/SOUTHERN CALIFORNIA BIGHT/DISTRIBUTION & LIFE HISTORY STUDY BASED ON CATCH DATA/Zoological Index.

383. Ambrose RF. Midden formation by octopuses: the role of biotic and abiotic factors. Marine Behaviour and Physiology 1983;10:137-144 middens/predation/Mollusca/Cephalopoda/Octopus bimaculatus/Santa Catalina Island/marine biology/ecology/malacology.

384. Jones HL. Studies of avian turnover, dispersal and colonization of the California Channel Islands [dissertation]. Los Angeles: UCLA; 1975. 194 pp. SCIR-R Doctoral. fspub/birds/biogeography/Santa Cruz Island/SRD.

385. Kroodsma DE. Singing behavior of the Bewick's wren: development, dialects, population structure, and geographical

variation [dissertation]. Oregon: Oregon State Univ; 1973. 102 pp.

SCIR-R

Doctoral.

fspub/birds/ecology/behavior/systematics/Santa Cruz Island/SRD.

386. McGill TJ. Genetic divergence of mainland and insular populations of *Ligia occidentalis* (Oniscoidea: Isopoda)

[dissertation]. Santa Barbara: UCSB; 1978. 100 pp. SCIR-R

Doctoral.

fspub/marine biology/evolution/Santa Cruz Island/Channel Islands/invertebrates/SRD.

387. Stuart CJ. The stratigraphy, sedimentology, and tectonic implications of the San Onofre Breccia, southern California [dissertation]. Santa Barbara: UCSB; 1975. 309 pp + maps. SCIR-R

Doctoral.

fspub/geology/Santa Cruz Island/SRD.

388. Weissman DB. Differential adaptation and evolution in the Orthoptera to life on the California Channel Islands and mainland, California [dissertation]. : Stanford Univ; 1975. 109 pp.

SCIR-R

Doctoral.

fspub/insects/systematics/genetics/Santa Cruz Island/grasshoppers/SRD.

389. Yanov KP. Evolutionary studies of the Plethodontid salamander genus *Batrachoseps* [dissertation]. Berkeley: UCB.

SCIR-R

Doctoral.

fspub/amphibians/SRD.

390. Tissot BN. Geographic variation and mass mortality in the black abalone: the roles of development and ecology

[dissertation]. : Oregon State University; 1990. 270 pp. SCIR-R

Doctoral.

fspub/Santa Cruz Island/Channel Islands/population ecology/El Nino/intertidal/marine biology/SRD.

391. Vivrette NJ. Mechanism of invasion and dominance of coastal grassland by *Mesembryanthemum crystallinum* L.

[dissertation] Santa Barbara: UCSB; 1973. 78 pp. SCIR-R

Doctoral.

fspub/ecology/iceplant/Santa Cruz Island/Fraser Point/SRD.

392. Evenson RE. Suitability of irrigation water and changes in ground water quality in the Lompoc subarea of the Santa Ynez River basin Santa Barbara County, California. Washington, D.C. :

U.S. G.P.O., 1965. 1965;iii:p.20 Geological Survey water-supply

paper ; 1809-S. Contributions to the hydrology of the United

States. Other-US Three folded maps in pocket. Bibliography: p.

20. Monograph; Bibliography.

AGRICOLA.

393. Schmitt RJ, Holbrook SJ. Contrasting effects of giant kelp on dynamics of surfperch populations. OECOLOGIA

1990;84(3):419-429.

The effect of giant kelp, *Macrocystis pyrifera*, on the population dynamics of two temperate reef fishes, striped surfperch (*Embiotoca lateralis*) and black surfperch (*E. jacksoni*), was examined. Based on an understanding of how particular reef resources influence abundances of the surfperch and of the effect of giant kelp on

those resources, we anticipated that *Macrocystis* would adversely affect populations of striped surfperch but would enhance those of black surfperch. The natural establishment of giant kelp at sites at Santa Cruz Island, California, resulted in the predicted dynamical responses of surfperch. Abundances of striped surfperch declined rapidly when and where dense forests of giant kelp appeared, but showed little change where *Macrocystis* was continuously absent over the 8 y period of study. Abundances of adult black surfperch, which increased following the appearance of giant kelp, were lagged by > 1 y because the dynamical response involved enhanced local recruitment. No change in abundance of black surfperch populations was evident at areas without giant kelp. environmental effects/*Macrocystis pyrifera*/*Embiotoca lateralis*/*Embiotoca jacksoni*/USA/California/Santa Cruz Island/INE/California/Santa Cruz Island/population dynamics/effects on/ASFA.

394. LOVE M S, LARSON R J. GEOGRAPHIC VARIATION IN THE OCCURRENCE OF TYMPANIC SPINES AND POSSIBLE GENETIC DIFFERENTIATION IN THE KELP ROCKFISH *SEBASTES-ATROVIRENS*. *COPEIA*1978 (1). 1978 53-59.

DEP. BIOL. SCI., MAR. SCI. INST., UNIV. CALIF., SANTA BARBARA, CALIF. 93106, USA. BA.

The frequency of occurrence of tympanic cranial spines in the kelp rockfish (*S. atrovirens*), an eastern Pacific scorpaenid, was examined over much of the species' geographic range. Tympanic spines occur significantly more often in individuals from the southern part of the range. *S. atrovirens* seem to fall roughly into 2 groups: central and southern California [USA] though there is clinal variation within each group. The occurrence of tympanic spines is probably determined genetically, and the difference in tympanic spine occurrence between the northern and southern parts of *S. atrovirens*' range may be due to low gene flow between northern and southern populations. This restricted gene flow may be due to the actions of the California Current and the southern California eddy. Recruitment of *S. atrovirens* in central California would come primarily from local eddies of the California Current in central California, while recruitment in southern California would come primarily from southern California larvae entrained in the southern California eddy.

CALIFORNIA USA CLINAL VARIATION GENE FLOW/Biosis.

395. Lohmar JM, Warme JE. Anatomy of an Eocene submarine canyon fan system, southern California borderland. *Offshore Tech. Conf., Proc.* (10 Vol. 1). 1978:p.571-580
Exxon Co., United-States; Rice Univ., United-States 10th annual offshore technology conference, Houston, Tex., May 8-10, 1978
Analytic; Serial; Conference publication B; Bibliography and Index of Geology (1969-present).

California/stratigraphy/Eocene/sedimentary rocks/environmental analysis/shelf environment/sedimentation/environment/San Diego County/Rose Canyon Formation/Torrez Sandstone/submarine fans/Paleogene/Tertiary/United States/Southern California/continental borderland/processes/tectonics/eustacy/transgression/regression/slope environment/GEOREF.

396. Wooster WS, Jones JH. California undercurrents off northern Baja California. *J. Mar. Res.* 1970;28:235-250
NPS/Physical oceanography/oceanography/currents.

397. Arnold JE. Complex Hunter-Gatherer-Fishers of Prehistoric California: Chiefs, Specialists, and Maritime

Adaptations of the Channel Islands. American Antiquity
1992;57:60-84
SCIR, SBMNH.
fspub/Chumash/Santa Cruz Island/anthropology/archaeology.

398. Daily M. Santa Cruz Island Anthology. Santa Barbara:
Santa Cruz Island Foundation; 1989.
SCIR.
Occasional paper number 1.
fspub/history/ranch/SRD.

399. Anderson DW, Anderson IT. Distribution and status of
brown pelicans in the California Current. Am. Birds 1976;30:3-12.
text/birds/MINERALS MANAGEMENT SERVICE.

400. Edson RW. Effects of Climatological and Transient Wind
Forcing on Eddy Generation in the California Current System.
Master's thesis. [dissertation] ; 1989. 154p.
Performer: Naval Postgraduate School, Monterey, CA
A high-resolution, multi-level, primitive equation ocean model is
used to examine the response to transient and climatological wind
forcing of an idealized, flat-bottomed oceanic regime on a beta-
plane, along an eastern boundary. An annually periodic wind forcing
function with zonal variability is used as transient forcing in
several experiments using both winter and summer initializations.
When the curl component of the forcing is stronger than the stress,
as in the wintertime, a surface poleward flow develops in the
nearshore region with an equatorward flow offshore. When wind
stress dominates the forcing, as in the summertime, a coastal jet
develops with an undercurrent. In other experiments, spatially
varying one degree and two tenths degree steady wind stress data
are used as climatological forcing. The one degree climatological
wind stress data has positive curl at the coast which causes a
poleward surface flow to develop. When two tenths degree wind
stress data is used in the nearshore area, both positive and
negative curl in the coastal region result in the formation of
poleward and equatorward currents, respectively. As a result of
convergence in the surface flow, eddies and a well defined cold
filament develop. These results show that the interaction of
diverse coastal currents driven by an equally diverse wind field
can play an important role in the production of cold filaments and
eddies. Theses. (jhd).
Boundaries/California/Coastal regions/Convergence/Seasonal
variations/Filaments/Inshore areas/Low temperature/Meteorological
data/Offshore/Stresses/Theses/Transients/Variations/Climatology/E
ddies Fluid mechanics/Air water interactions/Mathematical
models/Ocean currents/Ocean models/Wind shear/Primitive
equations/California current/NTIS.

401. Bodkin JL, Jameson RJ. Patterns of seabird and marine
mammal carcass deposition along the central California coast,
1980-1986. CAN. J. ZOOL./J. CAN. ZOOL 1991;VOL. 69, NO. 5:pp.
1149-1155
U.S. Fish and Wildl. Serv., 1011 E. Tudor Rd., Anchorage, AK 99503,
USA. At monthly intervals from Feb 1980 through Dec 1986, a 14.5-km
section of central California coastline was systematically surveyed
for beach-cast carcasses of marine birds and mammals. Five hundred
and fifty-four bird carcasses and 194 marine mammal carcasses were
found. Common murre, western grebe, and Brandt's cormorants
composed 45% of the bird total. California sea lions, sea otters,
and harbor seals composed 90% of the mammal total. Several factors
appeared to affect patterns of carcass deposition. The El Nino-
Southern Oscillation (ENSO) of 1982-1983 was the dominant influence

in terms of interannual variation in carcass deposition. During this ENSO, 56% of the seabirds and 48% of the marine mammals washed ashore. Patterns of intra-annual variation were species specific and related to animal migration patterns, reproduction, and seasonal changes in weather.

carcasses/deposition/Aves/Mammalia/marine birds/marine mammals/coasts/mortality causes/ocean currents/INE, USA, California, Central Coast/Oceanic Abstracts.

402. Thomson RE. A cyclonic eddy over the continental margin of Vancouver Island: Evidence for baroclinic instability. J. PHYS. OCEANOGR 1984;VOL. 14, NO. 8:pp. 1326-1348

Inst. Ocean Sci., Sidney, B.C. V8L 4B2, Canada.

This paper describes the circulation, water properties and energetics of an observed cyclonic eddy that formed over the continental margin of Vancouver Island between the July and early September, 1980. The eddy was characterized by a depth scale of 1 km, a radius of 50 km and a maximum near-surface geostrophic flow of 50 cm s⁻¹. Within the mid-depth core of the eddy, isopycnal surfaces were domed upward by 50 m and were comprised of relatively warm, saline and low dissolved oxygen water that appeared to originate with the California Undercurrent.

baroclinic instability/current rings/continental margins/INE, Canada, British Columbia, Vancouver I/OceanAbstracts.

403. Foster M. The algal turf community in the nest of the ocean goldfish, *Hypsypops rubicunda*. Proceedings of the International Seaweed Symposium 1972;7:55-60

Description of the nature of the algal turfs comprising the nests of members of the garibaldi population inhabiting Coches Prietos Cove on the south side of Santa Cruz Island. A total of 15 largely small, filamentous algal taxa were found to dominate the garibaldi nests.

Marine algae, garibaldi nests, Santa Cruz Island.

404. MCGARY JW, GRAHAM JJ, OTSU T. OCEANOGRAPHY AND NORTH PACIFIC ALBACORE. CALCOFI REPT. 8 1961

BIOLOGICAL OCEANOGRAPHY/WATER MASSES/PHYSICAL OCEANOGRAPHY/OCEANOGRAPHY/ALBACORE/FISHES/FISHERIES.

405. Ambrose RF. Population biology of *Octopus bimaculatus*. Journal of Shellfish Research 1983

Abstract.

population biology/Mollusca/Cephalopoda/*Octopus bimaculatus*/Santa Catalina Island/marine biology/ecology/malacology.

406. Daily M. Northern Channel Islands Anthology. Santa Barbara: Santa Cruz Island Foundation; 1989.

SCIR.

Occasional paper number 2.

fspub/history/Santa Cruz Island/Santa Rosa Island/San Miguel Island/SRD.

407. Anderson DW, Gress F. Brown pelicans and the anchovy fishery off Southern California. Marine Birds: Their Feeding Ecology and Commercial Fisheries Relationships. 8th Annual Meeting of the Pacific Seabird Group, Seattle, WA (USA), Jan 6-8, 1982 1984;:128-135.

Pelecanus occidentalis californicus/*Engraulis mordax*/population dynamics/food availability/abundance/marine birds/fisheries/quota regulations/INE/USA/Southern California

Bight/Algae/spermatophytes/Bray/Murray/Baird/Birds/MINERALS MANAGEMENT SERVICE.

- # 408. Caire H. Senor Castillo, Cock of Santa Cruz Island. Santa Barbara: Santa Cruz Island Foundation; 1990. Occasional paper number 3. history/stories/SRD.
- # 409. Daily M. A Step Back in Time: Unpublished Channel Islands Diaries. Santa Barbara: Santa Cruz Island Foundation; 1990. SCIR. Occasional paper number 4. history/Santa Cruz Island/Santa Rosa Island/San Miguel Island/SRD.
- # 410. Daily M. Chapel of the Holy Cross, 1891-1991 Santa Cruz Island. Santa Barbara: Santa Cruz Island Foundation; 1991. SCIR. Occasional paper number 5. history/Stanton/Caire/SRD.
- # 411. Lester ES. The Legendary King of San Miguel Island, The Lesters at Rancho Rambouillet. Santa Barbara: McNalley and Loftin, West; 1979. SCIR. History/ranching/SRD.
- # 412. Anderson DW, Gress F, Mais KF. Brown pelicans *Pelecanus occidentalis californicus*: Influence of food supply on reproduction. *Oikos* 1982;39(1):23-31. ENGRAULIS-MORDAX/DENSITY/SOUTHERN CALIFORNIA BIGHT/PACIFIC OCEAN/Baird/birds/text/MINERALS MANAGEMENT SERVICE.
- # 413. Gilbert DA, N. Lehman, S. J. O'Brien, R. K. Wayne. Genetic fingerprinting reflects population differentiation in the California Channel Island fox. *Nature* 1990;344:764-767 fspub/urocyon/evolution/systematics/SRD.
- # 414. Anderson DW, Gress F, Mais KF, Kelly PR. Brown pelicans as anchovy stock indicators and their relationships to commercial fishing. *Calif. Coop. Oceanic Fish. Invest. Rep.* 1980;21:54-61. Pelicanus/Aves/Bioindicators/Fish stocks/Endangered species/Anchovies/Engraulidae/California Coast/Commercial fisheries/Abundance/Food resources/Baird/birds/P/occidentalis californicus/Southern California Bight/anthropogenic/anderson/algae/Bray/Murray/text/northern anchovy/Engraulis mordax/fishery/Cross/regulations/fish/MINERALS MANAGEMENT SERVICE.
- # 415. Tissot BN. El Nino responsible for decline of black abalone off southern California. *Hawaiian Shell News* 1990;38(6):3-4 fspub/Santa Cruz Island/marine biology/intertidal/SRD.
- # 416. Wenner AM, J. E. Alcock, D. Meade. Removal of feral honey bee colonies from Santa Cruz Island, California. *American Bee Journal* 1990;130(12):818-819 fspub/restoration/entomology/SRD.
- # 417. Ramirez M. Natural history, population genetics, systematics, and biogeography of the spider genus *Lutica* (Araneae: Zodarijdg) [dissertation]. Santa Cruz: UCSC; 1990. SCIR-R Doctoral. fspub/Santa Cruz Island/entomology/SRD.
- # 418. Jackson JN. Soil mapping in a fog [San Clemente Island]. Soil Water Conserv U S D A Soil Conserv Serv. Washington,

D.C. : The Service. Aug 1984. 1984;5(5):p.6

USDA Article.

soil surveys/marine environment/resource
management/california/AGRICOLA.

419. Lange CB, Burke SK, Berger WH. Biological production off southern California is linked to climatic change. CLIM. CHANGE 1990;16(3):319-329. To obtain clues about how coastal primary production might be affected by interannual and interdecadal changes in climate, we studied marine laminated sediments from the center of the Santa Barbara Basin. The study reports a large decrease in the flux of diatoms between the periods 1954-1972 and 1973-1986, by a factor of five, and sustained reductions from 1973 to 1978 by a factor of ten below the pre-1972 period. Planktonic foraminifera flux shows a consistent trend of decrease with lowest from 1981 to 1984. On the whole, the 1954-1972 period is considerably cooler than the 1973-1986 period, over the entire North Pacific. The decrease in biological production in this coastal system is accompanied by an overall intensification of the Aleutian Low in the North Pacific over the past 14 years, providing for a weakening of the California Current, and an overall reduction of mixing and upwelling. The possibility that the low coastal production could provide positive feedback to global warming through reduction of CO₂-uptake, and its relation to the greenhouse effect is considered. On a shorter time-scale, the effect of El Niño phenomena are clearly seen in the sediments of this basin, as decreases in total diatom flux and increases in the relative abundance of certain warm-water diatoms.
climatic changes/atmospheric chemistry/sediment
composition/diatoms/Foraminifera/Bacillariophyceae/INE/USA/California/Santa Barbara Basin/carbon dioxide/greenhouse effect/long-term changes/temperature effects/ocean circulation/community composition/El Niño phenomena/biological production/ASFA.

420. BRINTON E. POPULATION BIOLOGY OF EUPHAUSIA-PACIFICA OFF SOUTHERN CALIFORNIA USA. U S NATL MAR FISH SERV FISH BULL74 (4). 1976 (RECD 1977) 733-762. BA.

E. pacifica was observed with respect to reproduction, growth and development of cohorts, and successions in population structure and biomass during 1953-56. The S California [USA] eddy and its upwelling regime serve as a reproduction refuge for a warm-temperate population of this euphausiid. Three size classes spawn there during a year-the largest in April-June, an intermediate in June-Feb., and small, newly mature females usually in Aug.-Jan. There were year-to-year differences. The largest densities of larvae were observed about a month after egg peaks (1 survey later) or appeared coincident with them. In 1953 there was strong spring recruitment, abruptly subsiding with an early decline in upwelling-the index of environmental enrichment used. During 1954 only 1 substantial cohort was recorded, in June at the height of a poor upwelling season. In 1955 repeated spawning occurred during the long upwelling season, but recruitment after July was poor. The year of most intense upwelling, 1956, yielded 3 strong cohorts-the last, July-Oct., being exceptionally strong. Smallest larvae were usually in 12-16.degree. C waters. Ripe females were concentrated at high densities at these same temperatures during Aug.-March but were distributed over a broader range at 10.5-19.degree. C during April-July. Growth was estimated to be about 3 mm body length/month, slowing during Sept.-Jan. or after about 17 mm. Females appeared to grow slower in breeding seasons. Maturity can be at 11 mm, but reproduction is not general until 15-16 mm. Here, maximum size was 21 mm after about 7 mo. for early-year recruits and a year for summer recruits. Survival rates appeared higher in

the latter. Growth rates were similar to those reported for *E. pacifica* off Oregon and higher than in the subarctic Pacific. Survivorship was lowest for furcilia larvae, increased in juvenile and young adult phases, then decreased after reproduction became regular. Slowed growth and increased survivorship at life interphases appeared to cause regular frequency and biomass maxima at lengths of 7, 10-12 and 15 mm. Sex ratio favored females. Males apparently accomplished multiple fertilizations.
OREGON REPRODUCTION GROWTH BIOMASS UPWELLING SEX RATIO/Biosis.

421. Thornton SE. Suspended sediment transport in surface waters of the southern California continental borderland after the 1977 1978 floods. Geol. Soc. Am., Abstr. Programs. 1978;10(7):p.505 Univ. South. Calif., Dep. Geol. Sci., Los Angeles, Calif., United-States The Geological Association of Canada, The Mineralogical Association of Canada, The Geological Society of America (91st annual meeting); 1978 joint annual meeting, Toronto, Ont., Oct. 23-26, 1978 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).
California/geophysical surveys/remote sensing/Pacific Ocean/oceanography/ocean circulation/sedimentation/transport/stream transport/United States/Southern California/Northeast Pacific/suspended materials/floods/1977/1978/continental borderland/patterns/tracer experiments/imagery/satellite methods/geophysical methods/Landsat/currents/GEOREF.

422. Wyllie JG. Geostrophic flow of the California flow of the California Current at the surface and at 200 meters. California Marine Res. Comm. 1966 NPS/Physical oceanography/oceanography/currents/waves.

423. Arnold JE. Transformation of a Regional Economy: Sociopolitical Evolution and the Production of Valuables in Southern California. Antiquity 1991;65:953-962
SCIR/SBMNH.
fspub/archaeology/anthropology/Santa Cruz Island/Channel Islands/Chumash.

424. Atwood JL (Mahomet Bird Observatory). Breeding biology of the Santa Cruz Island Scrub Jay. Power DM. The California Islands: Proceedings of a multidisciplinary symposium; Santa Barbara. : Santa Barbara Museum of Natural History; 1980. p. 675-688.
fspub/birds/SRD.

425. Berryman P. Study of Currents along the Point Sur Transect. [dissertation] ; 1989. 50p.
Performer: Naval Postgraduate School, Monterey, CA
Master's thesis
Ocean currents and density were measured off Point Sur, California in February 1989 using Pegasus (an acoustically tracked velocity profiler), ADCP (a ship-mounted acoustic doppler current profiler), and CTD (conductivity, temperature, depth profiler). Absolute velocities are compared with geostrophy and various flow regimes are analyzed with respect to prominent features and historical and other recent data. Geostrophic cross-sections based on various levels of no motion (LNM) are compared. Temperature, salinity, and density fields are examined and correlated to velocity features. The California Current is a weak southeastward flow starting about 60 kilometers from the coast. The Davidson Inshore Current is a strong surface-intensified core of warm, fresh water centered 30 kilometers offshore, and located in the top 100 meters. A subsurface maximum of westward flow exists in a well-defined jet

100 meters deep about 30 kilometers off Point Sur. There is a trench jet located along the bottom between the continental slope and a seamount 33 kilometers from the coast, which could either be topographically steered out of Monterey Canyon or recirculated from further offshore. Word processing, Script, GML, Text processing, Ocean currents, California, Davidson inshore current, Geostrophic currents, Thesis. (jg). California/Continental slopes/Currents/Depth/Flow/Geostrophic currents/Inshore areas/Processing/Profiles/Salinity/Starting/Text processing/Tracking/Velocity/Density/Ocean currents/Point Sur Transect/Theses/Point Sur California/A ship mounted acoustic doppler current profiler/Conductivity temperature depth profiler/NTIS.

426. Fritzsche R, Aasen G, Everest L, Petros P, Shimek S. Northern range extension for the zebraperch (*Hermosilla azurea*, Jenkins and Evermann). CALIF. FISH GAME 1991;VOL. 77, NO. 2:pp. 106-107

Dep. Fish., Humboldt State Univ., Arcata, CA 95521, USA.

On 15 August 1985, a zebraperch (*Hermosilla azurea*) was collected in northern California in the Klamath River Estuary (41 degree 31.5'N., 124 degree 05.7'W.) during a U.S. Fish and Wildlife Service beach seining operation. The specimen (HSU 86-27) measured 270 mm SL, but only the head was saved. Two additional specimens were collected in the Klamath River Estuary during USFWS beach seining operations on 10 August 1987, and on 22 September 1988 (HSU 88-2, 238 mm SL). The collections reported here extend the known range approximately 560 km northward. new records/geographical distribution/distribution records/Hermosilla azurea/INE, USA, California, Klamath Estuary/Oceanic Abstracts.

427. Fu LL, Holt B. Some examples of detection of oceanic mesoscale eddies by the SEASAT synthetic-aperture radar. J. GEOPHYS. RES. (C OCEANS ATMOS. 1983;VOL. 88, NO. C3:pp. 1844-1852
Jet Propul. Lab., California Inst. Technol., Pasadena, CA 91109, USA. This note presents images of three dynamically different regions in the ocean to demonstrate the variety of mesoscale variabilities detected by the SEASAT synthetic-aperture radar (SAR). South of the Grand Banks of Newfoundland, a cold eddy is observed to form as the result of the southward intrusion of Labrador Sea water, perhaps having led to the birth of a Gulf Stream extension ring. Off the northern coast of California, features resulting from the offshore intrusions of cold upwelling water are observed. Two topographically generated eddies are detected near Misteriosa Bank on the Cayman Ridge in the northwestern Caribbean. Comparisons are made with concurrent NOAA-5 infrared images whenever the eddies have thermal signatures. microwave imagery/mesoscale eddies/ANW, Canada, Newfoundland/INE, USA, California/ASW, Cayman Ridge/SEASAT/OceanAbstracts.

428. Foster M. Algal succession in a *Macrocystis pyrifera* forest. Mar. Biol. 1975;32:313-329

The patterns of community development occurring within a subtidal habitat dominated by the giant kelp, *M. pyrifera* is reported and discussed. Three types of colonizing macrophytes were distinguished including rapid growing ephemerals, and rapid and slow-growing perennials. The study occurred in a giant kelp forest at Coches Prietos Cove on the south side of Santa Cruz Island. Marine algae, giant kelp, Santa Cruz Island.

429. MENARD HW, LUDWICK JC. APPLICATIONS OF HYDRAULICS TO THE STUDY OF MARINE TURBIDITY CURRENTS. SOC. ECON. PALEONTOL. MINERAL. SPEC. PUBL. 1951;2 CURRENTS/WAVES/PHYSICAL

OCEANOGRAPHY/OCEANOGRAPHY.

430. SPERO HJ. SYMBIOSIS IN THE PLANKTONIC FORAMINIFER, ORBULINA UNIVERSA, AND THE ISOLATION OF ITS SYMBIOTIC DINOFLAGELLATE, GYMNODINIUM BEII SP. NOV. J PHYCOL 23(2) 1987: 307-317, ILLUSTR.

* PROTOZOA ** PHYLUM SARCOMASTIGOPHORA *** SUBPHYLUM MASTIGOPHORA ***** PHYTOMASTIGOPHOREA ***** DINOFLAGELLIDA ***** GYMNODINIUM BEII *** SUBPHYLUM SARCODINA ***** SUPERCLASS RHIZOPODA ***** CLASS GRANULORETICULOSEA ***** FORAMINIFERIDA ***** ORBULINA UNIVERSA. ASSOCIATIONS/MUTUALISM/ORBULINA UNIVERSA/NEW SPECIES, NORTHERN PACIFIC/PACIFIC OCEAN/NORTHERN PACIFIC/CALIFORNIA CURRENT/NEW SPECIES FOR DINOFLAGELLATE MUTUAL/NEW SPECIES FROM FORAMINIFERAN MUTUAL HOST/Zoological Index.

431. Ambrose RF. Food preferences, prey availability and the diet of Octopus bimaculatus Verrill. Journal of Marine Biology and Ecology 1984;77:29-44 food preferences/prey availability/foraging biology/diet
Mollusca/Cephalopoda/Octopus bimaculatus/Santa Catalina Island/marine biology/ecology/malacology.

432. Atwood JL. Body weights of the Santa Cruz Island Scrub Jay. North American Bird Bander 1979;4(No. 4):148-153
males usually weigh more than females; some seasonal variation; non-breeding birds weigh less than breeding birds.
fspub/SRD.

433. Alevizon WS. Comparative feeding ecology of a Kelp-bed Embiotocid (Embiotoca lateralis). Copeia 1975;4:608-615
diet and feeding morphology studied for striped seaperch at Santa Cruz Island and mainland Santa Barbara coast; differences in feeding ecology due to differences in density of food resources.
fspub/fish/seaperch/Santa Cruz Island/SRD.

434. Axelrod DI. A Pliocene flora from Chula Vista, San Diego County, California. Transactions of the San Diego Society of Natural History 1984;20(No. 15):277-300
fossil flora/pines/evolution/prehistory/SRD.

435. Axelrod DI. New Pleistocene conifer records, coastal California. Univ of Calif. Publications in Geological Sciences 1983;127:1-108 fspub/paleobotany/pines/fossil flora/SRD.

436. Arnold Jeanne E. (UCLA Institute of Archaeology). Economic specialization in Prehistory: methods of documenting the rise of lithic craft specialization. Vehik S. Lithic Resource Procurement: Proceedings from the Second Conference on Prehistoric Chert Exploitation. Occasional Paper No 4. : Center for Archaeological Investigations, Southern Illinois University; 1985. p. 37-58. fspub/Santa Cruz Island/Chumash/chert/Channel Islands/archaeology/SRD.

437. Apt K, Carla D'Atonia, James Crisp, Joyce Gauvain. Intertidal Macrophytes of Santa Cruz Island, California. UC Santa Barbara: The Herbarium, Department of Biological Sciences; 1988. Publication Number 6; 87 pp, maps.
fspub/algae/marine biology/SRD.

438. Aoki M. Fennel on Santa Cruz Island, a study of its allelopathic potential and long-term management methods. . 1990. 1-48; unpublished manuscript;. SCIR
Senior thesis.

fspub/ecology/SRD.

439. Brame AH, Murray KF. Three New Slender Salamanders
(Batrachoseps) with a Discussion of Relationships and Speciation
within the Genus. Bulletin of the Los Angeles County Museum of
Natural History 1968:Science: Number 4 fspub/Santa Cruz
Island/Channel Islands/systematics/evolution/amphibians/SRD.

440. Martin Pl. Ground water monitoring at Santa Barbara,
California : phase 2 effects of pumping on water levels and on
water quality in the Santa Barbara ground water basin. [Reston,
Va.?] : U.S. Dept. of the Interior, Geological Survey ; Alexandria,
Va. : For sale by the Distribution Branch, USGS, 1984. 1984;iv:p.31
Geological Survey water-supply paper ; 2197. Other-US
Bibliography: p. 24-25. Monograph; Bibliography.
Water quality management/California/Santa Barbara/Water/Underground
water/water supply/AGRICOLA.

441. Braham HW. Scientific investigations of the National
Marine Mammal Laboratory, 1988. POLAR REC 1990;26(157):119-121.
This note summarizes results from the first year of a five-year
research program at the National Marine Mammal Laboratory (NMML).
The program entails studies of endangered, depleted and recovering
marine mammal populations, and of marine mammal/fishery
interactions, in the Antarctic, Arctic, Bering Sea, California
current, Gulf of Alaska and North Pacific high seas.
research institutions/rare species/depleted stocks/research
programmes/USA/Washington/Seattle/marine mammals/National Marine
Mammal Lab./ASFA.

442. JASSBY A, POWELL T. VERTICAL PATTERNS OF EDDY DIFFUSION
DURING STRATIFICATION IN CASTLE LAKE CALIFORNIA USA. LIMNOL
OCEANOGR20 (4). 1975 530-543. BA.
INSOLATION SEASON EQUATION/Biosis.

443. Luyendyk BP, Hajic EJ, Simonett DS. Image enhancement
of side scan sonar mapping. Int. Symp. Remote Sensing Environ.,
Proc. (12 Vol. 2). 1978:p.1025-1026
Univ. Calif., Santa Barbara, Calif., United-States Twelfth
international symposium on remote sensing of environment, Manila,
Apr. 20-26, 1978 Analytic; Serial; Conference publication;
Abstract B; Bibliography and Index of Geology (1969-present).
California/geophysical surveys/acoustical
surveys/maps/cartography/acoustical methods/Santa Barbara
Channel/United States/remote sensing/interpretation/sonar
methods/geophysical methods/digital techniques/imagery/side
scanning methods/GEOREF.

444. Wyllie JG, Lynn RJ. Distribution of temperature and
salinity at 10 meters, 1960-1969, and a mean temperature, salinity,
and oxygen at 150 meters; 1950-1968, in the California Current.
Mar. Res. Comm. 1971;15:1-88 NPS/Physical
oceanography/oceanography/currents.

445. Arnold JE. Lithic Resource Control and Economic Change
in the Santa Barbara Channel Region. Journal of California and
Great Basin Anthropology 1990;12(2):158-172
SCIR/SBMNH.
fspub/Chumash/anthropology/archaeology/Santa Cruz Island /Channel
Islands.

446. Barrett RH. The feral Hog on the Dye Creek Ranch,
California. Hilgardia 1978;46(Number 9):282-353

feral pigs/ecology/SRD.

447. Alldredge AL, Gotschalk CC (Performer: California Univ., Santa Barbara. Marine Science Inst). Direct Observations of the Mass Flocculation of Diatom Blooms: Characteristics, Settling Velocities and Formation of Diatom Aggregates. ; 1989. 11p. Pub. in Deep-Sea Research, v36 n2 p159-171 1989. No copies furnished by DTIC/NTIS. Not available NTIS. Blooms of chain-forming marine diatoms were observed in the process of aggregating into centimeter-sized flocs of marine snow in surface waters of the Santa Barbara Channel, California. These aggregates were composed of a rich assemblage of living, actively photosynthesizing diatoms dominated by the setose genus *Chaetoceros* and by chain-forming *Nitzschia* spp Flocculation of one bloom occurred in as little as 24 h, and bloom flocculation apparently was not triggered by nitrogen-limitation. Marine snow of diatom origin was also abundant during spring, summer and early autumn throughout the Southern California Bight, suggesting that diatom flocculation is a seasonally significant source of marine snow. Resting spores rarely occurred within either newly formed or aged diatom flocs. The mean in situ settling velocity (+ or - S.D.) of newly formed flocs was 117 + or - 56 m/d, two orders of magnitude faster than unaggregated *Chaetoceros*. Rapid, episodic export of surface-derived primary production to the ocean bottom via mass flocculation and settlement of diatom blooms can occur prior to consumption by pelagic grazers and significantly effects marine food webs, oceanic flux processes, and diatom biology. Keywords: Algae, Reprints. (AW). Autumn/California/Flux Rate/Mass/Ocean bottom/Oceans/Reprints/Sources/South Direction/Spores/Summer/Surface waters/Algae/Flocculation/Marine biology/Chaetoceros/Nitzschia/Diatoms/Blooming/NTIS.

448. Bowlby MR, Case JF. Flash kinetics and spatial patterns of bioluminescence in the copepod *Gaussia princeps*. MAR. BIOL 1991;VOL. 110, NO. 3:pp. 329-336 Dep. Neurobiol., Harvard Med. Sch., 220 Longwood Ave., Boston, MA 02115, USA. Kinetics and local spatial patterns of bioluminescence in the mesopelagic copepod *Gaussia princeps* , collected by net off the coast of southern California, USA, were investigated from 1986 to 1989. Luminescence elicited by single electrical stimuli began as a localized secretion from any of 16 widely distributed sites on the body. Appendage or body movements swept the particulate luminescent exudate away from the cuticle. Three types of single flashes were identified in response to single electrical stimuli, including a fast flash of ca. 2 s duration, a long flash of 7 s duration, and a 17 s slow flash. In addition, in 20% of the tests a fourth, two-component flash consisting of a fast or long component followed by a slow component was elicited. bioluminescence/electric stimuli/mechanical stimuli/flash kinetics/*Gaussia princeps*/INE, USA, California/marine crustaceans/secretory products/kinetics/Oceanic Abstracts.

449. Frighe CA, Campbell J. Wind structure off of the North California coast in CODE-1 and CODE-2. Spring Meeting, American Geophysical UnionEOS TRANS. AM. GEOPHYS. UNION 1983;VOL. 64, NO. 45:p. 717 Mech. Eng. Dep., Univ. California, Irvine, CA 92717, USA. Analysis of the low level (33m) aircraft data mapping of the 40 x 100 km area in 1981 has shown large spatial variability in wind, wind stress and stability. The contoured data show consistent patterns relating wind speed, stress, sea surface temperature, and buoyant stability in the surface layer. The surface stress data (obtained from eddy correlation of the turbulence data from the

aircraft) show a strong decrease of the drag coefficient with increasing stability under stable conditions. Vertical profile data obtained from the aircraft show that a strong low level coastal jet is typical of the CODE areas, with a sharp inversion at the jet maximum. The turbulence structure of the jet flow was investigated with special vertical profile patterns. In CODE-2, the diurnal variation of the wind jet and short and long wave radiation were also measured.

wind data/ocean-atmosphere system/mapping/aerial surveys/wind/OceanAbstracts.

450. Foster MS. regulation of algal community development in a *Macrocystis pyrifera* forest. Mar. Biol. 1975;32:331-342
The effects of small and large-scale roughness, overstory development, competition for space with sessile animals and grazing, on patterns of algal community development in a subtidal giant kelp forest at Coches Prietos Cove on the south side of Santa Cruz Island were investigated. Specially prepared concrete blocks were used as experimental substrates and cages were used to control access to experimental plots. .

451. METEOROLOGICAL OFFICE. MONTHLY METEOROLOGICAL CHARTS OF THE EASTERN PACIFIC OCEAN. 1956
PHYSICAL OCEANOGRAPHY/OCEANOGRAPHY/METEOROLOGY.

452. DOHL TP, BONNELL ML, FORD RG. DISTRIBUTION AND ABUNDANCE OF COMMON DOLPHIN, *DELPHINUS DELPHIS*, IN THE SOUTHERN CALIFORNIA BIGHT: A QUANTITATIVE ASSESSMENT BASED UPON AERIAL TRANSECT DATA. FISHERY BULL. U.S. NATN. OCEAN. ATMOS. ADMN 84(2) 1986: 333-343, ILLUSTR.

* MAMMALIA ** CETACEA *** ODONTOCETI **** DELPHINIDAE *****
DELPHINUS DELPHIS. TECHNIQUES/MATHEMATICAL TECHNIQUES/MATHEMATICAL MODEL/DISTRIBUTION & ABUNDANCE SIMULATION, NORTHERN PACIFIC/ECOLOGY/POPULATION STUDY/POPULATION DYNAMICS/SEASONAL ABUNDANCE/ESTIMATES FROM AERIAL TRANSECT SURVEYS, NORTHERN PACIFIC/POPULATION CENSUSES/NORTHERN PACIFIC/SOUTHERN CALIFORNIA BIGHT, AERIAL TRANSECT STUDY/BEHAVIOUR/ACTIVITY PATTERNS/CYCLICAL ACTIVITY/SEASONAL ACTIVITY PATTERN/MIGRATION, NORTHERN PACIFIC/MIGRATION/SEASONAL MOVEMENT PATTERNS, EVIDENCE FROM AERIAL SURVEY DATA, PACIFIC/PACIFIC OCEAN/SOUTHERN CALIFORNIA BIGHT/DISTRIBUTION & ABUNDANCE, ASSESSMENT FROM AERIAL TRANSECTS & MODEL/Zoological Index.

453. Ambrose RF. Effects of octopus predation on motile invertebrates in a rocky subtidal community. Marine Ecology Progress Series 1986;30:261-273
predation/abundance/distribution/Mollusca/Cephalopoda/Octopus bimaculatus/Santa Catalina Island/marine biology/ecology/malacology.

454. Barrett RH. Wild Pigs in California. ; Unpublished manuscript. SCIR feral pigs/SRD.

455. Barrett RH. Management of wild hogs on private lands. 8 pp; unpublished manuscript. SCIR feral pigs/SRD.

456. Barrett RH. Wild Pigs. Davis DE. CRC Handbook of Census Methods for Terrestrial Vertebrates. Boca Raton, Florida: CRC Press. 243-244. trapping/markings/SRD.

457. Booth JS. Textural changes as an indicator of sediment dispersion in the Northern Channel Island Passages, California.

Journal of Sedimentary Petrology 1973;43(No. 1, March):238-250
submarine geology/oceanography/currents/SRD.

458. Barrett RH. History and status of wild pigs, *Sus scrofa*, in San Benito County, California. Calif. Fish and Game 1980;67(1):105-117 feral pigs/SRD.

459. Barrett RH. Habitat preferences of feral hogs, deer, and cattle on a Sierra foothill range. Journal of Range Management 1982;35(3):342-346 pigs/SRD.

460. Bjorndalen JE. The chaparral vegetation of Santa Cruz Island, California. Botany 1978;4:255-269
fspub/plant communities/ecology/SRD.

461. Brown PE. Distribution of Bats of the California Channel Islands. . 1978. 13. SCIR
fspub/Santa Cruz Island/biogeography/SRD.

462. Bohart RM. A host record for *Fedtschenkia* (Hymenoptera: Sapygidae). The Pan-Pacific Entomologist 1972;48(No. 2):149
SCIR.
fspub/Santa Cruz Island/insects/SRD.

463. Olmsted FH,1. Geologic reconnaissance of San Clemente Island, California. Washington, [D.C.] : U.S. G.P.O., 1958. 1958;iii:p.55-68 Contributions to general geology. Geological Survey bulletin ; 1071-B. Other-US "Prepared in cooperation with the U.S. Department of the Navy." One folded col. map in pocket. Bibliography: p. 68. Monograph; Bibliography.
Geology/California/San Clemente Island/AGRICOLA.

464. Lowry MS, Oliver CW, Macky C, Wexler JB. Food habits of California sea lions *Zalophus californianus* at San Clemente Island, California, 1981-86. FISH. BULL 1990;88(3):509-521.
We studied the food habits of the California sea lion *Zalophus californianus* at San Clemente Island, California, from September 1981 through September 1986 using fish otoliths, cephalopod beaks, and other prey remains we recovered from 1476 fecal samples (i.e., scats). We identified 44 types of prey to species and 8 types of prey to genus. Seven types of prey occurred in at least 10% of scats. Significant differences in the occurrence of Pacific whiting, northern anchovy, jack mackerel, Pacific mackerel, market squid, octopus, and pelagic red crab ($P < 0.01$) were found during pre-El Nino, El Nino, and post-El Nino periods. faecal pellets/El Nino phenomena/USA/California/San Clemente Island/*Zalophus californianus*/food availability/prey selection/INE/USA/California/San Clemente Island/food preferences/ASFA.

465. COOKE W B. H E BROWN AND THE PLANTS OF THE NORTH SIDE OF MOUNT SHASTA. MADRONO21 (7). 1972 487-489.
BA.
CALIFORNIA USA MOUNT EDDY LOCALITY CITATION/Biosis.

466. Pias NG. Model for paleoceanographic reconstructions developed from historic and geologic data. Geol. Soc. Am., Abstr. Programs. 1978;10(7):p.472 Univ. R.I., Grad. Sch. Oceanogr., Kingston, R.I., United-States The Geological Association of Canada, The Mineralogical Association of Canada, The Geological Society of America (91st annual meeting); 1978 joint annual meeting, Toronto, Ont., Oct. 23-26, 1978 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of

Geology (1969-present).
Pacific Coast/stratigraphy/Holocene/Pacific
Ocean/oceanography/ocean circulation/paleoclimatology/California
Current/Northeast Pacific/Santa Barbara Basin/California/United
States/paleo oceanography/temperature/currents/statistical
analysis/Quaternary/GEOREF.

467. Wyrтки K. the oxygen minima in relation to ocean
circulation. Deep sea research. 1962;9:11-23
NPS/Physical oceanography/oceanography/water masses.

468. Arnold JE. An Archaeological Perspective on the
Historic Settlement Pattern on Santa Cruz Island. Journal of
California and Great Basin Archaeology 1990;12(1):112-127
SCIR/SBMNH.
fspub/Chumash/archaeology/anthropology/Channel Islands .

469. Jendro LM. Range Dependent Analysis of Acoustic
Transmission Across a Cold Filament in the California Current.
[dissertation] ; 1989. 73p. Performer: Naval Postgraduate School,
Monterey, CA
Master's thesis.
Conductivity, temperature and depth data were taken in a area where
satellite imagery had detected a cold water filament to frequently
recur in the California Current System in order to determine the
temporal and spatial variability of the hydrographic and velocity
fields. Sound speed profiles were constructed from this data and
predicted sonar ranges (PSRs) were computed for passive sonar using
a range-dependent parabolic equation model. Analysis of model
results applied to tactical scenarios showed the acoustic advantage
between two adversaries to change as their positions relative to
the front and to each other were changed. An investigation of the
acoustic mechanisms involved in the variation of PSRs showed that
small variations in surface temperature were enough to cause
significant changes in PSRs. Changes in temperature of sufficient
magnitude to effects PSRs were found also in SST imagery of cold
filaments in other eastern boundary currents around the world.
Keywords: Theses, Slow moving ocean currents. (KR). Acoustic
ranges/Acoustic velocity/Acoustics/Boundaries/California/Depth/East
Direction/Hydrography/Images/Low temperature/Low
velocity/Models/Profiles/Satellite
photography/Scenarios/Sonar/Surface temperature/Tactical
analysis/Theses/Variations/Velocity/Water/Filaments/Ocean
currents/Passive sonar/Sound transmission/NTIS.

470. Hilbig B, Blake JA, Ruff RE, Reish DJ(. Additions of
the genus Pettiboneia (Polychaeta, Dorvilleidae). 3. Int.
Polychaete Conf. THIRD INTERNATIONAL POLYCHAETE CONFERENCE HELD AT
CALIFORNIA STATE UNIVERSITY, LONG BEACH, CALIFORNIA, AUGUST 6-11,
1989 1991:p. 588
Science Application International Corp., 89 Water St., Woods Hole,
MA 02543, USA. Four species are added to the genus Pettiboneia .
Two of these species were originally assigned to the genus
Protodorvillea. Pettiboneia pugettensis is distinguished by
notopodia starting on setiger 3 rather than 2. P. dibranchiata was
described as having two dorsal branchiae on each parapodium, but in
fact has only a single branchia and a long, ciliated notopodium
bearing a thin internal acicula. One of the new species comes from
an Alaskan fjord and is the only species of the genus possessing
palps that are shorter than the antennae. The second comes from the
U.S. Atlantic continental slope and rise. This species is readily
recognized by the presence of bidentate geniculate setae in
anterior setigers that change gradually into furcate setae in

middle and posterior segments. The genus now contains nine species. The geographic and bathymetric distribution of *Pettiboneia* now ranges from subarctic Alaskan localities to South America, California, Spain, Australia, and the Gulf of Mexico; and intertidal to continental lower slope and rise.
new species/geographical distribution/new taxa/taxonomy/animal morphology/*Pettiboneia*/*Protodorvillea*/World Oceans/new combinations/Oceanic Abstracts.

471. Pickwell GV, Bezy RL, Fitch JE. Northern occurrences of the sea snake, *Pelamis platurus*, in the eastern Pacific, with a record of predation on the species. CALIF. FISH GAME 1983;VOL. 69, NO. 3:pp. 172-177

Mar. Sci. Div., Nav. Ocean Syst. Cent., San Diego, CA 92152, USA. Four specimens of the yellow-bellied sea snake, *P. platurus*, from southern California and the outer coast of Baja California represent the northernmost records of this species in the eastern Pacific. Three of the snakes were probably carried northward by a warm countercurrent (Davidson Current) along the coast of Baja California and southern California during the warm periods of 1972-73 and 1976-77. One of the individuals had been ingested by a puffer *Sphoeroides* cf. *Annulatus*; this represents the second reported instance of predation on the species in nature.
new records/geographical distribution/*Pelamis platurus*/ISE/OceanAbstracts.

472. Hewatt WG. Marine ecological studies on Santa Cruz Island, California. Ecol. Mongr. 1946;16:185-210
contains species lists for six sites on Santa Cruz Island, primarily faunistic with some limited algal observations. Marine algae, marine fauna, Santa Cruz Island.

473. KOLPAK RL. OCEANOGRAPHY OF THE SANTA BARBARA CHANNEL. PHYSICAL OCEANOGRAPHY/OCEANOGRAPHY/CURRENTS/WAVES.

474. ANDERSON DW, GRESS F. BROWN PELICANS AND THE ANCHOVY FISHERY OFF SOUTHERN CALIFORNIA. 1984: 128-135, ILLUSTR. IN: NETTLESHIP, D.N., SANGER, G.A. & SPRINGER, P.F. (EDS). MARINE BIRDS: THEIR FEEDING ECOLOGY AND COMMERCIAL FISHERIES RELATIONSHIPS. MINISTER OF SUPPLY & SERVICES, CANADA. 1984;I-VII(1-220) * AVES ** PELECANIFORMES *** PELECANIDAE **** PELECANUS OCCIDENTALIS CALIFORNICUS. ANIMALS & MAN/CONSERVATION/COMMERCIAL FISHERIES EFFECTS ON FOOD AVAILABILITY RELATIONSHIPS/FEEDING/CARNIVOROUS FEEDING/PREDATION/PREY/ENGRAULIS MORDAX (PISCES)/PREY AVAILABILITY, EFFECT ON REPRODUCTION & ECOLOGY, FISHERIES RELATIONS/REPRODUCTION/REPRODUCTIVE PRODUCTIVITY/PISCAN PREY AVAILABILITY RELATIONS, EFFECT OF COMMERCIAL FISHERIES/ECOLOGY/POPULATION STUDY/POPULATION DYNAMICS/POPULATION SIZE/POPULATION CHANGES/PACIFIC OCEAN/NORTHERN PACIFIC/SOUTHERN CALIFORNIA BIGHT/ECOLOGY & REPRODUCTION, PISCAN PREY AVAILABILITY & FISHERIES RELATIONS/Zoological Index.

475. Ambrose RF. Artificial reefs along the Santa Barbara Coast: What are the benefits? NOAA Technical Memorandum NOS/MEMD 1988;23:1
Abstract.

artificial reefs/Santa Barbara Channel/Southern California coast/marine biology/fisheries/ecology/resource management.

476. Henderson RE. Life beneath Santa Cruz Island. National Speleological Society News 1983;41(No 2):88-91
SCIR.
fspub/marine biology/SRD.

- # 477. Banks RC. Terrestrial Vertebrates of Anacapa Island, California. Transactions of the San Diego Society of Natural History 1966;14(No. 14):173-188 SCIR.
amphibians/reptiles/birds/mammals/SRD.
- # 478. Bray RN, Alfred W. Ebeling. Food, Activity, and Habitat of Three "Picker-type" Microcarnivorous Fishes in the Kelp Forests off Santa Barbara, California. Fishery Bulletin 1975;73(No. 4):815-829
SCIR.
fspub/Santa Cruz Island/perch/marine biology/SRD.
- # 479. Arnold Jeanne E. The Santa Barbara Channel Islands bladelet industry. Lithic Technology 1985;14(No. 2):71-80
SCIR.
fspub/Santa Cruz Island/archaeology/Chumash/SRD.
- # 480. Andreae MO. Arsenic speciation in seawater and interstitial waters: The influence of biological-chemical interactions on the chemistry of a trace element. Limnol. Oceanogr. 1979;24(3):440-452.
eganhouse/geochemistry/chemical oceanography/Pacific Ocean/arsenic sediments/continental shelf/trace elements/pore water/biogenic effects/California continental borderland/arsenates/arsenites/methylarsinates/dimethylarsinate/E h/adsorption/h ydrochemistry/MINERALS MANAGEMENT SERVICE.
- # 481. Arnold JE (UCSB). The origins and evolution of lithic craft specialization on the Channel Islands, California. 50th Annual Meeting, Society for American Archaeology; 1985 May; Denver, Colorado.
SCIR// unpublished manuscript.
fspub/Santa Cruz Island/Chumash/archaeology/SRD.
- # 482. Brown P, Grinnell AD. Echolocation ontogeny in Bats. Busnel RF, JF. Animal Sonar Systems. : Plenum Publishing Corp.; 1980. p. 355-377. SCIR.
SRD.
- # 483. Brown P. Vocal Communication in the Pallid Bat *Antrous pallidus*. Zeitschrift fur Tierpsychologie 1976;41:34-54
SCIR.
SRD.
- # 484. Butterworth JB (UCSB). Inventory of Historical Aerial Imagery of Santa Cruz Island, California. : The Nature Conservancy; 1988. 1-17. SCIR. fspub/maps/aerial photos/SRD.
- # 485. Collins PW. Interaction between island foxes (*Urocyon littoralis*) and Indians on islands off the coast of Southern California: I. Morphologic and archaeological evidence of human assisted dispersal. J. Ethnobiology 1991;11(1):51-81
fspub/Channel Islands/Chumash/evolution/SRD.
- # 486. Upson JE, Thomasson HG. Geology and water resources of the Santa Ynez River basin, Santa Barbara County, California. Washington, D.C. : U.S. G.P.O., 1951. ; 1951. vii. 194. Geological Survey water-supply paper ; 1107. Other-US Seven folded leaves in pocket. Includes index. Bibliography: p. 166-167. Monograph; Bibliography. Geology California Santa Barbara County/Water supply California Santa Barbara County/AGRICOLA.

487. Barnes CE, Cochran JK. Uranium removal in oceanic sediments and the oceanic U balance. EARTH PLANET. SCI. LETT 1990;97(1-2):94-101. Pore water uranium data from the NW Atlantic Ocean, Cariaco Trench, Black Sea and San Clemente Basin are used to calculate fluxes across the sediment-water interface. All samples were collected in situ and show depletions in pore water U relative to the overlying water concentration. The uptake rate of U, derived from pore water gradients, reflects the redox environment, with lowest fluxes (10 $\mu\text{g/cm}^2\text{ky}$) in oxic/suboxic sediments of the NW Atlantic dominated by NO_3^- reduction and higher fluxes (25-70 $\mu\text{g/cm}^2\text{ky}$) in the anoxic, sulfate-reducing sediments of the Cariaco Trench, Black Sea and San Clemente Basin. The anoxic fluxes compare well with previous estimates based on solid phase data. Calculations indicate that the areally integrated removal of U into suboxic, hemipelagic sediments is of greater magnitude than that into anoxic, sulfate-reducing sediments. These fluxes are discussed in the context of the oceanic U balance. The removal of U in all oceanic sediments is estimated to account for similar to 65% of the riverine input, and this sink plus removal of U in altered oceanic crust balances the most probable value for riverine input. pore water/sediment analysis/sediment-water interface/oxidation/geochemistry/seafloor sampling/ocean floor/analytical techniques/ANW/MED/Black Sea/ASW/Cariaco Trench/INE/San Clemente Basin/uranium/ASFA.

488. Nardin TR. Geophysical evidence for subaqueous mass movement in Santa Cruz Basin, California continental borderland. Geol. Soc. Am., Abstr. Programs. 1978;10(7):p.462
Univ. South. Calif., Dep. Geol. Sci., Los Angeles, Calif., United-States The Geological Association of Canada, The Mineralogical Association of Canada, The Geological Society of America (91st annual meeting); 1978 joint annual meeting, Toronto, Ont., Oct. 23-26, 1978 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). Pacific Coast/geophysical surveys/seismic surveys/California/oceanography/continental shelf/sedimentation/transport/turbidity currents/United States/Southern California/Santa Cruz Basin/continental borderland/reflection methods/seismic methods/mass movements/sliding/debris flows/basins/turbidite/clastic rocks/Pacific Ocean/Northeast Pacific/submarine environment/GEOREF.

489. Zentara SJaDK. latitudinal relationships among temperature and selected plant nutrients along the west coast of North and South America. J. Mar. Res. 1977;35:321-337
NPS/Physical oceanography/oceanography/water masses.

490. Wayne RK, George SB, Gilbert D, Collins PW, Kovach SD, Girman D, Lehman N. A morphologic and genetic study of the island fox, *Urocyon littoralis*. Evolution 1991;45(8):1849-1868
SCIR/SBMNH.
fspub/island fox/electrophoresis/genetic variation/evolution/Channel Islands/Santa Cruz Island.

491. Davis GE. Design of a Long-term ecological monitoring program for Channel Islands National Park, California. Natural Areas Journal 1989;9(2):80-89 management/SRD.

492. Gunderson CR. Saline Impact on the California Current System. [dissertation] ; 1989. 119p.
Performer: Naval Postgraduate School, Monterey, CA
There are some indications that in large measure the density anomaly field of the California Current System (CCS) follows

temperature, salinity playing a significantly lesser role. These indications have been used as justification for ignoring salinity variations in dynamic models. An extensive data base of simultaneous temperature-salinity observations taken in the CCS is used to calculate and assess the saline contribution to specific volume anomaly, dynamic height, and density variance. The results show that the distribution of salinity can be important in defining the large scale circulation of the CCS, and that the local variability can be quite significant. Salinity; California current; Variance; Density; Anomaly; Thesis; Sea water. (jg).
Anomalies/Circulation/Data
bases/Density/Distribution/Dynamics/Height/Models/Sea
water/Specific volume/Variations/California/Ocean
currents/Salinity/Theses/Ocean temperature/NTIS.

493. Bastida-Zavala JR, Reish DJ(. Previous list of the polychaetes (Annelida: Polychaeta) from Cabo Pulmo-Los Frailes Reef, B.C.S., Mexico. 3. Int. Polychaete Conf. THIRD INTERNATIONAL POLYCHAETE CONFERENCE HELD AT CALIFORNIA STATE UNIVERSITY, LONG BEACH, CALIFORNIA, AUGUST 6-11, 1989 1991:p. 584 Area Cienc. Mar, Dep. Biol. Mar., Univ. Auton. Baja California Sur, AP 19-B, La Paz, BCS 23080, Mexico.

The importance of Cabo Pulmo-Los Frailes reef lies in its geographical position (23 degree 25'N, 109 degree 25'W), which makes it a singular reef. This research is part of the project "Associated fauna of the coral *Pocillopora elegans* from Cabo Pulmo-Los Frailes, B.C.S., Mexico," one of the preliminary works needed in order to propose the reef as a reserve zone. From the three surveys carried on between 1988 and 1989, the author collected a total of 422 specimens, distributed in 20 families, 42 genera and 89 species. Those of greater abundance were the sabellarid *Idanthyrsus pennatus* with 158 specimens (37%), the eunicid *Eunice antennata* with 31 specimens (7%), and the syllid *Trypanosyllis* (*Tripanedenta*) *taeniaformis* with 22 (5%). Only 7 out of the 20 families found had been previously reported for the area. The need to make further research in the area is evident. coral reefs/zoobenthos/new records/geographical distribution/nature conservation/refuges/Polychaeta/ISE, Mexico, Baja California, Cabo Pulmo-Los Frailes Reef/Oceanic Abstracts.

494. Boyer DL, d'Hieres C, Didelle H. Rotating open channel flow past a right circular cylinder. Joint EGS/ESC General Assembly. 016. Geophysical Fluid Dynamics EOS TRANS. AM. GEOPHYS. UNION 1982;VOL. 63, NO. 51:p. 1304 Dep. Mech. Eng., Univ. Wyoming, Laramie, WY 82071, USA European Geophysical Soc. European Seismological Comm.

One qualitative characteristic of all experiments is that the cyclonic eddies (same sense as background rotation of turntable) are substantially stronger than their anticyclonic counterparts. One quantitative observable of the experiments has been the Strouhal number. The preliminary results show a strong dependence of this parameter on the cylinder aspect ratio but only a small effect (if any) on the systems rotation (e.g. the Ekman number, other parameters being fixed). Qualitative similarities between these laboratory experiments and the assymetric eddy shedding from such ocean islands as Guadalupe off the coast of Baja California are noted.

ISE, Mexico, Baja California/current
rings/cylinders/islands/Strouhal number/Ekman
number/OceanAbstracts.

495. Hollenberg GJ. Phycological notes. VI. New records, new combinations and noteworthy observations concerning marine algae of

California. Phycologia 1971;10:281-290

Range extensions are reported for 15 species, new combinations made for 4 species and 5 taxa are placed in synonymy based on collections of California algae, some from the Southern California Channel Islands.

Marine Algae.

496. KRAUSS W. INTERNAL TIDES OFF SOUTHERN CALIFORNIA. 1966
PHYSICAL OCEANOGRAPHY/OCEANOGRAPHY/WAVES/ INTERNAL WAVES/TIDES.

497. WEBER EC, GOLDBERG SR. THE SEX RATIO AND GONAD INDICES
OF SWORDFISH, XIPHIAS GLADIUS, CAUGHT OFF THE COAST OF SOUTHERN
CALIFORNIA IN 1978. FISHERY BULL. U.S. NATN. OCEAN. ATMOS. ADMN
84(1) 1986: 185-186.

* PISCES ** SUPERCLASS GNATHOSTOMATA *** CLASS TELEOSTOMI ****
DIVISION TELEOSTEI ***** SUPERORDER ACANTHOPTERYGII *****
PERCIFORMES ***** SUBORDER SCOMBROIDEI ***** XIPHIIDAE
***** XIPHIAS GLADIUS.

BIOMETRICS/MEASUREMENTS/RELATIVE MEASUREMENTS/GONAD INDICES,
NORTHERN PACIFIC/REPRODUCTION/REPRODUCTIVE SYSTEM/OVARY/CONDITION
INDICES, NORTHERN PACIFIC/REPRODUCTIVE CONDITION/FEMALE GONAD
INDICES, NORTHERN PACIFIC/ECOLOGY/POPULATION STUDY/POPULATION
STRUCTURE/POPULATION SEX RATIO/NORTHERN PACIFIC/PACIFIC OCEAN/SOUTH
ERN CALIFORNIA BIGHT/POPULATION SEX RATIO & GONAD
INDICES/Zoological Index.

498. Ambrose RF. Population dynamics of Octopus bimaculatus:
influence of life history patterns, synchronous reproduction and
recruitment. Malacologia 1988;29:23-39
population biology/population dynamics/life
history/reproduction/recruitment/Mollusca/Cephalopoda/Octopus
bimaculatus/Santa Catalina Island/marine
biology/ecology/malacology.

499. Collins PW, George SB. Symatics and taxonomy of island
and mainland populations of western harvest mice _(Reithrodontomys
megalotis)_ in southern California. Contributions in Science,
Natural History Museum of Los Angeles County 1990;420:1-26
fspub/evolution/biogeography/Channel Islands/SRD.

500. Ashley MV, Willis C. Analysis of mitochondrial DNA
polymorphisms among Channel Islands deer mice. Evolution
1987;41(4):854-863
fspub/evolution/genetics/SRD.

501. Ashley MV. Absence of diferentiation in mitochondrial
DNA of island and mainland harvest mice, _Reithrodontomys
megalotis_. Journal of Mammalogy 1989;70(2):383-386
fspub/Channel Islands/evolution/SRD.

502. Ashley MV, Willis C. Mitochondrial DNA and allozyme
divergence patterns are correlated among island deer mice.
Evolution 1989;43(3):646-650 fspub/Channel
Islands/evolution/genetics/SRD.

503. O'Malley PG. Large-scale restoration on Santa Catalina
Island, California. Restoration and Management Notes 1991;9(1):7-15
ironwood/management/SRD.

504. Pinter N, Sorlien C. Evidence for latest Pleistocene to
Holocene movement on the Santa Cruz Island fault, California.
Geology 1991;19:909-912 fspub/geology/SRD.

- # 505. Sorlien C, Pinter N. [abstract]. The northern Channel Islands fault system, California; 1991 Oct 21; San Diego, CA. ; 1991. Abstracts with programs, GSA 1991. p. a-197, No. 24836. SCIR, unpublished abstract.
fspub/geology/SRD.
- # 506. Rieseberg LH, Zona S, Aberbom L, Martin TD. Hybridization in the island endemic, Catalina mahogany. Conservation Biology 1989;3(1):52-58 SCIR.
botany/evolution/management/restoration/SRD.
- # 507. Bennett SG, Webb Jr. JP, Collins PW. *Ixodes rugosus* Bishopp (Acari: Ixodidae): description of larvae from Santa Rosa Island, California. Bull. Soc. Vector Ecology 1989;14(2):262-265
insects/ticks/Channel Islands/SRD.
- # 508. Wilson HD(D1. Ground water appraisal of Santa Ynez River basin, Santa Barbara County, California, 1945 52. Washington, D.C. : U.S. G.P.O., 1959. 1959;vi:p.119
Geological Survey water-supply paper ; 1467. Other-US "Prepared in cooperation with the U.S. Bureau of Reclamation and the Santa Barbara County Water Agency."Bibliography: p. 108-109. Monograph; Bibliography. Water supply/Underground water/California/Santa Ynez Valley/AGRICOLA.
- # 509. Kling SA. Local and regional imprints on radiolarian assemblages from California coastal basin sediments. Mar. Micropaleontol. 1977;2(3):p.207-221 Scripps Inst. Oceanogr., La Jolla, Calif., United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present).
California/stratigraphy/Miocene/Radiolaria/biostratigraphy/assemblages/continental borderland/United States/Santa Barbara Basin/Santa Monica Basin/Neogene/Tertiary/GEOREF.
- # 510. Strickland JDH, Parsons TR. A manual of seawater analysis. Bull. Fish. Res. Bd. Can. 1968;167
NPS/Physical oceanography/oceanography.
- # 511. George SB, Wayne Robert K. Island Foxes: a model for conservation genetics. Terra 1991;30(1):18-23
SCIR/SBMNH.
fspub/Urocyon littoralis/Channel Islands/Santa Cruz Island/evolution.
- # 512. Savage KL, Despard SL. The Miocene Blanca formation and Beecher's Bay member of the Monterey formation, Santa Cruz Island, California: confirmation of stratigraphic correlation and petrogenesis of the volcanic clasts. [dissertation] Northridge: Cal State University Northridge; 1990.
Senior Thesis.
fspub/geology/SRD.
- # 513. Kajimura H (Performer: National Marine Mammal Lab., Seattle, WA). Fur Seal Investigations, 1987 and 1988. Technical memo. ; 1990. Report No.: NOAATMNMFSFNWC180. 159p.
See also PB90-162306. PC A08/MF A01.
Northern fur seal (*Callorhinus ursinus*) research in Alaska was conducted on the Pribilof Islands during 1987 and 1988 and on Bogoslof Island in 1988. Research on northern fur seals was also conducted on San Miguel Island and nearby Castle Rock off the California coast during 1987 and 1988. The total number of pups born on St. Paul Island in 1987 was 2.36% higher than 1986 but the

increase was not statistically significant based on shearing sampling estimation and dead pup counts, which were conducted on all rookeries. An analysis of trends in pup production indicates that numbers of pups born on St. George Island have declined at 6% (SD = 0.4%) per year during 1973-88 while numbers of pups born on St. Paul Island decreased at 6.8% (SD = 1.1%) per year during 1975-83 and has shown no trend since 1984.

Abundance/Trends/Body weight/Populations/Graphs Charts/Tables Data/Seals Mammals/Alaska/Birth weight/Callorhinus ursinus/Birth rate/Fur seals/NTIS.

514. Deblinger RD, Jenkins RE, . Preserving coastal biodiversity: The private, nonprofit approach. COAST. MANAGE 1991;VOL. 19, NO. 1:pp. 103-112 Trustees Reserv., 572 Essex St., Beverly, MA 01915, USA.

Cooperation among state, federal, and private conservation organizations is essential to help preserve coastal biodiversity. The Nature Conservancy's Natural Heritage Program, a state-by-state rare species and natural community inventory, has been adopted throughout most of the United States and was initially funded, in part, privately, but will ultimately be incorporated into and funded by state governments. The first step is to state clearly as a mission throughout state and federal natural resource agencies that biodiversity preservation is of top priority. Then, by working cooperatively with private, nonprofit land trusts and conservation organizations, research, habitat acquisition, and management can be accomplished through pooled talents and resources much more efficiently. Two coastal examples of endangered species are given. ecosystem management/government policy/rare species/nature conservation/USA/INE, USA, California/species diversity/coastal zone/Oceanic Abstracts.

515. Berelson WM, Hammond DE, Fuller C. Radon-222 as a tracer for mixing in the water column and benthic exchange in the southern California borderland. EARTH PLANET. SCI. LETT 1982;VOL. 61, NO. 1:pp. 41-54

Dep. Geol. Sci., Univ. Southern California, University Park, Los Angeles, CA 90007, USA.

The concentrations of ^{222}Rn and ^{226}Ra in the water column and in the sediments of Santa Barbara and San Nicolas basins have been measured semi-annually over the last four years.

Approximately one-third of excess radon profiles obtained in the water column in these basins can be adequately fit with a one-dimensional eddy diffusion-decay model. Exponential profiles in the center of San Nicolas Basin yield a vertical eddy diffusivity of 26 plus or minus 16 cm^2/s and 3.4 plus or minus 10 cm^2/s for Santa Barbara Basin. The application of a two-dimensional eddy diffusion-decay model to profiles obtained in the center and on the margins of San Nicolas Basin produces a better fit than is found using a one-dimensional vertical eddy diffusivity. The two-dimensional model for San Nicolas Basin predicts a vertical eddy diffusivity of 17 cm^2/s and horizontal eddy diffusivity of 10 cm^2/s . These values are in reasonable agreement with those predicted from the vertical buoyancy gradient and the horizontal length scale.

water column/sediments/radon isotopes/radioactive tracers/mixing/INE, USA, California, Santa Barbara Basin/INE, USA, California, San Nicolas Basin/turbulent diffusion/OceanAbstracts.

516. Hollenberg GJ. Phycological notes. V. New Species of marine algae from California. . Phycologia 1971;10:11-16
Distributional data includes some collections from the Southern California Islands.

Marine Algae.

517. LAEVASTU T. FACTORS AFFECTING THE TEMPERATURE OF THE SURFACE LAYER OF THE SEA. PHYSICAL OCEANOGRAPHY/OCEANOGRAPHY/METEROLOGY/WAVES/WATER MASSES/CURRENTS.

518. POWER JH. A MODEL OF THE DRIFT OF NORTHERN ANCHOVY, ENGRAULIS MORDAX, LARVAE IN THE CALIFORNIA CURRENT. FISHERY BULL. U.S. NATN. OCEAN. ATMOS. ADMN 84(3) 1986: 585-603, ILLUSTR. * PISCES ** SUPERCLASS GNATHOSTOMATA *** CLASS TELEOSTOMI **** DIVISION TELEOSTEI ***** SUPERORDER CLUPEOMORPHA ***** CLUPEIFORMES ***** SUBORDER CLUPEOIDEI ***** ENGRAULIDAE ***** ENGRAULIS MORDAX. TECHNIQUES/MATHEMATICAL TECHNIQUES/MATHEMATICAL MODEL/LARVAL DRIFT SIMULATION IN CALIFORNIA CURRENT, NORTHERN PACIFIC/ENVIRONMENTAL FACTORS/PHYSICAL ENVIRONMENT/WATER/CURRENTS, LARVAL DISTRIBUTION RELATIONSHIP, DRIFT MODEL, NORTHERN PACIFIC/REPRODUCTION/REPRODUCTIVE BEHAVIOUR/BREEDING PLACE/SPAWNING SITE EFFECT ON LARVAL DISTRIBUTION, DRIFT MODEL, PACIFIC/SPAWNING/TIME & LOCATION EFFECTS ON SUBSEQUENT LARVAL DISTRIBUTION/DRIFT SIMULATION MODEL, NORTHERN PACIFIC/HABITAT/DISTRIBUTION WITHIN HABITAT/HORIZONTAL DISTRIBUTION/LARVAL DRIFT MODEL, SPAWNING & CURRENT FACTORS, NORTHERN PACIFIC/PACIFIC OCEAN/NORTHERN PACIFIC/CALIFORNIA CURRENT/LARVAL DRIFT MODEL, SPAWNING & HYDROLOGICAL FACTORS/Zoological Index.

519. Ambrose RF. The influence of habitat characteristics on the structure of a subtidal invertebrate assemblage. In preparation community ecology/habitat characteristics/invertebrates/marine biology/ecology.

520. Goodman E. An Island Cruz. California 1991;February:86-89 magazine article. history/Scorpion Ranch/Gherini ranch/recreation/travel/SRD.

521. Collins PW, Laughrin L (SBMNH/UCSB-SCIR). Vertebrate Zoology: the Island Fox on San Miguel Island. : National Park Service. 1-46. (Resources Study for Channel Islands National Monument). SCIR. SRD.

522. Cookman A. Birds noted on a visit to Santa Cruz Island, California. Wilson Bulletin 1930;42:64-66 SCIR. SRD.

523. Coville RE. Wasps of the genus Trypargilum in North America. UC Publications in Entomology 1982;97(6):1-147 SCIR, p.61. fspub/insects/SRD.

524. Dybel B. Whole-rock geochemistry of the Willows plutonic complex, Santa Cruz Island, California [dissertation]. : Cal. St. Univ. Northridge; 1990. 22 pp. SCIR Senior Thesis. fspub/Santa Cruz Island/geology/SRD.

525. Carplan L (Univ Calif. Riverside; Dept of Biology). 1980. SCIR unpublished letter re freshwater Crustacea from Santa Cruz Island. freshwater/crustacea/mud/vernal pools/ostracods/cladoceran/anostracans/SRD.

526. Antonelis GA,J, Perez MA. Estimated annual food consumption by northern fur seals in the California Current. Calif. Coop. Oceanic Fish. Invest. Rep. 1984;25:135-145.
Merluccius productus/Pacific hake/Engraulis mordax/northern anchovy/Loligo opalenscens/market squid/mortality/fish/Cross/TEXT/Bonnel Dailey/marine mammals/MINERALS MANAGEMENT SERVICE.

527. Coville RE. An extra midtibial spur in an island population of *Trypoxylon tridentatum* Packard (Hymenoptera: Specidae: Larrinae: Trypoxylonini). Pan-Pacific Entomologist 1979;55(1):73
SCIR.
fspub/entomology/insects/wasps/evolution/SRD.

528. Diamond JM. Avifaunal equilibria and species turnover rates on the Channel Islands of California. Proc. National Academy of Sciences 1969;64(1):57-63 SC.
fspub/birds/biogeography/SRD.

529. Denning DG. New and interesting Trichoptera from the western United States. Pan-Pacific Entomologist 1983;58(3):206-215
SCIR.
fspub/insects/endemic/SRD.

530. Molina-Cruz A. Oceanographic evolution of the mouth of the Gulf of California. AN. INST. CIENC. MAR LIMNOL. UNIV. NAC. AUTON. MEX 1986;13(2):95-120. The California Gulf is a "young" ocean basin which began its formation plus or minus 5 million years ago. From this time its climatical-oceanographic regime has been subtropical. However, the incursions of the California Current and the seasonal coastal upwelling processes were not established up to approximately the early Pleistocene. Coastal upwelling occurs in both sides of the Gulf. A more direct influence of water from the California Current at the western side of the Gulf is observed during the upwelling process, when the formation of thermal fronts in the water mixed-layer and a primary productivity increase occurred. This fact has induced the accumulation of phosphorite nodules in several localities; coupled to conditions of large organic material preservation in the sediments, as well as little dilution by terrigenous debris.
long-term changes/ocean circulation/upwelling/thermal fronts/ISE/California Gulf/oceanography/ASFA.

531. Muhs DR. Quaternary soil development on San Clemente Island, California. Am. Quat. Assoc., Natl. Conf. 1978;Abstr.(5):p.255 Univ. Colo., Dep. Geogr., Boulder, Colo., United-States Fifth biennial meeting of the American Quaternary Association, Edmonton, Alta., Sept. 2-4, 1978 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).
California/soils/genesis/surveys/Quaternary/Cenozoic/San Clemente Island/United States/sediments/sedimentary petrology/Haploxeralfs/Palexeralfs/Rhodoxeralfs/Xerorthents/parent materials/GEOREF.

532. Sverdrup HU, Fleming RH. the waters off the coast of southern California. Scripps Inst. Oceanogr. 1941;4(10):261-378
NPS/Physical oceanography/oceanography/currents/water masses.

533. Sorlien CC, Pinter Nicholas (Univ. of Calif., Santa Barbara; Dept. Geological Sciences). The Northern Channel Islands

Fault System, California. Geological Society of America, Annual Meeting; 1991 Oct 21; San Diego, CA. ; 1991. Abstracts with Programs. p. page A-197/No. 24836.

SCIR.

fspub/geology/Santa Cruz Island/fault.

534. Depew Y. Survey for endoparasites in Santa Cruz Island foxes. . 1981. 12 pp; unpublished class report. SCIR
fspub/SRD.

535. Sherrell RM (Performer: Massachusetts Inst. of Tech., Cambridge). Trace Metal Geochemistry of Suspended Oceanic Particulate Matter. Doctoral thesis. ; 1989. 216p.
Prepared in cooperation with Woods Hole Oceanographic Institution, Report Number WHOI-89-27. PC A10/MF A02 Contract: N0001486K0325. Vertical profiles of suspended particulate trace metals were measured in the Sargasso Sea near Bermuda and in the California Current, northwest Pacific. Using a new in situ pump, sufficiently large samples of particulate matter (order 10mg) were collected to allow measurement of a suite of trace metals as well as major component elements, using several different leaching techniques on separate subsamples. Concentrations of particulate Copper, Zinc, Cobalt, Cadmium, Nickel, and Lead near Bermuda were determined to be substantially lower than estimates based on previously published work. Concentrations of the more abundant elements Aluminum, Fe, and Mn were similar to previous estimates. Vertical profiles of Mn, Co, Pb, Zn, Cu, and Ni (mol/l) at Bermuda displayed similar features: a relative depletion in surface waters, a relative maximum in the upper thermocline, and relatively constant deep water concentrations. The similarity in the vertical variations of dissolved/particulate fractionation for these metals may be caused by interaction of dissolved metals with authigenic Mn phases; the fractionation is anti-correlated with other major particle components (organic carbon, calcium carbonate, opal, and aluminosilicate). The vertical profile of particulate Cd displayed a different form: enrichment at the surface and decreasing concentrations through the thermocline to constant deep water values. Theses. (aw).

Aluminum/Bermuda/Cadmium/Calcium
compounds/California/Carbon/Carbonates/Cobalt/Concentration
Composition/Constants/Copper/Deep
water/Depletion/Dissolving/Enrichment/Fractionation/Interactions/
Leaching/Nickel/Ocean currents/Organic
materials/Particles/Profiles/Sampling/Surface
waters/Surfaces/Thermoclines/Theses/Vertical
orientation/Zinc/Iron/Lead
Metal/Manganese/Geochemistry/Metals/Particulates/Sargasso Sea/North
Pacific Ocean/Trace elements/NTIS.

536. James JE, Gerber H, Gathman SG. Navy tethered balloon measurements made during the "fire" marine stratocu IFO (intensive field operation). MEMO. REP. U.S. NAV. RES. LAB 1989
For a ten-day period beginning 15 Jul 1987, tethered balloon measurements were made of turbulence, aerosol, cloud particles, and meteorology at San Nicolas Island, CA, USA, during the "FIRE" marine strato-cumulus Intensive Field Operation (IFO). The primary interest of the Naval Research Laboratory during this experiment was to obtain a data set which could be used for testing the predictions of the Navy Oceanic Vertical Aerosol Model (NOVAM) which describes the atmosphere's optical/infrared properties in terms of easily obtained meteorological data. Two new instruments, flown aboard the balloon, were a saturation hygrometer, which measures $95\% < RH < 150\%$ with an accuracy of 0.05 near 100% RH, and

a forward scatter meter which gives in situ measurements of liquid water content at more than 10 Hz. As a result of this experiment a unique and greatly improved look at the microphysics of the clear and cloud topped boundary layer can be taken. In this report the quality of the data obtained is discussed and some preliminary results are given. Algorithms for the instrumentation flown aboard the balloon are given and profiles of some of the measurements are shown.

meteorology/measuring devices/weather forecasting/clouds/atmospheric turbulence/earth atmosphere/models/marine environment/INE, USA, California, San Nicolas I/Oceanic Abstracts.

537. Chelton DB. Large-scale response of the California Current to forcing by the wind stress curl. REP. CCOFI 1982;VOL. 23:pp. 130-148 Jet Propulsion Lab., California Inst. Technol., Pasadena, CA 91109, USA. Seasonal distributions of zooplankton volume in the California Current show a maximum at a distance of about 100 km offshore between San Francisco and northern Baja California. It is shown that this coincides with a region of offshore upwelling of the thermocline associated with a nearshore counterflow. This counterflow is evident year-round at depths below the thermocline (the California Undercurrent) but appears only seasonally in the upper 200 m (the Davidson Countercurrent). However, the integrated nearshore transport in the upper 500 m is poleward year-round. The seasonal California Current-Countercurrent system is shown to have a nonseasonal (anomalous) counterpart that fluctuates with a time scale of 5-6 months. The region of offshore upwelling associated with this anomalous pattern is found to be located somewhat farther (about 200-300 km) offshore than in the seasonal pattern. Statistical analysis of this anomalous pattern of variability reveals a response resembling that expected from a simple model of offshore Ekman pumping (upwelling) driven by the wind stress curl. As such, this upwelling is not a boundary phenomenon and is therefore quite distinct from coastal upwelling in this region.

upwelling/wind stress/seasonal distribution/zooplankton/nearshore dynamics/undercurrents/countercurrents/INE, California Current/ISE, California Current/OceanAbstracts.

538. Kindig AC, M. M. Littler. Growth and primary productivity of marine macrophytes exposed to domestic sewage effluents. Mar. Envir. Res. 1980;3:81-100 A portion of the research was conducted at Wilson Cove on San Clemente Island. Marine Algae, San Clemente Island.

539. LAM RK. CURRENT MEASUREMENTS OFF THE CALIFORNIA COAST - 1972. SCRIPPS INST. OCEANOGR. REF. 1972;14
PHYSICAL OCEANOGRAPHY/OCEANOGRAPHY/CURRENTS.

540. LOVE MS, STEPHENS JS,J, MORRIS PA, SINGER MM, SANDHU M, SCARROTTA TC. INSHORE SOFT SUBSTRATE FISHES IN THE SOUTHERN CALIFORNIA BIGHT: AN OVERVIEW. REPORT CALIF. COOP. OCEANIC FISH. INVEST. 27 1986: 84-106, ILLUSTR. ECOLOGY/COMMUNITY/COMMUNITY STRUCTURE/SPECIES DIVERSITY/CALIFORNIA (MARINE)/RELATIVE ABUNDANCE/VERTICAL DISTRIBUTION RELATIONSHIP, CALIFORNIA (MARINE)/POPULATION STUDY/POPULATION STRUCTURE/AGE CLASS DISTRIBUTION/AGE FREQUENCIES & RECRUITMENT, CALIFORNIA (MARINE)/HABITAT/DISTRIBUTION WITHIN HABITAT/VERTICAL DISTRIBUTION/DENSITY RELATIONSHIP, CALIFORNIA (MARINE)/PACIFIC OCEAN/NORTHERN PACIFIC/SOUTHERN CALIFORNIA BIGHT/RECRUITMENT, VERTICAL DISTRIBUTION & DENSITY RELATIONSHIP/Zoological Index.

541. Ambrose RF. The mating and brooding behavior of Octopus

bimaculatus in its natural habitat. Unpublished Manuscript
mating behavior/reproductive behavior/brooding
behavior/Mollusca/Cephalopoda/Octopus bimaculatus/Santa Catalina
Island/marine biology/ecology/malacology.

542. Dudley T, Anderson NH. A survey of invertebrates
associated with wood debris in aquatic habitats. *Melandieria*
1982;39:1-22
SCIR.
fspub/freshwater/insects/Channel Islands/SRD.

543. Evans AV. New host plant association for adult scarabs
(Coleoptera: Scarabaeidae: Melolonthinae) from Arizona and
California. *The Coleopterists Bulletin* 1985;39(1):86-89
SCIR.
fspub/insects/endemic/beetles/Santa Cruz Island/San Clemente
Island/Santa Catalina Island/SRD.

544. Emerson KC, Price RD. New records of chewing lice
(Mallophaga: Trichodectidae) found on North American wild foxes
north of Mexico. *Journ of the Kansas Entomological Society*
1987;60(2):332-333
SCIR.
fspub/insects/island foxes/Santa Cruz Island/Santa Catalina
Island/San Miguel Island/SRD.

545. Ebeling Aw, Larson R, Alevizon W, DeWitt JF (Marine
Science Institute, UCSB). Fishes of the Santa Barbara Kelp Forest.
Second National Coastal and Shallow Water Research Conference;
1971. : Geography Programs, Office of Naval Research. p. p. 61.
Abstract.
SCIR.
fspub/SRD.

546. Ebeling A. Will "generalists" inherit Ocean? Santa
Maria, Calif., *Times (Santa Maria, CA)* 1971 Oct 16:15-B.
fish/kelp beds/SRD.

547. Flynn SE. The History of San Clemente Island. . 1942.
12 pp; unpublished manuscript. SCIR
history/Navy/SRD.

548. Foster MS. Regulation of algal community development in
a *Macrocystis pyrifera* forest. *Marine Biology* 1975;32:331-342
SCIR.
fspub/kelp/ecology/SRD.

549. Foster MS. Algal succession in a *Macrocystis pyrifera*
forest. *Marine Biology* 1975;32:313-329
SCIR.
fspub/kelp/marine biology/Santa Cruz Island/SRD.

550. Francoeur A. Notes for a revision of the Ant genus
Formica. 2. Reidentifications for some specimens from the T. W.
Cook collection and new distribution data (Hymenoptera:
Formicidae). *Contrib. Sci. Natural History Museum of Los Angeles
County* 1979;309:1-7
SCIR.
insects/Santa Cruz Island/SRD.

551. Alvarez AA, Molina CA. Quaternary palaeoceanographic
aspects of the Gulf of California inferred by radiolarian
assemblages. *AN. INST. CIENC. MAR LIMNOL. UNIV. NAC. AUTON. MEX*

1986;13(2):67-94.

Using Q-mode factor analysis, the geographical distribution of six radiolarian assemblages from the Gulf of California was depicted. These assemblages are related to conspicuous oceanographic conditions, namely: 1) the distribution of the surface "central water mass," 2) the "upwelling centers," 3) the incursion of the water from the eastern Tropical Pacific, 4) the water mass of the "Ballenas channel," 5) the geographical distribution of the surface water mass from the southern Gulf, and 6) the "Oceanic fronts." The palaeoceanographic reconstruction of the Gulf from the last 14900 years indicates that: The oceanic front from the mouth of the Gulf is displaced to the outside when the tropical water from the Pacific is incursioned in the Gulf; the last major incursion of the California Current in the Gulf was concurrent with the intensification of upwelling events; the incursion of the tropical water in the Gulf inhibits the upwelling events; and, the intensification of the upwelling processes "strengths" the "oceanic fronts.".

stratigraphic correlation/upwelling/water masses/Quaternary/fossil radiolaria/indicator species/Radiolaria/ISE/California Gulf/palaeoceanography/ASFA.

552. Bradner H, Legg M, Reichle M. Sonobuoy measurements of aftershocks of Santa Barbara 13 August 1978 earthquake. Eos (Am. Geophys. Union, Trans.). 1978;59(12):p.1130

Scripps Inst. Oceanogr., La Jolla, Calif., United-States; Univ. Calif. at Santa Barbara, United-States American Geophysical Union; 1978 fall annual meeting, San Francisco, Calif., Dec. 4-8, 1978 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).

California/seismology/earthquakes/aftershocks/Pacific Coast/geophysical surveys/acoustical surveys/Santa Barbara County/United States/Southern California/Santa Barbara/Santa Barbara Channel/1978/measurement/sonobuoys/acoustical methods/geophysical methods/passive methods/GEOREF.

553. Sverdrup HU. On the process of upwelling. J. Mar. Res. 1938;1:155-164 NPS/Physical

oceanography/oceanography/currents/water masses.

554. Arnold JE (Institute of Archaeology, Dept. of Anthropology, UCLA). Organizational Transformation in complex Hunter-Gatherer evolution . Society for American Archaeology. Annual Meeting; 1992; Pittsburgh, PA. fspub/chumash/Santa Cruz Island/archaeology/anthropology.

555. Love MS, Morris P, McCrae M, Collins R (Performer: National Marine Fisheries Service, Washington, DC. Performer: Occidental Coll., Los Angeles, CA. Moore Lab. of Zoology. Performer: Chambers Group, Inc., Santa Ana, CA. Performer: Sea Landing Sportfishing, Santa Barbara, CA. Performer: California State Dept. of Fish and Game, Sacramento.) Life History Aspects of 19 Rockfish Species (Scorpaenidae: Sebastes) from the Southern California Bight. ; 1990. Report No.: NOAATRNMF87. 44p.

Prepared in cooperation with Occidental Coll., Los Angeles, CA. Moore Lab. of Zoology, Chambers Group, Inc., Santa Ana, CA., Sea Landing Sportfishing, Santa Barbara, CA., and California State Dept. of Fish and Game, Sacramento. PC A03/MF A01.

The authors investigated various life history aspects of 19 rockfish species from the southern California Bight. The aspects included depth distribution, age-length relationships (of 7

species), length-weight relationships, size at first maturity, spawning season, and fecundity. Growth rates of female *S. elongatus*, *S. hopkinsi*, *S. ovalis*, *S. saxicola*, and *S. semicinctus* were higher than male conspecifics. Multiple spawning per season was found in 12 species. Generally, most species spawned between late winter and early summer, though there was some spawning within the genus throughout the year. Spawning season duration ranged from 2 (*S. flavidus*) to 10 months (*S. paucispinis*). Spawning seasons tended to start earlier in the year and be of longer duration in the southern California Bight, compared to published data on central California conspecifics. Males matured at a smaller length in 7 of the 17 species studied. Maximum fecundities ranged from 18,000 (*S. dalli*) to about 2,680,000 (*S. levis*).
Size/Life cycles/Growth/Tables Data/Distribution Geography/Pacific Ocean/Marine fishes/Species diversity/Scorpaenidae/Rockfish/Southern California Bight/NTIS.

556. Patton ML, Brown ST, Harman RF, Grove RS. Effect of the anemone *Corynactis californica* on subtidal predation by sea stars in the Southern California Bight. BULL. MAR. SCI 1991;VOL. 48, NO. 3:pp. 623-634 Occidental Coll. and ERC Environ. Serv., 5504 8th St., Fallbrook, CA 92028, USA. The density of the very abundant fixed clam *Chama arcana* and the corallimorpharian *Corynactis californica* both increase with elevation above the sand on subtidal rock walls in the southern California bight. Since *Corynactis* repels sea stars and sea stars prey on *C. arcana*, it seemed possible that this clam's distribution might be a result of *Corynactis* interference with sea star predation. The laboratory data were consistent with the observed field distributions of the sea stars, and all observations were consistent with the hypothesis that *C. arcana* was more successful in the presence of *Corynactis* because this anemone slowed predation by *P. giganteus* and *P. ochraceus*.
Corynactis californica/INE, Southern California Bight/predation/*Chama arcana*/ecological distribution/biotic factors/*Pisaster*/ecological associations/interspecific relationships/protective behavior/defense mechanisms/Oceanic Abstracts.

557. Broenkow WW. A comparison between geostrophic and current meter observations in a California Current eddy. DEEP-SEA RES 1982;VOL. 29, NO. 11A:pp. 1303-1311
Moss Landing Mar. Lab. San Jose State Univ., P.O. Box 223, Moss Landing, CA 95039, USA.
An eddy was observed about 200 km west of the central California coast using geostrophic estimates and a combined Eulerian-Lagrangian method. The eddy was about 80 km in diameter, with a depth-dependent rotational period of between 15 and 32 days. Spin rates were 6 to 20 cm super(-1) at 150 m and 1 to 8 cm s super(-1) at 1500 m. Direct and geostrophic velocity measurements were in good agreement.
INE, California Current/oceanic eddies/geostrophic flow/current meters/current observations/OceanAbstracts.

558. LEIPPER DE. SEA TEMPERATURE VARIATIONS ASSOCIATED WITH TIDAL CURRENTS IN STRATIFIED SHALLOW WATER OVER AN IRREGULAR BOTTOM. J. MAR. RES. 1955 PHYSICAL OCEANOGRAPHY/OCEANOGRAPHY/CURRENTS/TIDES/WAVES/TEMPERATURE.

559. FIEDLER PC. OFFSHORE ENTRAINMENT OF ANCHOVY SPAWNING HABITAT, EGGS, AND LARVAE BY A DISPLACED EDDY IN 1985. REPORT CALIF. COOP. OCEANIC FISH. INVEST. 27 1986: 144-152, ILLUSTR.
* PISCES ** SUPERCLASS GNATHOSTOMATA *** CLASS TELEOSTOMI ****

DIVISION TELEOSTEI ***** SUPERORDER CLUPEOMORPHA *****
CLUPEIFORMES ***** SUBORDER CLUPEOIDEI ***** ENGRAULIDAE
***** ENGRAULIS MORDAX.

ENVIRONMENTAL FACTORS/PHYSICAL ENVIRONMENT/WATER/RECURRENT
ANTICYCLONIC EDDY, SPAWNING RANGE
EXTENSION/REPRODUCTION/REPRODUCTIVE BEHAVIOUR/SPAWNING/RANGE
DISPLACED BY EDDY, CALIFORNIA (MARINE)/ECOLOGICAL/POPULATION
STUDY/POPULATION STRUCTURE/AGE CLASS DISTRIBUTION/RECRUITMENT,
CALIFORNIA (MARINE)/PACIFIC OCEAN/EASTERN PACIFIC/BAJA
CALIFORNIA/SPAWNING RANGE, EFFECT OF ANTICYCLONIC EDDY &
RECRUITMENT/ NORTHERN PACIFIC/CALIFORNIA/Zoological Index.

560. Ambrose RF, Coyer JA, Engle JE, Nelson BV. Changes in
urchin and kelp densities at Anacapa Island, California. Recent
Advances in California Islands Research: Proceedings of the Third
California Islands Symposium In press
density/abundance/predation/Macrocyctis pyrifera/giant
kelp/Strongylocentrotus/Lytechinus/sea urchins/Anacapa
Island/marine biology/ecology.

561. Patterson C. An opportunity in the Channel Islands.
Fremontia 1978;6(1):3-5
SCIR.
preservation/TNC/Nature Conservancy/plants/Santa Cruz Island/SRD.

562. Philbrick R. A botanist's view of Santa Cruz Island.
Fremontia 1978;6(1):6-10
SCIR.
fpub/plants/endemic/flora/SRD.

563. Goeden RD, Fleschner CA, Ricker DW. Biological control
of prickly pear cacti on Santa Cruz Island, California. Hilgardia
1967;38(16):579-606 SCIR.
management/restoration/SRD.

564. Gill AE. Genetic divergence of insular populations of
deer mice. Biochemical Genetics 1976;14(9/10):835-848
SCIR.
fpub/Channel Islands/evolution/SRD.

565. Gleason D. The Islands and Ports of California. New
York: Devin-Adair Company; 1958.
SCIR, reprint of chapter on Santa Cruz Island.
history/SRD.

566. Garthwaite RL, Hochberg Fg, Sassaman C. The occurrence
and distribution of terrestrial Isopods (Oniscoidea) on Santa Cruz
Island with preliminary data for the other California Islands.
Bull. Southern California Acad. Sci. 1985;84(1):23-37
SCIR.
fpub/biogeography/SRD.

567. Gupta AP, Lewontin RC. A study of reaction norms in
natural populations of *Drosophila pseudoobscura*. Evolution
1982;36(5):934-948 SCIR.
fpub/insects/fruit fly/evolution/genetics/Santa Cruz Island/SRD.

568. Guess RC. Occurrence of a Pacific Loggerhead Turtle,
Caretta caretta gigas Deraniyagala, in the waters off Santa Cruz
Island, California. Cal. Fish and Game 1981:122-123
SCIR.
reptiles/sea turtles/SRD.

569. Arthur DK. Food and feeding of larvae of three fishes occurring in California Current, *Sardinops sagax*, *Engraulis mordax*, and *Trachurus symmetricus*. U.S. Natl. Mar. Fish. Serv. Fish. Bull. 1976;74(3):517-530. *Engraulis mordax*/northern anchovy/*Trachurus symmetricus*/jack mackerel/feeding/larvae/fish/Cross/TEXT Allen/MINERALS MANAGEMENT SERVICE.

570. Gliessman SR. The allelopathic mechanisms of dominance in Bracken (*Pteridium aquilinum*) in southern California. J. Chem. Ecology 1978;4(3):337-362 SCIR. fspub/Santa Cruz Island/ferns/allelopathy/ecology/SRD.

571. Arthur DK. Distribution, size, and abundance of microcopepods in the California current system and their possible influence on survival of marine teleost larvae. U.S. Natl. Mar. Fish. Serv. Fish. Bull. 1977;75:601-611. population structure/ecological distribution/zooplankton/developmental stages/nauplia/INE/California Current/ISE/California Current/*Mecynocera clausii*/zooplankton/Pieper/MINERALS MANAGEMENT SERVICE.

572. Priede IG, Smith KLJ, Amrstrong JD. Foraging behavior of abyssal grenadier fish: Inferences from acoustic tagging and tracking in the North Pacific Ocean. DEEP-SEA RES. (A OCEANOGR. RES. PAP.) 1990;37(1A):81-101. Abyssal grenadier fish *Coryphaenoides yaquinae* were *Coryphaenoides armatus* and observed arriving at baits deployed within view of a free-fall video vehicle (FVV) camera on the sea floor at two stations in the North Pacific, Sta. F32 degree 50'N, 124 degree W, 4400 m deep in the vicinity of the California current and Sta. CNP 31 degree N, 159 degree W, a 5900 m deep oligotrophic station. The number of fish within view of the camera increased to a mean maximum of 4.7 at 60 min at Sta. F and 11.8 by 400 min at Sta. CNP, a paradox in view of presumed lower fish population density at Sta. CNP. Fish that ingested transmitters moved away at radial velocities between 1 and 15 cm s^{super(-1)}, reaching a mean radius of 233 m by 370 min at Sta. F and 622 min at Sta. CNP. Fish appear to be active foragers with no evidence for a "sit and wait" foraging strategy. Grenadiers generally remained near the sea floor as they dispersed. Only one vertical movement to an altitude of ca 25 m was recorded and this comprised less than 0.2% of tracking time. abysso-benthic zone/sonic tags/tracking/acoustic data/foraging behavior/Macrouridae/deep sea/Pacific Ocean/North/*Coryphaenoides armatus*/I/ North Pacific/feeding behaviour/ASFA.

573. Bogaert B, Reichle M, Prothero W, Zelikovitz S. Aftershock study of the August 13, 1978 Santa Barbara, California earthquake. Eos (Am. Geophys. Union, Trans.). 1978;59(12):p.1130 Univ. Calif., Mar. Sci. Inst., Santa Barbara, Calif., United-States American Geophysical Union; 1978 fall annual meeting, San Francisco, Calif., Dec. 4-8, 1978 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). California/seismology/earthquakes/aftershocks/Santa Barbara County/United States/Southern California/Santa Barbara/Santa Barbara Channel/1978/magnitude/focus/epicenters/GEOREF.

574. Sverdrup HU, Johnson MW, Fleming RH. The oceans, their physics, chemistry and general biology. 1942 NPS/Physical oceanography/oceanography/currents/water masses/waves.

575. Arnold JE (Institute of Archaeology, Dept of

Anthropology, UCLA). Chumash Technology: New Discoveries of Uses of Imported Redwood and Asphaltum on the Channel Islands. Society for California Archaeology, Annual Meeting; 1992; Pasadena, CA. fspub/chumash/archaeology/anthropology/Santa Cruz Island.

576. Galindo-Rameriz M. Looking for *Lutica*: Channel Islands Arachnology. American Arachnology 1983;27:16-18 SCIR,newsletter. fspub/spiders/SRD.

577. Kelly KA (Performer: Woods Hole Oceanographic Institution, MA). Inverse Model for Near-Surface Velocity from Infrared Images. Technical rept. ; 1989. Report No.: WHOICONTRIB6768. 21p. Pub. in Jnl. of Physical Oceanography, v19 n12 p1845-1864 Dec 89. PC A03/MF A01 Contract: N0001486K0751.

An inverse model to infer the near-surface velocity from the heat equation was applied to a series of six infrared satellite images from northern California. The inversion used a two-dimensional nondiffusive heat equation with a simple representation of surface heat fluxes and vertical entrainment. The along-isotherm component of the velocity was in the null space of this problem. An overdetermined problem was defined by adding weighted constraints on the energy, divergence and curl of the velocity and representative solutions were chosen from the family of solutions corresponding to a designated misfit level for the heat equation. A series of solutions with an average energy of 250 sq. km (d to the -2 power) and a divergence of 0.36/d compared well with simultaneous Doppler acoustic log (DAL) measurements in regions with strong temperature gradients. The decorrelation time for the solutions was about one day. Horizontal advection accounted for about 40% of the variance of the temporal temperature derivative. The strongest region of divergence, the leading edge of a cold eddy near the coast, was consistent with average divergence calculations from DAL surveys for the same region. The velocity solutions from these inversions supported the theory that the apparent cold filaments in the images were actually meanders of the California Current. Reprints. (aw).

Advection/Artificial satellites/California/Correlation techniques/Eddies Fluid mechanics/Eddy currents/Entrainment/Equations/Filaments/Heat/Horizontal orientation/Inversion/Leading edges/Low temperature/North Direction/Reprints/Solutions General/Time/Velocity/Vertical orientation/Heat flux/Infrared images/Ocean currents/Ocean surface/Temperature gradients/Northern Region California/NTIS.

578. Woodbury D, Ralston S. Interannual variation in growth rates and back-calculated birthdate distributions of pelagic juvenile rockfishes (*Sebastes* spp.) off the central California coast. FISH. BULL 1991;VOL. 89, NO. 3:pp. 523-533 Tiburon Lab., Southwest Fish. Sci. Cent., Natl. Mar. Fish. Serv., NOAA, 3150 Paradise Dr., Tiburon, CA 94920, USA. Young-of-the-year pelagic juvenile rockfish (genus *Sebastes*) were collected during annual surveys in the spring and early summer, 1983-88, off the central California coast. Growth rates and back-calculated birthdate distributions of five species (shortbelly rockfish *S. jordani* , bocaccio *S. paucispinis* , chilipepper *S. goodei* , widow rockfish *S. entomelas* , and yellowtail rockfish *S. flavidus*) were estimated from daily otolith increments. Interspecific variation in growth rates was evident, with bocaccio exhibiting the fastest growth (0.56-0.97 mm/day) and yellowtail rockfish growing slowest (0.19-0.46 mm/day). Growth rates of all species varied among years. Comparisons of annual growth

performance, measured by predicting standard length at a selected standard age, revealed strong positive interannual covariation among the five species studied; in general, growth was relatively good in 1987 and was poor in 1985. Back-calculated birthdate distributions also revealed strong positive interannual covariation among these species; most distributions were unimodal. *Sebastes*/growth/INE, USA, California/otolith reading/fishery biology/recruitment/fishery management/birthdate distribution/Oceanic Abstracts.

579. Halliwell G, Williams RG, Vierra K, Mooers CNK, Godshall FA, Williams RG(. Ocean currents. A CLIMATOLOGY AND OCEANOGRAPHIC ANALYSIS OF THE CALIFORNIA PACIFIC OUTER CONTINENTAL SHELF REGION 1981:pp. 4.1-4.72

Delaware Univ., USA NOAA Environmental Data and Information Serv., Washington, DC (USA).

The California Current system is driven primarily by the wind stress patterns over the North Pacific Ocean. The California Current system variability is controlled primarily by interactions between the subtropical high pressure cell over the North Pacific Ocean and the atmospheric thermal low located over California/Nevada. The wind field produces southward oceanic flow in the spring and summer in response to southward-directed wind stress. Associated Ekman transport results in a circulation away from the coast in the near-surface layers, with concomitant upwelling of cold, salty water from below. In the late fall and early winter, northerly winds weaken and winds are at times from the southwest, producing a northward flow along the coast, called a Davidson Current. Offshore, the mean flow continues southward. In the Southern California Bight, a cyclonic eddy is often found, which includes a countercurrent along the coast and a split in flow at Point Conception, where one branch flows southwest joining with the California Current to form the western part of the eddy, and one branch flows northward along the coast as a narrow countercurrent.

wind-driven currents/ocean circulation/INE, USA, California/INE, California Current/wind fields/wind stress/upwelling/INE, Southern California Bight/INE, Davidson Current/oceanic eddies/OceanAbstracts.

580. Littler MM, Editor. Spatial and temporal variations in the distribution and abundance of rocky intertidal and tidepool biotas in the Southern California Bight. . Washington, D.C.: Bureau of Land Management, U. S. Dept. of the Interior; 1977. This volume reports baseline data for 10 rocky intertidal stations located in the Southern California Bight including 6 island sites: Cuyler Harbor, San Miguel Island; Willows Anchorage, Santa Cruz Island; Dutch Harbor, San Nicholas Island; Cave Canyon, Santa Barbara Island; Fisherman Cove, Santa Catalina Island; and Wilson Cove, San Cloemente Island. Includes detailed analysis of macrophyte and macrophyte invertebrate standing stocks based on cover, biomass and density data. Included is a consideration of the vertical distributions of species in the intertidal zone and community diversity. .

Marine Algae and Invertebrates, Intertidal.

581. LOVETT JR. VERTICAL TEMPERATURE GRADIENT VARIATIONS RELATED TO CURRENT SHEAR AND TURBULENCE. LIMNOL. OCEANOGR. 1968 PHYSICAL OCEANOGRAPHY/OCEANOGRAPHY/CURRENTS/WATER MASSES.

582. ANDERSON DW, GRESS F. BROWN PELICANS AND THE ANCHOVY FISHERY OFF SOUTHERN CALIFORNIA. 1984: 128-135, ILLUSTR. IN: NETTLESHIP, D.N., SANGER, G.A. & SPRINGER, P.F. (EDS). MARINE

BIRDS: THEIR FEEDING ECOLOGY AND COMMERCIAL FISHERIES
RELATIONSHIPS. MINISTER OF SUPPLY & SERVICES, CANADA. 1984: I-VII,
1-220 * PISCES ** SUPERCLASS GNATHOSTOMATA *** CLASS TELEOSTOMI
**** DIVISION TELEOSTEI ***** SUPERORDER CLUPEOMORPHA *****
CLUPEIFORMES ***** SUBORDER CLUPEOIDEI ***** ENGRAULIDAE
***** ENGRAULIS MORDAX.
FEEDING/CARNIVOROUS FEEDING/PREDATION/PREDATORS/PELECANUS
OCCIDENTALIS CALIFORNICUS (AVES)/ABUNDANCE, EFFECT ON PREDATOR
ECOLOGY & REPRODUCTION, FISHERIES RELATIONS/ECOLOGY/POPULATION
STUDY/POPULATION DYNAMICS/POPULATION SIZE/COMMERCIAL FISHERIES
EFFECTS, AVIAN PREDATOR BIOLOGY RELATIONSHIPS/POPULATION
CHANGES/PACIFIC OCEAN/NORTHERN PACIFIC/SOUTHERN CALIFORNIA
BIGHT/ABUNDANCE, EFFECT OF FISHERIES, AVIAN PREDATOR BIOLOGY
RELATIONS/Zoological Index.

583. Ambrose RF, Nelson BV. Inhibition of giant kelp
recruitment by an introduced brown alga. *Botanica Marina*
1982;25:265-267
recruitment/competition/introduced species/Sargassum
muticum/sargassum/Macrocyctis pyrifera/giant kelp/Santa Catalina
Island/marine biology/ecology.

584. Galindo-Ramirez M. Genetic diversity and Natural
History of the spider genus *Lutica*. ; unpublished manuscript.
SCIR.
fspub/spiders/SRD.

585. Howell DG, Vedder JG. Structural Implications of
Stratigraphic Discontinuities Across the Southern California
Borderland. 1-26. SCIR unpublished manuscript.
fspub/geology/Santa Cruz Island/Santa Catalina Island/SRD.

586. Hudson J. The splendor of Santa Cruz Island. UCSB
Allummbus 1980;11(3):8-14
SCIR.
fspub/research/history/SRD.

587. Hudson T. At sea with the Helek. The Masterkey
1977;51(2):59-65 SCIR.
fspub/Chumash/anthropology/history/SRD.

588. Heizer RF. Some Chumash pieces in the Cessac
collection. The Masterkey 1977;51(2):73-78
SCIR.
anthropology/archaeology/SRD.

589. Hoover RL. Aspects of Chumash punctate art. The
Masterkey 1974;48(2):67-71
SCIR.
anthropology/archaeology/SRD.

590. Asper VL, Honjo S. The spatial distribution of large
amorphous aggregates (marine snow) in the deep ocean. *EOS, Trans.,
Am. Geophys. Union* 1984;65(16):226.
eganhouse/geochemistry and chemical/oceanography/Pacific
Ocean/sediments/Atlantic Ocean/marine snow/Sargasso Sea/Panama
Basin/California Current/Equatorial Pacific/MINERALS MANAGEMENT
SERVICE.

591. Hochberg MC, Laughrin L. Comparative phenology and
moisture availability in chaparral habitats on Santa Cruz Island
and in the Santa Ynez Mountains, California. Sixty-third Meeting of
the Pacific Division, AAAS; 1982 Jun 20; UCSB. ; 1982. p. Abstract.

SCIR.

fspub/botany/ecology/Ceanothus/Dendromecon/Prunus/SRD.

592. Howell DG (US Geological Survey, Menlo Park, CA). Middle Eocene Paleogeography of Southern California. SERM Paleogene Symposium; 1975; Long Beach, CA. p. 272-293.

SCIR.

fspub/geology/Channel Islands/Santa Cruz Island/SRD.

593. Henyey TL, McRaney JK, Manov DV, Teng TL. The 1978 Santa Barbara earthquake as recorded by an offshore seismic network. Eos (Am. Geophys. Union, Trans.). 1978;59(12):p.1130 Univ. South. Calif., Dep. Geol. Sci., Los Angeles, Calif., United-States American Geophysical Union; 1978 fall annual meeting, San Francisco, Calif., Dec. 4-8, 1978 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).

California/seismology/earthquakes/observations/Santa Barbara County/United States/Southern California/Santa Barbara/Santa Barbara

Channel/1978/arrays/networks/offshore/mechanism/faults/main shock/aftershocks/GEOREF.

594. Sverdrup HU. Oceanographic observations of the Scripps Institution in 1939. Scripps Inst. Oceanog. 1943;1(2):65-106 NPS/Physical oceanography/oceanography.

595. Arnold JE (Institute of Archaeology, Dept of Anthropology, UCLA). Currents, El Ninos, Elites, and Exchange: Transformations in an Island Ecomy. Society for American Archaeology, Annual Meeting; 1991; New Orleans, Louisiana. fspub/anthropology/archaeology/chumash/Santa Cruz Island.

596. Best JS. Correlation of AVHRR Imagery with Sub-Surface Features in California Current. [dissertation] ; 1989. 67p. Performer: Naval Postgraduate School, Monterey, CA Master's thesis.

SST fields derived from AVHRR imagery are compared with subsurface temperature and surface dynamic height fields. The in-situ data collection was part of the Coastal Transition Zone (CTZ) cold filament experiments of 1987 and 1988. The results of the 1987 cruise show a subsurface maximum in the correlation coefficient between AVHRR SST and in-situ temperature at depth for all three phases of the cruise which is attributed to the temporal offset between the satellite image and the data collection. The results of the 1988 cruise show maximum correlations at the surface with significant correlations at the 95% level of confidence to about 130-150 m depth, with positive correlations to 310-350 m depth. Comparing the results of the 1987 and 1988 cruises shows that the offshore filament was much stronger both horizontally and vertically for the latter cruise. Keywords: Infrared imagery; In-situ temperature field; Surface dynamic height field; Theses.(jhd). Scientific satellites/California/Coastal regions/Coefficients/Sounding/Correlation/Data acquisition/Depth/Dynamics/Filaments/Low temperature/Offshore/Transitions/Infrared images/Ocean currents/CTZ Coastal Transition Zone/Theses/Subsurface environments/Ocean temperature/NTIS.

597. Mensinger AF, Case JF. Bioluminescence maintenance in juvenile *Porichthys notatus*. BIOL. BULL. MAR. BIOL. LAB. WOODS HOLE 1991;VOL. 181, NO. 1:pp. 181-188

Dep. Biol. Sci. and Mar. Sci. Inst., Univ. California, Santa Barbara, CA 93106, USA.

Bioluminescence in the midshipman fish, *Porichthys notatus* from the Santa Barbara coastal region, was quantified from onset through the first two years of life. Maximum light emission was 2.5×10^9 photons/s upon leaving the nest and reached 2.0×10^{10} photons/s within the first year. These intensities may be sufficient for counterillumination in moon or starlight over most of the depth range of the fish. The bioluminescence of juveniles recently detached from the nest was depleted by multiple topical applications of a dilute noradrenalin solution. A luciferin-free diet also exhausted luminescence in 10-18 months. Bioluminescence was restored within 24 h after feeding depleted fish with dried specimens of the bioluminescent marine ostracod *Vargula hilgendorffii* and light emission capacity was correlated with the amount consumed. Juvenile *P. notatus* from the Santa Barbara coastal region require exogenous luciferin to remain luminescent. *Porichthys notatus*/juveniles/bioluminescence/INE, USA, California, Santa Barbara/diets/luciferin/luminous organisms/Oceanic Abstracts.

598. LYNN RJ. SEASONAL VARIATION OF TEMPERATURE AND SALINITY AT 10 M IN THE CALIFORNIA CURRENT. CALCOFI REPORTS 1967;11 PHYSICAL OCEANOGRAPHY/OCEANOGRAPHY/WATER MASSES/CURRENTS.

599. Littler MM. Assessments of visitor impact on spatial variations in the distribution and abundance of rocky intertidal organisms on Anacapa Island, California. : U. S. National Park Service Report; 1978.

The distributions and abundances of rocky intertidal macroinvertebrates and macrophytes occurring at stations on Anacapa Island are reported and the potential impact of human traffic on community organization is analyzed. . Marine botany, Marine Invertebrates, Intertidal community, human impacts, visitors, Anacapa Island.

600. Ambrose RF. Octopus predation and community structure of subtidal rocky reefs at Santa Catalina Island, California [dissertation]. Los Angeles, California, USA: University of California; 1982. 167.

The distributions and abundances of invertebrate species on subtidal rocky reefs at Santa Catalina Island, California, were examined. The importance of predation by *Octopus bimaculatus* and three other major invertebrate predators, competitive interactions, and habitat utilization were evaluated through a combination of field observations and experiments. *O. bimaculatus* consumed more than 50 prey species from three phyla. It exhibited a clear preference hierarchy, with crabs being the most preferred prey group and subtidal snails the least preferred prey group. Octopuses were opportunistic in their choice of prey in the field, their diet being determined by both preference and availability. In spite of their relatively low preference ranking, snails constituted the major component in octopus diets. Analysis of snail shells in the field indicated that octopus predation was a major mortality source. Field experiments and comparison of prey densities at one site during high and low octopus density years suggest that octopuses at natural densities can significantly reduce prey abundances. However, no significant correlations between predator abundances and their prey abundances on 15 subtidal rocky reefs near Santa Catalina were detected. Analysis of the abundance patterns of the prey species on these reefs suggest some cases in which competition may have influenced the distributions or abundances of the competing species. However, in general neither

abundance relationships nor the pattern of co-occurrences between species provide evidence of competition. No relationships between the number of co-occurring species at a site and habitat structure, predator abundance, or total prey abundance were detected. The abundances of many species, particularly rare species, were positively correlated with the number of species at a site. At sites where the most abundant species, the sessile gastropod *Serpulorbis squamigerus*, was common, evenness was lower, but there were no fewer co-occurring species there. Predation, habitat utilization, and competition are likely to be important processes in this community, but do not appear to be the major factors influencing local patterns of species abundances. Stochastic events and factors influencing early life-stages of species in this community are possibly more influential in determining general patterns of species abundances. predation/community structure/subtidal rocky reefs/prey preferences Cephalopoda/cephalopods/Octopus bimaculatus/Serpulorbis squamigerus/ Santa Catalina Island/marine biology/marine ecology.

601. Haemig PD. Nesting of the Phainopepla on Santa Cruz Island, California. *Western Birds* 1986;17:48
SCIR.
fspub/birds/SRD.

602. Hixon MA. Competitive interactions between California reef fishes of the genus *Embiotoca*. *Ecology* 1980;61(4):918-931
SCIR.
fspub/ecology/marine biology/foraging/SRD.

603. Holbrook SJ, Schmitt RJ. Food acquisition by competing surfperch on a patchy environmental gradient. *Environmental Biology of Fishes* 1986;16(1-3):135-146
SCIR.
fspub/marine biology/fish/foraging/Santa Cruz Island/SRD.

604. Meigs P. Do you remember, Dearest? *Santa Barbara Magazine* 1991;May/June:52-53
SCIR.
history/Santa Cruz Island/SRD.

605. Weber MFJ. Centennial of Santa Cruz Island Chapel. *The Tidings* 1991;May 10
SCIR.
history/SRD.

606. Weber MFJ. California's Catholic Heritage: An Islandic Memoir. *The Tidings* 1991;May 10
SCIR, newsletter of Los Angeles Archdiocese.
history/chapel/SRD.

607. Hixon MA. Competition between California reef fishes, Niche inclusion or co-extension. Lipovsky SJ, Simenstsd CA. *Fish Food Habit studies, 2nd Pacific Northwest Technical Workshop Proceedings*; 1979. ; 1979. p. 170-178. SCIR.
fspub/marine biologh/ecology/foraging/SRD.

608. Hewatt WG. Marine ecological studies on Santa Cruz Island, California. *Ecological Monographs* 1946;16:185-210
SCIR.
marine biology/SRD.

609. Simpson JJ, Dickey TD, Koblinsky CJ. An offshore eddy in the California Current System. I. Interior dynamics. *Prog*

Oceanogr. Oxford : Pergamon Press. 1984. 1984;13(1):p.5-49
Foreign Includes references. Article.
California/Pacific Ocean/AGRICOLA.

610. Howe BM, Mercer JA, Spindel RC, Worcester PF. Accurate positioning for moving ship tomography. OCEANS '89: THE GLOBAL OCEAN. NAVIGATION, REMOTE SENSING, UNDERWATER VEHICLES/EXPLORATION. 1989;3:pp.880-886.

The goal of Moving Ship Tomography (MST) is to synoptically measure the sound speed field $c(x,y,z)$ over a large (Mm) region of the ocean. In the present version, a ship lowers a hydrophone array to listen to moored acoustic sources several hundred kilometers away. The acoustic travel times between the sources and the receiving hydrophone array, at many different ship stations, are then inverted to obtain the sound speed field. One challenging problem in MST is to accurately track position of the receiving hydrophone array. Two complementary systems are used. One is ship-mounted and consists of a very-short-baseline (VSBL) acoustic tracking system, roll and pitch sensors, the ship's gyro, and a GPS receiver. The other is a Floating Acoustic-Satellite Tracking (FAST) range consisting of two spar buoys, each with a GPS receiver, acoustic pinger, and RF link to the ship. The advantage of the ship-mounted system is its seaworthiness. Two advantages of the FAST range are the long baselines possible when the buoys are deployed far apart, and the independence from the ship and its motion. The FAST range can be deployed and recovered in seas up to sea state 4 and used to calibrate the VSBL system. Results from tests off San Clemente Island and on Lake Washington are presented.

positioning systems/ship motion/hydrophones/acoustic arrays/acoustic tracking systems/satellites/sea state/pingers/INE/USA/California/San Clemente Island/USA/Washington/Washington L./acoustic tomography/ASFA.

611. Whitcomb JH, Hutton LK. On the magnitude of the August 13, 1978, Santa Barbara, California earthquake. Eos (Am. Geophys. Union, Trans.). 1978;59(12):p.1130
Calif. Inst. Technol., Seismol. Lab., Pasadena, Calif., United-States American Geophysical Union; 1978 fall annual meeting, San Francisco, Calif., Dec. 4-8, 1978 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).

California/seismology/earthquakes/magnitude/Santa Barbara County/United States/Southern California/Santa Barbara/Santa Barbara Channel/1978/seismic moment/accelerograms/GEOREF.

612. Terry RD. Bibliography of marine geology and oceanography, California coast. Calif. Div. of Mines, Special Rep. 1955;44

NPS/Physical oceanography/oceanography.

613. Arnold JE, Munns A (Institute of Archaeology, Dept of Anthropology, UCLA/Dept of Anthropology, UCSB). The Organization of Shell Bead Production on California's Northern Channel Islands. Society for American Archaeology, Annual Meeting; 1991; New Orleans, Louisiana.

fspub/anthropology/archaeology/chumash/Santa Cruz Island.

614. Howard H. Contributions from the Los Angeles Museum - Channel Islands Biological Survey. 36. A fossil bird, Caracara, from Santa Rosa Island. Bulletin So. Calif. Acad. Sciences 1962;61(4):227-228

SCIR.
birds/SRD.

615. (Performer: Oregon State Univ., Corvallis. Coll. of Oceanography. Funder: Department of Energy, Washington, DC.) California Basin Study (CaBS): DOE West Coast Basin Program. Progress report 7, 15 Nov 1988-14 Nov 1989. ; 1989. Report No.: DOEER603407. 7p.

Sponsored by Department of Energy, Washington, DC. Portions of this document are illegible in microfiche products. PC A02/MF A01 Contract: FG0585ER60340. The overall objective of our research, within the structure of the DOE CaBS program, is to understand the transport pathways and mass balances of some metabolically-active and inactive chemical species in the basin region of the Southern California Bight, with particular reference to the role of macrozooplankton. We have concentrated on C and N pathways and fluxes to date, and will continue to investigate these further (seasonal aspects, and temperature and food-type effects on zooplankton-mediated flux, for example); however, we want also to begin to measure directly the effects of zooplankton on pathways and fluxes of selected trace metals and transuranic compounds. During this report period we have concentrated on analyzing data and writing manuscripts for publication, based on the eight cruises in which we have participated to date. California/Carbon Cycle/Carriers/Data Analysis/Evaluation/Investigations/Mass Transfer/Nitrogen Cycle/Oceanography/Productivity/Progress Report/Trace Amounts/West Coast/Alpha Bearing Wastes/Food/Hazardous Materials/Metals/Plankton/Seasonal Variations/Temperature Effects/Transportation Systems/EDB/580000/EDB/053000/Trace metals/Radionuclides/NTIS.

616. West TL. Functional morphology of the proboscis of *Mitra catalinae* Dall 1920 (Mollusca: Gastropoda: Mitridae), and the evolution of the mitrid epiproboscis. BULL. MAR. SCI 1991;VOL. 48, NO. 3:pp. 702-718 Dep. Biol., East Carolina Univ., Greenville, NC 27858-4353, USA. Several features of the proboscis morphology of *Mitra catalinae* are unique among the known species of mitrid gastropods. These features include a bilayered ring of comparatively large (7 μ m high x 11 μ m wide) squamous cells located midway along the length of the peristomial rim, a pair of concentrically arranged cone-shaped buccal lips projecting into the peristomial rim, a muscular esophagus lacking a well-developed secretory epithelium, and small pyriform epiproboscis consisting of longitudinal and transverse muscle fibers. It is proposed that the epiproboscis and the buccal lips regulate the movement of coelomic fluid and buoyant material (e.g. eggs) from the sipunculan prey into the snail's alimentary tract by acting a pump or as a valve. A hydrostatic mechanism appears to effect protraction of the epiproboscis. Comparison of the morphologies and functions of mitrid epiproboscides suggest that the epiproboscis developed from the musculature of the buccal mass, and the epiproboscis sheaths were derived from the walls of the buccal cavity. *Mitra catalinae*/animal morphology/functional morphology/evolution/marine mollusks/INE, USA, California/epiproboscis/Oceanic Abstracts.

617. Lasker R, Lasker R, Sherman Ke). Factors Contributing to Variable Recruitment of the Northern Anchovy (*Engraulis mordax*) in the California Current: Contrasting Years, 1975 Through 1978. 2. ICES Symposium on the Early Life History of Fish THE EARLY LIFE HISTORY OF FISH: RECENT STUDIES 1981:pp. 375-388 NOAA, NMFS, Southwest Fish. Cent., La Jolla, CA 92038, USA. Studies on the distribution of first-feeding larval anchovy and their food were made to test the hypothesis that the upper mixed layer of the ocean must be in a stable (non-turbulent) state for survival of enough larval anchovy to insure the production of a good year-class.

Turbulent conditions destroy food aggregations and dilute potential food organisms to below feeding threshold concentrations of first-feeding larval anchovies. Surveys during the anchovy spawning season of 1975, 1976, and 1978 provided data supporting this hypothesis. Food of first-feeding larval anchovies became limiting when storms (1978) or drastic upwelling (1975) occurred which diluted food aggregations. A complicating factor was that nutritionally inadequate larval fish food could be occasionally overwhelmingly dominant in the larva's environment (1975). The drought year (1976) was characterized by stable conditions in the Southern California Bight and produced one of the best of the last 16 anchovy year-classes; 1975 produced one of the worst. Partial success of the anchovy year-class in 1978 is predicted based on the onset of stable conditions and food aggregations in the latter part of the spawning season.

recruitment/environmental factors/fish larvae/feeding/Engraulis mordax/California Current/upwelling/stock assessment/OceanAbstracts.

618. JOHNSON CI, COX CS, GALLAGHER. THE SEPARATION OF WAVE INDUCED AND INTRUSIVE OCEANIC FINESTRUCTURE. J. PHYS. OCEANOGR. 1978;8
PHYSICAL OCEANOGRAPHY//OCEANOGRAPHY//CURRENTS//WATER MASSES.

619. Littler MM, Editor. The annual and seasonal ecology of Southern California subtidal, rocky intertidal and tidepool biotas. Washington, D. C.: Bureau of Land Management, U.S. Department of the Interior; 1978. Reports the results of field and laboratory research directed at furthering our understanding of the annual and seasonal dynamics of southern California rocky intertidal and subtidal macrophyte and macroinvertebrate populations. Twelve rocky intertidal study sites were assessed in the southern California Bight including 7 sites on the Southern California Islands: Cuyler Harbor, San Miguel Island; Willows Anchorage, Santa Cruz Island; Dutch Harbor, San Nicholas Island; South Point, Santa Rosa Island; Cave Canyon, Santa Barbara Island; Fisherman Cove, Santa Catalina Island; and Wilson Cove, San Clemente Island. Additionally the distribution and composition of subtidal communities on Tanner and Cortez Banks were described along with the effects of catastrophic events such as storms and excessive rainfall on selected rocky intertidal sites. Analysis of community recovery following experimental removal was performed at each of the 12 rocky intertidal stations and at the 4 subtidal sites. The comparative growth rate of selected macrophytes in oil-stressed communities were also reported. . Marine Botany, Marine invertebrates, rocky intertidal, subtidal communities, Channel Islands, Tanner and Cortez Banks, Oil-stress.

620. MULLIN MM. SPATIAL AND TEMPORAL SCALES AND PATTERNS. LECTURE NOTES COSTL ESTUAR. STUD. 15 1986: 216-273, ILLUSTR. ECOLOGY/ECOLOGICAL ENERGETICS/BIOMASS/PLANKTON, SPATIAL & TEMPORAL PATTERNS, CALIFORNIA (MARINE)/LIFE HABIT/AQUATIC HABIT/PLANKTON/BIO MASS & DISTRIBUTION, SPATIAL & TEMPORAL PATTERNS, CALIFORNIA (MARINE)/ HABITAT/DISTRIBUTION WITHIN HABITAT/PACIFIC OCEAN/NORTHERN PACIFIC/ SOUTHERN CALIFORNIA BIGHT/PLANKTON BIOMASS & DISTRIBUTION, SPATIAL & TEMPORAL PATTERNS/Zoological Index.

621. Hilton WA. Contributions from the Los Angeles Museum Channel Islands Biological Survey. No. 32. Distribution of the genus *Batrachoseps*, especially on the coastal islands of southern California. Bulletin So. Calif. Acad. Sciences 1945;44(3):101-129 SCIR.
amphibians/Santa Cruz Island/SRD.

622. Hilton WA. A collection of pycnogonids from Santa Cruz Island. Pomona College Journal of Entomology and Zoology 1939 SCIR.
marine biology/SRD.

623. Harshman L, Taylor CE. Gene frequencies of an isolated population of *Drosophila pseudoobscura*. Journal of Heredity 1978;69:197-199 SCIR.
fspub/evolution/genetics/SRD.

624. Haas GE, Beck AB, Tomioch PQ. Bat fleas (Siphonaptera: Ischnopsyllidae) of California. Bull. So. Calif. Acad. Sciences 1983;82(3):103-114 SCIR.
bats/insects/SRD.

625. Hochberg FGJ, Roth B, Miller WB. Rediscovery of *Radiocentrum avalonense* (Hemphill in Pilsbry, 1905) (Gastropoda: Pulmonata). Bull. So. Calif. Acad. Sciences 1987;86(1):1-12 SCIR.
Santa Catalina Island/land snail/endemics/SRD.

626. Hunter R. Near Impossible pest control work accomplished on Santa Cruz Island. National Pest Control Operators News 1970;November:20-23 SCIR.
insects/termites/Navy/Prisoners' Harbor/pier/SRD.

627. Johnson NK. Origin and differentiation of the avifauna of the Channel Islands, California. Condor 1972;74(3):295-315 SCIR.
fspub/birds/biogeography/SRD.

628. Bernal PA, Chelton DB. Biological variability of low frequency and grand scale in the California current, 1949 1978 [Ecosystem, fisheries, management]. Variabilidad biologica de baja frecuencia y gran escala en la corriente de California, 1949 1978. F A O Fish Rep Food Agric Organ U N. Rome : The Organization. 1983. 1983(291):p.713-729
Variabilidad biologica de baja frecuencia y gran escala en la corriente de California, 1949-1978. FAO Includes references. Article. California/AGRICOLA.

629. McIntyre MC. A sea floor positioning system. OCEANS '89: THE GLOBAL OCEAN. VOLUME 5: DIVING SAFETY AND PHYSIOLOGY, OCEAN ENGINEERING/TECHNOLOGY.; OCEANS '89 1989;;:1717.
A conclusion of the NRC Panel on Crustal Movement Measurements was to "recommend development of a capability to measure, to a 10 cm accuracy, motions of points on the ocean floor up to several hundred km offshore with respect to reference points on land". The sea floor positioning system described attempts to meet this recommendation. The underwater portion is acoustic and may be tied into a global reference frame via GPS receivers at the air/water interface. This approach uses acoustic travel time difference measurements within a network of newly developed precision transponders mounted on benchmarks set into the seafloor. The transponders are interrogated from a deeply towed vehicle or from the bottom of a sea surface buoy housing GPS receivers and antennae, depending on the type of positioning system required; relative or absolute. In a Mar 1988 sea trip, the sound speed field in the 2000 m deep Santa Cruz Basin was determined to be spatially homogeneous and temporally stable to 0.0078 m/s. Subsequent short baseline ranging experiments demonstrated an accuracy and resolution of 1 cm over 100 m paths in differing sound speed

regimes. Preliminary analysis of ranging data in a sea floor transponder network with 1 km spacing indicate subdecimeter accuracy levels.

marine geodesy/acoustic transponders/positioning systems/satellite communication/INE/Santa Cruz Basin/oceanographic equipment/accuracy/GPS/ASFA.

630. Corbett EJ, Johnson CE. The Santa Barbara Channel earthquake of August 13, 1978. *Eos (Am. Geophys. Union, Trans.)*. 1978;59(12):p.1130 Calif. Inst. Technol., Seismol. Lab., Pasadena, Calif., United States American Geophysical Union; 1978 fall annual meeting, San Francisco, Calif., Dec. 4-8, 1978 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).
California/seismology/earthquakes/mechanism/Santa Barbara County/United States/Southern California/Santa Barbara/Santa Barbara Channel/1978/focus/foreshocks/main shock/aftershocks/faults/rupture/GEOREF.

631. Tibby RE. report of returns of drift bottles released off Southern California, 1937. *Calif. Fish and Game Bull.* 1939;55 NPS/Physical oceanography/oceanography/currents.

632. Dugan JE, Wenner AM, Hubbard DM. Geographic variation in the reproductive biology of the sand crab, *Emerita analoga* (Stimpson), on the California coast. *J. Experimental Marine Biol. Ecol.* 1991;150:63-81 SCIR/SBMNH.
fspub/marine biology/Santa Cruz Island/crustaceans/beaches.

633. Johnson DL. Pleistocene land snails on the Channel Islands, California: a call for research. *Nautilus* 1971;85(1):32-35 SCIR.
SRD.

634. Haemig P. A comparative experimental study of exploratory behaviour in Santa Cruz Island and mainland California Scrub Jays *Aphelocoma coerulescens*. *BIRD BEHAV* 1989;8(1):38-42.
The exploratory behaviour of island and mainland subspecies of the Scrub Jay *Aphelocoma coerulescens* was studied in the wild, and found to differ. When a novel stimulus was presented to the jays during an experiment, the Island Jay *A. c. insularis* of Santa Cruz Island gave more attention to it than did the California Jay *A. c. californica* of the adjacent mainland. The Island Jay spent more time exploring the novelty and approached much closer to it. The Island Jay also seemed to respond more frequently to the novelty. When exploring, the Island Jay spent a greater percentage of time on the ground than did the California Jay. Greater exploratory behaviour may be adaptive in environments such as oceanic islands, where food shortages are sometimes extreme and where predation is reduced, because such behaviour helps an individual locate and exploit food sources it might otherwise pass over or miss.
novelty/Aphelocoma coerulescens/exploratory behaviour/USA/California/CSA Life Sciences Collection.

635. (Performer: Oregon State Univ., Corvallis. Coll. of Oceanography. Funder: Department of Energy, Washington, DC.) Role of zooplankton in the cycling and remineralization of chemical materials in the Southern California Bight. Progress report 5, June 15-November 14, 1988. ; 1988. Report No.: DOEER603405. 5p.

Sponsored by Department of Energy, Washington, DC. Portions of this document are illegible in microfiche products. PC A02/MF A01

Contract: FG0585ER60340. The overall objective of our research is to understand the transport pathways and mass balances of selected metabolically active and inactive chemical species in the Santa Monica/San Pedro Basins. One focus of our study is to examine the role of zooplankton and micronekton in the cycling and remineralization of chemical materials in the Southern California Bight, with particular reference to C, N and certain radionuclides and trace metals. A second focus is to examine these same radionuclides and trace metals in other important reservoirs. Knowledge of the rates and routes of transfer of these nuclides and metals through these reservoirs should lead to a cogent model for these elements in SM/SP Basins. Our zooplankton C and N data, should lead ultimately to a model of C and N cycling in the upper water column. Our sediment core data will lead to the construction of mass balances and budgets in the SM/SP Basins. 4 refs. California/Carbon Cycle/Mathematical Models/Metals/Mineral Cycling/Nitrogen Cycle/Oceanography/Progress Report/Radioisotopes/Trace Amounts/Transport/Transportation Systems/Water Reservoirs/West Coast/Hazardous Materials/Mass Transfer/Plankton/EDB/580000/Trace metals/NTIS.

636. Bottin RR,. Fisherman's wharf: Hydraulic design of a successful harbor project. J. COAST. RES 1991;VOL. 7, NO. 1:pp. 1-9 Coast. Eng. Res. Cent., U.S. Army Eng. Waterw. Exp. Stn., 3909 Halls Ferry Rd ., Vicksburg, MS 39180-6199, USA. Physical and numerical models were used to investigate the design of proposed breakwater configurations for wave protection in the Fisherman's Wharf area, San Francisco Bay, California. A 1:75 scale (undistorted) physical model was used to determine wave condition in the harbor for locally generated short-period wind waves and swell conditions entering through the Golden Gate. A hybrid-finite element numerical model, capable of calculating forced harbor oscillations for harbors of arbitrary shape and variable depth, then was used to calculate harbor resonance at Fisherman's Wharf. In addition, a ship surge analysis was conducted for the historic vessels moored along or near Hyde Street Pier. An optimum plan of improvement was developed in the physical model considering wave protection afforded the harbor and entrance, ease of navigation, and economics. Numerical model test results and ship motion analysis indicated that the improvement plan would result in decreased wave amplification in the inner basins of the harbor and reduced ship response along the Hyde Street Pier. INE, USA, California, San Francisco Bay, Fisherman's Wharf/coastal engineering/models/breakwaters/wave action/ship motion/harbor oscillations/coast defenses/Oceanic Abstracts.

637. Owen RW, Lasker R, Sherman Ke). Microscale Plankton Patchiness in the Larval Anchovy Environment. 2. ICES Symposium on the Early Life History of Fish THE EARLY LIFE HISTORY OF FISH: RECENT STUDIES 1981:pp. 364-368 NOAA, NMFS, Southwest Fisheries Cent., La Jolla, CA 92038, USA. Spatial sampling of larval fish food at 20 cm intervals was conducted in the Southern California Bight during periods of maximal and minimal spawning by northern anchovy. Microscale variation of food and non-food organism concentrations consistently exceeded sampling and counting error for one or more organism taxons at all but 1 of 14 sites. Sampling casts were made vertically in the mixed layer and pycnocline, and horizontally in the pycnocline. Both motile and non-motile taxons displayed small-scale patchiness. Microscale variation of their concentrations was greatest in the pycnocline on the vertical axis. ichthyoplankton/fish larvae/ecological distribution/Engraulis mordax/food organisms/Southern California

Bight/patchiness/OceanAbstracts.

638. KAMYKOWSKI D. SOME PHYSICAL AND CHEMICAL ASPECTS OF THE PHYTOPLANKTON ECOLOGY OF LA JOLLA BAY. DISSERTATION 1973
PHYSICAL OCEANOGRAPHY//OCEANOGRAPHY//ECOLOGY//CHEMICAL OCEANOGRAPHY.

639. Littler MM, Editor. The distribution, abundance and community structure of rocky intertidal and tidepool biotas in the Southern California Bight. Washington, D. C.: Bureau of Land Management, U.S. Department of the Interior; 1979.

This volume includes the results of research at 22 rocky intertidal sites in the Southern California. Of these a total of 15 sites were located on the Southern California Islands including rocky intertidal study sites at: Cuyler Harbor and Crook Point, San Miguel Island; Prisoners Harbor and Willows Anchorage, Santa Cruz Island; Northwest and South Frenchy's Cove and Cat Rock, Anacapa; Dutch Harbor and West Point, San Nicholas Island; South Point, Santa Rosa Island; Cave Canyon, Santa Barbara Island; Fisherman Cove and Catalina Harbor, Santa Catalina Island; and Wilson Cove and Northwest Coast, San Clemente Island. The distributions and abundances of the macrophyte and macroinvertebrate populations occurring at each of the intertidal sites is reported along with analyses of community diversity. Experimental analyses of community recovery following mechanical clearances were performed along with aerial surveys of the major communities. occurring on the Southern California Islands. Seasonal and annual dynamics of the biota at 12 of the 22 sites were reported based in part on previous research, while the distributions and abundances of the rocky intertidal populations of macroorganisms wre described for the first time for 10 of the sites. .

Marine Algae and Marine invertebrates, Rocky INTertidal .

640. BEERS JR. ORGANISMS AND THE FOOD WEB. LECTURE NOTES
CSTL ESTUAR. STUD. 15 1986:84-175
ECOLOGY/ECOLOGICAL ENERGETICS/TROPHIC STRUCTURE/PELAGIC ZONE,
CALIFORNIA (MARINE)/COMMUNITY/COMMUNITY STRUCTURE/HABITAT/MARINE
HABITAT/PELAGIC ZONE/COMMUNITY STRUCTURE & TROPHIC STRUCTURE,
CALIFORNIA (MARINE)/PACIFIC OCEAN/NORTHERN PACIFIC/SOUTHERN
CALIFORNIA BIGHT/PELAGIC COMMUNITY STRUCTURE & TROPHIC
STRUCTURE/Zoological Index.

641. Anderson JG. The September 4, 1981, Santa Barbara Island, California earthquake: interpretation of strong motion data. W.W. Hays. A workshop on Site-specific effects of soil and rock on ground motion and the implications for earthquake-resistant design. : Open-File Report (United States Geological Survey. 1978). 83-0845; 1983. 191-226.

Address: Univ. Calif. at San Diego, La Jolla, CA Conference: Site-specific effects of soil and rock on ground motion and the implications for earthquake-resistant design. Santa Fe, NM, July 25-27, 1983. earthquakes/geologic hazards/USGS/ground motion/aseismic design/effects/Santa Barbara Island earthquake, 1981/strong motion/spectral analysis/Los Angeles County/Ventura County/Santa Barbara County/Santa Barbara Island/engineering geology/environmental geology.

642. Johnson DL, Hester NC. Origin of stone pavements on Pleistocene marine terraces in California. Proceedings, Association of American Geographers 1972;4 SCIR; accepted but not yet published copy of manuscript.
geology/geography/Channel Islands/SRD.

- # 643. Jones HL, Diamond JM. Short-time-base studies of turnover in breeding bird populations on the California Channel Islands. *Condor* 1976;78(4):526-549 SCIR.
fspub/biogeography/SRD.
- # 644. Johnson DL. The California continental borderland: landbridges, watergaps, and biotic dispersal. *Quaternary Coastlines and Marine Archaeology: Towards the prehistory of land bridges and continental shelves*. Masters, P.M./Flemming, N.C. ed. New York: Academic Press; 1983. p. 481-527. SCIR.
fspub/geology/geography/Channel Islands/SRD.
- # 645. Azam F. Nutrient cycling and food web dynamics in the Southern California Bight USA the microbial food web. *Lecture Notes on Coastal and Estuarine Studies, Plankton Dynamics of the Southern California Bight* 1986;15:274-288.
heterotrophic bacterioplankton/water
pollution/productivity/dissolved organic matter/particulate/organic matter/trophic relationship/biogeochemistry/ecological energetics/microbiology/Hickey/physical
oceanography/Geesey/Hardy/phytoplankton/zooplankton/Pieper
Algae/spermatophytes/Bray: Murray/MINERALS MANAGEMENT SERVICE.
- # 646. Junak S, Hochberg M, Philbrick R, Timbrook Steve (Santa Barbara Botanic Garden). *Plant Communities of Anacapa Island, California*. *Proceedings of the Conference on Scientific Research in the National Parks*; 1980; San Francisco, CA. ; 1980. Vol 4. p. 222-231.
SCIR.
fspub/botany/SRD.
- # 647. Kew WS. *Geologic sketch of Santa Rosa Island, Santa Barbara County, California*. *Bulletin of the Geological Society of America* 1927;38:645-654 SCIR.
geology/SRD.
- # 648. Larson RJ. Competition, habitat selection, and the bathymetric segregation of two rockfish (*Sebastes*) species. *Ecological Monographs* 1980;50(2):221-239
SCIR.
fspub/Santa Cruz Island/Fry's Harbor/marine
biology/fish/ecology/behavior/SRD.
- # 649. Laughrin LL. *California Island Fox Survey*. : Calif. Dept. Fish and Game; 1973. 17 pp + 9 appendices. (Wildlife Management Branch Administrative Report; 73-3 (June 1973)). SCIR.
fspub/Channel Islands/island fox/population ecology/SRD.
- # 650. Laughrin LL. *The Island Fox*. *Environment Southwest* 1973;458(November 1973):6-9
SCIR.
fspub/SRD.
- # 651. Jefferts K. Zoogeography of cephalopods from the northeastern Pacific Ocean. *THE BIOLOGY OF THE SUBARCTIC PACIFIC (PART 1).*; *BULL. OCEAN RES. INST. UNIV. TOKYO*. 1988;(26):123-157.
The zoogeography of cephalopods in the northeastern Pacific is discussed in both qualitative and quantitative terms. Distribution patterns are derived and compared to water mass distributions and to patterns defined for other taxa of plankton and micronekton. Several distributional types show closest agreement with patterns discerned in small pelagic fishes. Shannon diversity is highest in Central Pacific and California Current Waters, lowest in Transition

Zone and Subarctic Waters. Central Pacific Waters are dominated by Euplotheutidae and Subarctic Waters by Gonatidae, and California Current and Transition Zone faunas are intermediate in species composition. The dominant taxa in each are considered to represent the same functional group.

Cephalopoda/biogeography/dominant species/environmental effects/INE/ Northeast Pacific/marine mollusca/ASFA.

652. Pias NG. Paleooceanography of the Santa Barbara Basin during the last 8000 years. Quat. Res. (Wash., Univ., Quat. Res. Cent.). 1978;10(3):p.366 Univ. R.I., Dep. Oceanogr., Kingston, R.I., United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present).

California/stratigraphy/Holocene/Pacific Ocean/oceanography/ocean circulation/Radiolaria/distribution/statistical analysis/paleoclimatology/paleoecology/United States/Southern California/offshore/Northeast Pacific/paleo oceanography/quantitative methods/assemblages/temperature/Quaternary/factor analysis/statistical methods/faunal list/currents/California Current/GEOREF.

653. Tibby RB. the water masses off the west coast of North America. J. Mar. Res. 1941;4:112-121

NPS/Physical oceanography/oceanography/water masses.

654. Wenner AM. Efficient hunting of feral colonies. Bee Science 1992;2:64-70

SCIR/SBMNH.

fspub/feral bees/Santa Cruz Island/exotics/management.

655. Laughrin LL. Populations and status of the Island Fox.

Power D. The California Islands: a multidisciplinary symposium; Santa Barbara, Calif. p. 745-749.

SCIR.

fspub/SRD.

656. Ohman M. Sources of variability in measurements of copepod lipids and gut fluorescence in the California Current coastal zone. MAR. ECOL. (PROG. SER.) 1988;42(2):143-153.

The spatial association of zooplankton nutritional state with particulate food abundance was tested along the central California coast in March 1986. Suspension-feeding copepods (*Metridia pacifica*, *Calanus pacificus californicus*, *Rhincalanus nasutus*, *Eucalanus californicus*) and suspended particulate matter were sampled at stations with median nearest neighbor distance of 19.6 km. In this field condition of relatively small horizontal gradients in food supply, copepod gut fluorescence, triacylglycerols and wax esters showed little or no association with spatial variations in particulate nitrogen, particulate carbon or chlorophyll a. In contrast, strong diel variation in gut fluorescence was observed including post-sunset increases in ingestion. For the conditions observed during this study, diel variation in feeding behavior explained more of the variance in copepod ingestion than did horizontal variations in food supply. lipids/Copepoda/California Current/measuring methods/California/measuring techniques/CSA Life Sciences Collection.

657. Clark RA, Halvorson WL (Performer: California Univ., Davis. Cooperative National Park Resources Studies Unit.

Funder: National Park Service, San Francisco, CA. Western Region.) Endangered and Rare Plants of Santa Barbara Island, Channel Islands

National Park. Technical rept. (Final). ; 1990. Report No.:
CPSUUCDTR37. 79p.

Sponsored by National Park Service, San Francisco, CA. Western
Region. PC A05/MF A01.

The populations of four endangered and rare plant taxa were
monitored during 1985-1989 on Santa Barbara Island, Channel Islands
National Park, California. Data collected included the number and
location of sites supporting each taxon, numbers of plants at each
site, numbers of mature and immature plants at each site, and the
physical features of the habitat supporting these taxa. The
populations underwent dynamic changes in numbers of individuals
during the study period, with a net loss of individuals in the
Astragalus traskiae population, and population increases for
Eriogonum giganteum, and *Platystemon californicus*. The data from
this five-year study indicate the need to continue to monitor each
of these taxa to determine natural population fluctuations.

Sites/Taxonomy/Populations/Losses/Monitoring/Conservation/Plants
Botany/Santa Barbara Island/Endangered species/Habitats/*Astragalus*
traskiae/*Dudleya traskiae*/*Eriogonum giganteum*/NTIS.

658. Elwany MHS, Reitzel J, Erdman MR. Modification of
coastal currents by power plant intake and thermal discharge
systems. COAST. ENG 1990;VOL. 14, NO. 4:pp. 359-383
Cent. Coast. Stud., Scripps Inst. Oceanogr., La Jolla, CA 92093,
USA. Powerplant cooling systems that entrain large volumes of
seawater in multiple discharge jets can produce changes in the
local field of flow. A case history of observed flow modification
is provided by dye studies and records of currents around the
diffusers of the San Onofre Nuclear Generating Station (SONGS),
which entrain a volume of flow on the order of 1000 m³/s.
Field observations of dilutions and velocities in the discharge
plume agree well with the results of hydraulic modelling of the
diffuser system. Synoptic observations and long-term statistical
distributions of current speeds and directions show systematic
patterns of altered flow around the diffusers that are more complex
than the flow in the model because of interactions with flow
modification by local beds of giant kelp.

power plants/environmental impact/coastal currents/cooling systems/
thermal plumes/entrainment/jets/dye dispersion/hydraulic models/ke
lps/INE, USA, California, San Onofre/Oceanic Abstracts.

659. O'Connell CP, Lasker R, Sherman Ke). Estimation by
Histological Methods of the Percent of Starving Larvae of the
Northern Anchovy (*Engraulis mordax*) in the Sea. 2. ICES Symposium
on the Early Life History of Fish: THE EARLY LIFE HISTORY OF FISH:
RECENT STUDIES 1981:pp. 357-360
NOAA, NMFS, Southwest Fish. Cent., La Jolla, CA 92038, USA. One of
the goals of pelagic fish stock investigations is to predict how
large year-classes will be at the time of recruitment to the adult
population. While the primary approach to this problem for the
northern anchovy (*Engraulis mordax*) is the estimation of larval
mortality rates on the basis of abundance estimates from egg and
larval surveys, other methods are being sought for corroborative
purposes, or to reduce time and costs. The approach described in
this report is estimation by histological methods of the proportion
of larvae in the sea showing symptoms of starvation. If based on
adequate sampling, such a proportion could be an indicator of
ultimate year-class success. Of the 318 larvae examined, from the
Southern California Bight 26 were classified as severely or
moderately emaciated on the basis of such anomalies. Another 11
were classified incipient emaciation; these are not included in the
emaciated or starving contingent. The proportion of emaciated
larvae in the present survey could be considered a net daily

mortality from starvation of 8%, which is 40% of the average daily mortality mentioned above. If starvation contributes this substantially to total mortality, the proportion observed to be starving may relate reasonably well to eventual recruitment. starvation/fish larvae/morphological anomalies/Engraulis mordax/histology/recruitment/mortality/population studies/Southern California Bight/OceanAbstracts.

660. KINDYUSHEV VI. SEASONAL VARIATIONS OF WATER MASSES IN THE CALIFORNIA REGION OF THE PACIFIC OCEAN. OCEAN. 1970
PHYSICAL OCEANOGRAPHY//OCEANOGRAPHY//WATER MASSES.

661. Littler MM. Overview of the rocky intertidal ecosystems of southern California. D. M. Power. The California Islands: Proceedings of a Multidisciplinary Symposium.; Santa Barbara, CA. Santa Barbara, CA: Santa Barbara Museum of Natural History; 1980. p. 265-306.

This paper contains the results of the 1975-76 baseline program sponsored by the Bureau of Land Management and emphasizes the species composition and the distributions and abundances of the rocky intertidal biota at 10 sites in Southern California including 6 sites on the Channel Islands.

Marine Algae, Intertidal Invertebrates, Rocky Intertidal.

662. ANTONELIS GA, J, PEREZ MA. ESTIMATED ANNUAL FOOD CONSUMPTION BY NORTHERN FUR SEALS IN THE CALIFORNIA CURRENT. REPORT CALIF. COOP. OCEANIC FISH. INVEST. 25 1984:135-145
* MAMMALIA ** CARNIVORA *** PINNIPEDIA **** OTARIIDAE *****
CALLORHINUS URSINUS. FEEDING/CARNIVOROUS
FEEDING/PREDATION/PREY/ESTIMATED ANNUAL FOOD CONSUMPTION,
CALIFORNIA (MARINE)/DIGESTION & NUTRITION/NUTRITION/DIE T/QUANTITY
OF FOOD CONSUMED/PACIFIC OCEAN/NORTHERN PACIFIC/CALIFORNIA
CURRENT/ESTIMATED ANNUAL FOOD CONSUMPTION/Zoological Index.

663. Luyendyk B, Hajic E, Crippen R, Simonett D. Side-scan sonar and high resolution reflection mapping of the seabed geology in parts of the Santa Barbara Channel. . 1981. unpublished draft of manuscript
SCIR.
SRD.

664. Johnson DL. More comments on the northern Channel Islands Mammoths. Quaternary Research 1981;15:105-106
SCIR.
Pleistocene/SRD.

665. Miller S. Butterflies of the California Channel Islands. Journal of Research on the Lepidoptera 1984;23(4):282-296
SCIR.
fspub/SRD.

666. Meighan CW. The Little Harbor site, Catalina Island: an example of ecological interpretation in archaeology. American Antiquity 1959;24(4):383-405 SCIR.
Santa Catalina/anthropology/Channel Islands/Indians/SRD.

667. Millar CI, Critchfield W. B. Crossability and relationships of *Pinus muricata* (Pinaceae). Madrono 1988;35(1):39-53
SCIR.
pines/evolution/systematics/SRD.

668. Paez J. Cabrillo's Log; a summary. The Western Explorer

1968;5(2 73):1-20

SCIR.

history/Channel Islands/Spanish/SRD.

669. Pemberton JR. Additions to the known Avifauna of the Santa Barbara Islands. Condor 1928;30:144-148

SCIR.

birds/Channel Islands/SRD.

670. Gomez VJ, Velez MHS. Seasonal variations of temperature and salinity in coastal waters of the California current system [Lower California, Mexico]. Variaciones estacionales de temperatura y salinidad en la region costera de la corriente de California. Cienc Mar. Ensenada : Instituto de Investigaciones Oceanologicas de la Universidad Autonoma de Baja Calif. Dec 1982.

1982;8(2):p.167-178

Variaciones estacionales de temperatura y salinidad en la region costera de la corriente de California. Foreign Includes 15 references. Article. Mexico/Marine Areas/AGRICOLA.

671. Love MS, Morris P, McCrae M, Collins R. Life history aspects of 19 rockfish species (Scorpaenidae: Sebastes) from the southern California Bight. NOAA TECH. REP 1990;

The authors investigated various life history aspects of 19 rockfish species from the southern California Bight. The aspects included depth distribution, age-length relationships (of 7 species), length-weight relationships, size at first maturity, spawning season, and fecundity. Growth rates of female Sebastes elongatus, S. hopkinsi, S. ovalis, S. saxicola , and S. semicinctus were higher than male conspecifics. Multiple spawning per season was found in 12 species. Generally, most species spawned between late winter and early summer, though there was some spawning within the genus throughout the year. (Prepared in cooperation with Occidental Coll., Los Angeles, CA. Moore Lab. of Zoology, Chambers Group, Inc., Santa Ana, CA., and California State Dept. of Fish and Game, Sacramento.). Sebastes/habitat selection/ecological distribution/length-weight relationships/growth/fecundity/INE/USA/California/California Bight/life history/ASFA.

672. Edwards BD. The role of gravity induced and hemipelagic sedimentation mechanisms in Santa Cruz Basin, California continental borderland. Geol. Soc. Am., Abstr. Programs.

1978;10(7):p.395

Univ. South. Calif., Dep. Geol. Sci., Los Angeles, Calif., United-States The Geological Association of Canada, The Mineralogical Association of Canada, The Geological Society of America (91st annual meeting); 1978 joint annual meeting, Toronto, Ont., Oct. 23-26, 1978 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). California/oceanography/sedimentation/transport/turbidity currents/United States/Santa Cruz Basin/Southern California/continental shelf/continental borderland/mechanism/debris flows/nearshore environment/marine environment/bioturbation/biogenic structures/sedimentary structures/sediments/cores/hemipelagic environment/pelagic environment/turbidite/clastic rocks/Holocene/Quaternary/GEOREF.

673. Stevenson RE. Oceanographic survey of the continental shelf area of southern California. Water Poll. Control Board Publ.

20. 1960;59:103-119 NPS/Physical

oceanography/oceanography/currents/waves.

674. Wenner AM, Dugan JE, Wells H. Estimating yearly egg production in multibrooding crustacean populations. Egg Production: Vol 7 of Crustacean Issues. Wenner AM, editor. Netherlands: Balkema; 1991. p. 333-355. (Schram F, Senior Editor. Crustacean Issues).
SCIR.
fspub/sand crabs/emerita/Santa Cruz Island.

675. Orr PC. Radiocarbon Dates from Santa Rosa Island, II. Santa Barbara, CA: Santa Barbara Museum of Natural History; 1960. Report No.: Bulletin No. 3; Dept. of Anthropology. 1-9.
SCIR.
prehistory/chumash/archaeology/SRD.

676. Freckleton JR (Performer: Geological Survey, Sacramento, CA. Water Resources Div. Performer: Santa Barbara, CA.) Geohydrology of the Foothill Ground-Water Basin Near Santa Barbara, California. Water-resources investigations. ; 1989. Report No.: USGSWRI894017. 55p.
Also available from Supt. of Docs. Portions of this document are not fully legible. Prepared in cooperation with Santa Barbara, CA. PC A04/MF A01. The purpose of the present study was to define the geohydrology of the Foothill basin, with emphasis on the effects of pumping on the groundwater flow system. As part of the study, a groundwater flow model was developed for the Foothill basin in order to evaluate water-level response to groundwater pumpage. The report describes the results of the geohydrologic study and the model developed for the Foothill basin. Data collected from water-quality and water-level observation wells are included and evaluated in the report, along with estimates of historical pumpage and estimates of transmissivity and storage coefficient. Santa Ynez Mountains/Geological surveys/Water flow/Geological maps/Base maps/Water storage/Subsurface drainage/Aquifers/Hydraulics/Water wells/Site surveys/Ground water recharge/Hydrogeology/Ground water/Watersheds/Water quality/Mathematical models/Foothill Basin/Santa Barbara County California/NTIS.

677. Miller RL, Dwan FS, Cheng CF. Digital preprocessing techniques for GLORIA II sonar images. GEO-MAR. LETT 1991;VOL. 11, NO. 1:pp. 23-31 NASA/Sci. and Technol. Lab., HA10 Build. 1100, John C. Stennis Space Cent., MS 39529, USA.
Image processing techniques are discussed that correct distortions in GLORIA II side scan sonar imagery including water column offset, slant-range distortion, multiple returns, aspect ratio, speckle noise, striping, and cross-track power drop-off. The software operates within NASA's ELAS image processing system and is applied to the original 12-bit GLORIA II data. Procedures are discussed for generating large scale mosaics and three-dimensional overlays with sea floor bathymetry. The results are shown in 4 sonographs acquired off the southern coast of California.
INE, USA, California/remote sensing/geotechnology/sonar imagery/sonographs/side scan sonar/GLORIA/image processing/corrections/errors/GLORIA II/Oceanic Abstracts.

678. KNAUSS JA. OBSERVATIONS OF INTERNAL WAVES OF TIDAL PERIOD MADE WITH NEUTRALLY BUOYANT FLOATS. J. MAR. RES. 1962A;20 PHYSICAL OCEANOGRAPHY//OCEANOGRAPHY//WAVES INTERNAL WAVES//TIDES.

679. Littler MM

.
Southern California rocky intertidal ecosystems: methods, community structure and variability. J. H. Price, E. E. G. Irvine,

W.H. Farnham. The shore environment: methods and ecosystems.
London: Academic Press; in press?
Report of temporal and spatial variations exhibited by the
macroinvertebrate and macrophyte populations located at 12 rocky
intertidal sites including 7 on the Southern California Islands.
Includes detailed descriptions of the methodologies employed.
Based largely on the results of the 1975-76 baseline studies
program sponsored by the Bureau of Land Management.
Marine Algae, Marine Intertidal invertebrates, Rocky intertidal,
methods.

680. SUMIDA BY, MOSER HG. FOOD AND FEEDING OF BOCACCIO
(SEBASTES PAUCISPINIS) AND COMPARISON WITH PACIFIC HAKE (MERLUCCIUS
PRODUCTUS) LARVAE IN THE CALIFORNIA CURRENT. REPORT CALIF. COOP.
OCEANIC FISH. INVEST. 25 1984: 112-118, ILLUSTR.
* PISCES ** SUPERCLASS GNATHOSTOMATA *** CLASS TELEOSTOMI ****
DIVISION TELEOSTEI ***** SUPERORDER PARACANTHOPTERYGII *****
GADIFORMES ***** SUBORDER GADOIDEI ***** MERLUCCIIDAE
***** MERLUCCIUS PRODUCTUS ***** SUPERORDER ACANTHOPTERYGII
***** SCORPAENIFORMES ***** SUBORDER SCORPAENOIDEI *****
SCORPAENIDAE ***** SEBASTES PAUCISPINIS.
FEEDING/CARNIVOROUS FEEDING/PREDATION/PREY/FOOD COMPOSITION,
LARVAE, COMPARATIVE STUDY, CALIFORNIA (MARINE)/DIGESTION &
NUTRITION/ NUTRITION/DIET/COMPOSITION ANALYSIS, COMPARATIVE STUDY,
LARVAE, CALIFORNIA (MARINE)/PACIFIC OCEAN/NORTHERN
PACIFIC/CALIFORNIA CURRENT/LARVAL DIET, COMPARATIVE
STUDY/Zoological Index.

681. Orr PC. Radiocarbon Dates from Santa Rosa Island, I.
Santa Barbara, CA: Santa Barbara Museum of Natural History; 1956.
Report No.: Bulletin No. 2; Dept. of Anthropology. 1-9.
SCIR.
prehistory/archaeology/chumash/SRD.

682. Propst B. A Population Survey of the Santa Catalina
Island Fox. : Calif Fish and Game; 1975. Report No.: Job I-1.10,
Final Report 1-8. (Nongame Wildlife Investigations).
SCIR.
SRD.

683. Peterson RRJ. Analysis of shellworking traces on
experimental and archaeological bladelet drills. Wyoming
Archaeologist 1986;29(No 1/2):97-107 SCIR.
fspub/chumash/archaeology/Santa Cruz Island/anthropology/SRD.

684. Prato CM, Akers TG, Smith AW. Calicivirus antibodies in
wild fox populations. Journ. of Wildlife Diseases 1977;13:448-450
SCIR.
fspub/Santa Cruz Island/island fox/SRD.

685. Prato CM, Akers TG, Smith AW. Serological evidence of
calicivirus transmission between marine and terrestrial mammals.
Nature 1974;249:255 SCIR.
fspub/Santa Cruz Island/feral pig/sea lions/SRD.

686. Priestaf I. Natural Tar Seeps and Asphalt Deposits of
Santa Barbara County. California Geology 1979;32(8):163-169
SCIR.
geology/SRD.

687. Orr PC. Customs of the Canalino. Santa Barbara, CA:
Santa Barbara Museum of Natural History; 1956. Report No.:
Occasional Paper No 6. SCIR.

Archaeology/anthropology/chumash/SRD.

688. Powell JA. an annotated bibliography of insect and other terrestrial arthropod research at the Channel Islands Field Station, California, 1964-1980. . 1980. 1-11. SCIR, unpublished manuscript. fspub/entomology/SRD.

689. Pilsbry. North American Land Mollusca. ; 1939. p. 124-128;409;204-206;563-565. SCIR; photocopied excerpts for Channel Islands occurrences of land snails; also list of Channel Islands species, unpublished and typed by Steve Newswanger. land snails/mollusks/SRD.

690. Ohman MD, Wilkinson JR. Comparative standing stocks of mesozooplankton and macrozooplankton in the southern sector of the California Current system. FISH. BULL 1989;87(4):967-976. In the present study, we assess the biomass of the mesozooplankton (defined here as the zooplankton fraction passing through a 505 μ m mesh net but retained in a 202 μ m mesh net) in comparison with that of the historically sampled macrozooplankton. Efforts to close budgets of material and energy in the California Current system may require consideration of the contributions of the mesozooplankton to standing stocks and metabolic transformations. Further, given the selective nature of predation by planktivorous fish in this region, the mesozooplankton may be disproportionately significant as prey items to particular size classes of pelagic predators. biomass/size distribution/California Current/plankton surveys/INE/California Current/zooplankton/ASFA.

691. Douglas RG, Cotton ML, Wall LS. Ecologic patterns in benthic foraminiferal populations in the southern California borderland. Geol. Soc. Am., Abstr. Programs. 1978;10(7):p.391 Univ. South. Calif., Dep. Geol. Sci., Los Angeles, Calif., United-States The Geological Association of Canada, The Mineralogical Association of Canada, The Geological Society of America (91st annual meeting); 1978 joint annual meeting, Toronto, Ont., Oct. 23-26, 1978 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). California/paleontology/foraminifera/ecology/benthonic taxa/United States/Southern California/continental borderland/marine environment/habitat/biochemistry/communities/patterns/GEOREF.

692. Stevens RE. Winds over coastal southern California. Bull. So. Calif. Acad. Sci. 1960;59:103-119 NPS/Physical oceanography/oceanography/currents/waves.

693. Wenner AM, Meade DE, Alcock JE. Feral bee colony removal on Santa Cruz Island: Techniques and progress. Am. Bee Journal 1991;131:784-785 SCIR/abstract only. fspub/honey bees/management/restoration ecology.

694. Sanders R. Contributions from the Los Angeles Museum Channel Islands Biological Survey 38. Diptera from San Nicolas Island and Point Mugu, California. Bulletin of Southern California Academy Sciences 1964;63(1):21-25 SCIR. entomology/insects/SRD.

695. Kajimura H (Performer: National Marine Mammal Lab., Seattle, WA). Fur Seal Investigations, 1986. Technical memo. ; 1989. Report No.: NOAATMNMFSFNWC174. 168p. See also report for 1985, PB89-103410. PC A08/MF A01. Northern fur seal (*Callorhinus ursinus*) research in 1986 was

conducted on the Pribilof Islands, Alaska, and on San Miguel Island and nearby Castle Rock in southern California. Estimates made of the number of pups born on St. Paul Island in 1986 (167,656 + or - 16,272) were not significantly different from the estimated total number born in 1985 (182,258 + or - 18,887). The estimated fractions of sheared animals determined from photographs and actual field counts (shearing-sampling method) taken during 1986 are not significantly different from each other. Microprocessor time-depth recorders (MTDR) and radio transmitters attached to six subadult male northern fur seals indicate that entanglement of these animals in small pieces of trawl netting evidently increases the amount of time that they spend foraging at sea in addition to influencing the duration and depth of dives. Observations suggest that pups become entangled in debris in the water rather than becoming entangled in debris on shore.

Mortality/Nets/Populations/Tables Data/Marine
biology/Abundance/Feeding habits/Seals Mammals/Biological
surveys/Animal ecology/Environment management/Callorhinus
ursinus/Coastal ecology/NTIS.

696. Poulain PM. Near-inertial and diurnal motions in the trajectories of mixed layer drifters. J. MAR. RES 1990;VOL. 48, NO. 4:pp. 793-823 Coop. Inst. Mar. and Atmos. Stud., Univ. Miami, 4600 Rickenbacker Causeway, Miami, FL 33149, USA.

The authors analyze the near-inertial/diurnal motions in the trajectories of surface mixed layer drifters in the California Current System between 19N and 36N. The observed near-inertial or diurnal oscillations are very intermittent in time and have a time scale of about 10 inertial periods. Using a simple slab model of wind-driven inertial currents, we show that their temporal variations are related to the fluctuations in the local wind stress field. Three events of strong (20 cm/s) near-inertial/diurnal motions are studied in detail. Two events at the diurnal frequency occur on the continental shelf. For the first, the observed subinertial oscillations are interpreted as continental shelf waves generated by the diurnal tide currents and the local winds. For the second, observations are consistent with wind-driven internal waves. A third event of near-inertial oscillations appears for most of the drifters in the wake of a tropical storm. The vorticity of the background mesoscale circulation shifts the frequency of the wind-generated oscillations by as much as plus or minus 0.05 cpd. mixed layer/ISE, California Current/drifters/INE, California Current/water currents/inertial currents/tidal motion/wind stress/ocean circulation/internal waves/Oceanic Abstracts.

697. Smith RC, Eppley RW, Baker KS. Correlation of Primary Production as Measured Aboard Ship in Southern California Coastal Waters and as Estimated From Satellite Chlorophyll Images. MAR. BIOL 1982;VOL. 66, NO. 3:pp. 281-288 Dep. Geogr., Univ. California, Santa Barbara, CA 93106, USA. Chlorophyll images suitable for the regional analysis of the Southern California Bight were obtained by satellite (Nimbus-7 Coastal Zone ColorScanner) on 27 February, 6 March and 11 March 1979. An algorithm to convert satellite chlorophyll data to primary production has been developed. In addition, primary production was measured along with other biological and physical factors from ships cruising in the Southern California Bight during late February and early March 1979. There was fair agreement between shipboard measurements and satellite estimations; for example, primary production (mg carbon m⁻² d⁻¹) averaged 554 mg from shipboard measurement and 403 mg from satellite estimation when averaged for the entire Bight for the course of the study. primary production/shipboard measurements/coastal waters/satellite

data/chlorophyll measurements/radar imagery/California Coast/
Southern California Bight/Nimbus-7/OceanAbstracts.

698. HOLWAY RS. COLD WATER BELT ALONG THE WEST COAST OF THE
UNITED STATES. CALIF. UNIV. GEOL. DEPT. BULL. 1905;4
PHYSICAL OCEANOGRAPHY//OCEANOGRAPHY//WATER MASSES.

699. Littler MM, S.N. Murray. Impact of sewage on the
distribution, abundance, and community structure of rocky
intertidal macro-organisms. Marine Biology 1975;30:277-291
Reports on the impacts of low volume sewage outfall on the
distributions and abundances of the macroinvertebrate and macrophyte
populations inhabiting the rocky intertidal shoreline at Wilson
Cove, San Clemente Island. SEWAGE, Marine ALGAE, MARINE
INVERTEBRATES, ROCKY INTERTIDAL, SAN CLEMENTE ISLAND.

700. KNIGHT MD. VARIATION IN LARVAL MORPHOGENESIS WITHIN THE
SOUTHERN CALIFORNIA BIGHT POPULATION OF EUPHAUSIA PACIFICA FROM
WINTER THROUGH SUMMER, 1977-1978. REPORT CALIF. COOP. OCEANIC FISH.
INVEST. 25 1984: 87-99, ILLUSTR. * CRUSTACEA ** MALACOSTRACA ***
EUCARIDA **** ORDER EUPHAUSIACEA ***** EUPHAUSIA PACIFICA.
LIFE CYCLE & DEVELOPMENT/LIFE CYCLE/DEVELOPMENTAL STAGES/LARVA/MORP
HOGENESIS, SEASONAL VARIATION IN DEVELOPMENTAL PATHWAYS,
CALIFORNIA/DEVELOPMENT/ONTOGENESIS/LARVAL MORPHOGENESIS/SEASONAL
VARIATION IN DEVELOPMENTAL PATHWAYS, CALIFORNIA
(MARINE)/GROWTH/GROWTH RATE/EVOLUTION/VARIATION/GEOGRAPHICAL
VARIATION/LARVAL MORPHOLOGY, CALIFORNIA (MARINE)/SEASONAL
RACES/TEMPORAL VARIATION IN LARVAL MORPHOGENESIS, CALIFORNIA
(MARINE)/PACIFIC OCEAN/NORTHERN PACIFIC/SOUTHERN CALIFORNIA
BIGHT/LARVAL MORPHOGENESIS, SEASONAL VARIATION IN DEVELOPMENTAL
PATHWAYS/Zoological Index.

701. Anderson SL, Anderson KE. The ridgeback prawn fishery.
Advances in aquaculture and fisheries research. Report of a
California Sea Grant symposium. La Jolla, CA (USA): California Sea
Grant Coll. Program; 1985. 18. Address: Aquacult. Program, Univ.
California, Davis, CA 95616, USA Conference: Advances in
Aquaculture and Fisheries Research: A California Sea Grant
Symposium. Davis, CA (USA). 18-20 May 1983.
The ridgeback prawn fishery is a small, newly developed fishery in
the Santa Barbara Channel area. In 1979, 356,000 lb were landed.
Landings have declined each year since 1979 to 141,000 lbs in 1982.
Ex-vessel prices range from \$0.85-2.25 per pound depending on
market conditions. Most fishing occurs on day trips from Santa
Barbara Harbor. Until recently, almost nothing was known about the
ridgeback prawn *Sicyonia ingentis*. Our natural history
investigations demonstrate repeated spawning activity by individual
prawns throughout a long spawning season (June-September). No
intervening molt or mating is required to produce a fertile spawn.
Most females progress synchronously through a single molt cycle
beginning in mid-May and ending in mid-November.
sexual reproduction/life history/fishery industry/shellfish
fisheries/*Sicyonia ingentis*/ridgeback prawn/Santa Barbara
Channel/marine biology/fisheries/resource management.

702. Smith DM. Flavonoid analysis of the *Pityrogramma*
triangularis complex. Bulletin of the Torrey Botanical Club
1980;107(2):134-145 SCIR.
fspub/Santa Cruz Island/ferns/systematics/botany/SRD.

703. Spadoni RD, Miles VI, Hayes RO. Mosquitos collected on
California offshore islands. Mosquito News 1973;33(1):94-101
SCIR.

fspub/insects/entomology/Santa Cruz Island/Channel Islands/SRD.

704. Sylvester AG. Fluid pressure variations and prediction of shallow earthquakes. *Science* 1970;169:1231-1232
SCIR.
geology/Santa Barbara Channel/SRD.

705. Schmitt RJ. Competitive interactions of two mobile prey species in a patchy environment. *Ecology* 1985;66(3):950-958
SCIR.
Tegula/marine biology/Santa Catalina Island/intertidal/ecology/SRD.

706. Schmitt RJ, Holbrook SJ. Seasonally fluctuating resources and temporal variability of interspecific competition. *Oecologia* 1986;69:1-11
SCIR.
fspub/fish/marine biology/ecology/surfperch/SRD.

707. Roth B. Notes on Three European Land Mollusks introduced to California. *Bull. Southern California Acad. Sci.* 1986;85(1):22-28
SCIR.
fspub/land snails/exotic species/introduced species/SRD.

708. Roth B. Structure of internal varices in the shell of Micrarionta rufocincta and other Helminthoglyptidae (Gastropoda: Pulmonata). *Bull. Southern Calif. Acad. Sci.* 1987;86(3):145-152
SCIR.
Santa Catalina Island/land snails/mollusks/SRD.

709. Roth L, Klein M. Maternal effects on body size of large insular Peromyscus maniculatus: evidence from embryo transfer experiments. *Journ. Mammalogy* 1986;67(1):37-45
SCIR.
fspub/Santa Cruz Island/deermice/SRD.

710. Koblinsky CJ, Simpson JJ, Dickey TD. An offshore eddy in the California Current System. II. Surface manifestation [Ocean dynamics, mesoscale variations]. *Prog Oceanogr.* Oxford : Pergamon Press. 1984. 1984;13(1):p.51-69
Foreign Includes references.
Article.
California/Pacific Ocean/AGRICOLA.

711. Antonelis GA, Stewart BS, Perryman WF. Foraging characteristics of female northern fur seals (*Callorhinus ursinus*) and California sea lions (*Zalophus californianus*). *CAN. J. ZOOL./J. CAN. ZOOL* 1990;68(1):150-158. The foraging characteristics of northern fur seals (*Callorhinus ursinus*) and California sea lions (*Zalophus californianus*) from San Miguel Island, California, were studied during the 1985 summer breeding season. A radio transmitter was attached to 25 postpartum females of each species and used to determine their locations at sea and the frequency and duration of their feeding trips. Northern fur seals usually foraged in the oceanic zone where the mean water depth was 933 m (n = 12). California sea lions principally were found in the neritic zone, where water depth averaged 323 m (n = 9). Most fur seals (92%) were found northwest of San Miguel Island, whereas the sea lions were commonly found to the northwest (55%) or in areas south (22%) of the island. Although both species evidently foraged at similar distances from the island, foraging trips of fur seals (x̄ = 180.6 h) were over twice as long as those of sea lions (x̄ = 73.4 h). Fur seals were ashore less time (x̄ = 39.6 h) than were sea lions (x̄ = 50.1 h) between foraging trips. Analysis of scats revealed that fur seals and sea lions ate similar prey.
females/USA/California/San Miguel Island/feeding

behaviour/Callorhinus ursinus/Zalophus
californianus/INE/USA/California/San Miguel
Island/behaviour/foraging behavior/ASFA.

712. Stevenson RE, Gorsline DS. A shoreward movement of cool
subsurface water. Trans. Am. Geophys. Un. 1960;37(5):553-557
NPS/Physical oceanography/oceanography/water masses.

713. Wenner AM, Meade DE, Friesen LJ. Distances honey bees
range from their colonies: a unifying concept. Am. Bee Journ.
1991;131:785
SCIR/abstract only.
fspub/Santa Cruz Island.

714. Rentz DC, Weissman DB. An annotated checklist of the
grasshopper species of *Aerochoreutes*, *Circotettix*, and
Trimerotropis (Orthoptera: Acrididae: Oedipodinae). Trans. Amer.
Entomological Society 1980;106:223-252 SCIR; see p.241.
fspub/Santa Cruz Island/insects/entomology/SRD.

715. Bray R, Miller A, Johnson S, Krause P, Robertson D,
Westcott A. Ammonium excretion by macroinvertebrates and fishes on
a subtidal rocky reef in southern California. MAR. BIOL
1988;100(1):21-30.
Macrofauna living on subtidal rocks reefs in southern California
excrete ammonium, a potentially important nutrient for benthic
algae. Ammonium excretion rates of eleven macroinvertebrate and
five fish taxa were determined from a total of 324 in situ
incubations conducted between October 1984 and August 1985 at 14 to
17 m depths off Santa Catalina Island, California. Total ammonium
excretion ranged from over 100 $\mu\text{mol/h}$ by the kelp bass *Paralabrax
clathratus* to less than 0.1 $\mu\text{mol/h}$ by the gastropod *Conus
californicus*. Weight-specific ammonium excretion generally ranged
from 0.5 to 4 $\mu\text{mol/g h}$ in invertebrates and from 3 to 7 $\mu\text{mol/g
h}$ in fishes.
excretion/macrofauna/Pisces/USA/California/reefs/ammonium/CSA Life
Sciences Collection.

716. Nelson BV (Performer: California Univ., Santa Barbara.
Marine Science Inst. Funder: National Oceanic and Atmospheric
Administration, Rockville, MD.) Channel Islands Research Annotated
Bibliography. Volume 1. A-M. ; 1989. 347p. See also Volume 2,
PB90-146572. Sponsored by National Oceanic and Atmospheric
Administration, Rockville, MD. PC A15/MF A02.
To make scientific information about marine issues more accessible,
a computerized research database was developed that catalogs
studies conducted around the California Channel Islands and the
Santa Barbara Channel. The Channel Islands Research Annotated
Bibliography contains references from journals, books, master's
theses and doctoral dissertations, and government and industry
reports produced from 1978 to 1989. Included are scientific studies
from a wide range of disciplines, such as biology, chemistry,
geology, and oceanography. Although the database began as a
resource on marine studies, it has since been expanded to include
terrestrial studies. Citations in the report are arranged
alphabetically by author. Volume I contains citations from A
Through M.
California Channel Islands/Santa Barbara
Channel/Oceanography/Chemistry/Ecology/Botany/Taxonomy/Bibliograp
hies/Marine biology/Marine geology/Data bases/NTIS.

717. Ledwell JR. The Santa Monica Basin tracer experiment:
A study of diapycnal and isopycnal mixing. J. GEOPHYS. RES. (C

OCEANS 1991;VOL. 96, NO. C5:pp. 8695-8718

Appl. Ocean Phys. and Eng., Woods Hole Oceanogr. Inst., Woods Hole, MA, USA. We have studied cross isopycnal (diapycnal) and lateral mixing and stirring below the sill of Santa Monica Basin by releasing two tracers, sulfur hexafluoride and perfluorodecalin, as close as possible to an isopycnal surface and measuring their subsequent dispersion. The target for the release was a potential temperature surface at about 790 m depth, roughly 100 m above the bottom and 50 m below the sill. Three surveys, performed immediately after, about 7 weeks after, and about 6 months after the release, showed that the time scales for lateral stirring and mixing in the basin were between 2 and 5 months. The diapycnal diffusivity for the whole period was found to be 0.29 plus or minus 0.06 cm super(2)/s near the injection surface, where the buoyancy frequency was about 1.1 cph. This estimate may include some mixing in the turbulent boundary layer near the walls of the basin. Our best estimate for the diapycnal diffusivity in the basin interior is 0.25 plus or minus 0.08 cm super(2)/s.
isopycnics/water mixing/tracers/bottom topography effects/INE, USA, California, Santa Monica Basin/diapycnal mixing/Oceanic Abstracts.

718. HOROWITZ R, VOSTRAYS RW. REPORT ON ACTIVE AND PLANNED SPACECRAFT AND EXPERIMENTS. 1980
PHYSICAL OCEANOGRAPHY//OCEANOGRAPHY//CURRENTS//WATER MASSES//CURRENTS.

719. Littler MM, S.N Murray. The primary productivity of marine macrophytes from an rocky intertidal community. Marine Biology 1974;27:131-135 Primary productivities, rates, and growth forms of 18 intertidal macrophyte algae are reported from Wilson Cove, San Clemente Island.
Marine intertidal algae, primary productivity, Rocky intertidal, San Clemente Island.

720. Anonymous. Clean air act provisions extended to the outer continental shelf. Natural Resources Journal 1978;18(4):903
Outer Continental Shelf/Clean Air Act/Exxon/Environmental Protection Agency/EPA/Santa Barbara Channel/policy/air quality/pollution.

721. Smith AW, Akers TG, Prato CM, Bray H. Prevalence and distribution of four serotypes of SMSV serum neutralizing antibodies in wild animal populations. Joun. Wildlife Diseases 1976;12:326-334
SCIR.
fspub/marine mammals/sea lions/SRD.

722. Sylvester AG, Smith ST, Scholz CH. Earthquake swarm in the Santa Barbara Channel, California, 1968. Bulletin of the Seismological Society of America 1970;60(4):1047-1060
SCIR.
geology/SRD.

723. Shelton Jennifer L. Petrology of the middle Miocene Blanca Formation, Santa Cruz Island, California. Annual Meeting; Southern California Academy of Sciences; 1988, May 6-7; Calif. State Univ. Northridge. p. No. 115 in Abstracts. SCIR.
fspub/geology/SRD.

724. Sheldon HH. Mammal Report: Santa Cruz Island. . 1928. unpublished report.
skunk/island fox/Urocyon/history/deermice/bats/wild pigs/feral pigs/SRD.

- # 725. Shaw D. An exploration of factors determining Island Fox population fluctuations. . 1985. 10 pp.
SCIR; unpublished report; class paper for Environmental Studies class. fspub/island fox/Santa Cruz Island/SRD.
- # 726. Sheldon HH, Trapier. Topography of Santa Rosa Island and Flora. . 1927.
SCIR; unpublished report.
history/SRD.
- # 727. Vivrette NJ, Muller CH. Mechanism of invasion and dominance of coastal grassland by *Mesembryanthemum crystallinum*. Ecological Monographs 1977;47:301-318
SCIR.
fspub/Santa Cruz Island/Fraser Point/Lasthenia/ecology/botany/SRD.
- # 728. Van Vuren D. Effects of feral sheep on the spatial distribution of artifacts on Santa Cruz Island. Bull. Southern Calif. Acad. Sci. 1982;81(3):148-151
SCIR.
fspub/archaeology/management/SRD.
- # 729. Van Vuren D, Coblenz BE. Kidney weight variation and the kidney fat index: an evaluation. J. Wildl. Manage. 1985;49(1):177-179
SCIR.
fspub/feral sheep/Santa Cruz Island/SRD.
- # 730. Simpson JJ. An offshore eddy in the California Current System. III. Chemical structure [Photoplankton photosynthesis]. Prog Oceanogr. Oxford : Pergamon Press. 1984. 1984;13(1):p.71-93
Foreign Includes references. Article.
California/Pacific Ocean/AGRICOLA.
- # 731. Batteen ML, Haney RL, Tielking TA, Renaud PG. A numerical study of wind forcing of eddies and jets in the California Current system. J. MAR. RES 1989;47(3):493-523.
A high-resolution, multi-level, primitive equation ocean model is used to examine the response to wind forcing of an idealized flat-bottomed oceanic regime along an eastern ocean boundary. A band of steady alongshore, upwelling favorable winds, either with or without alongshore variability, is used as forcing on both an f-plane and a beta -plane. In each experiment a wind-driven equatorward coastal jet and a poleward undercurrent are generated. In time the coastal jet and undercurrent become unstable and lead to the development of eddies and jets with relatively strong onshore and offshore directed flows. The results of this study support the hypothesis that steady wind forcing is one of several possible important generation mechanisms for eddies in the California Current System. mathematical models/eddy flux/jets/INE/California Current/ISE/ California Current/wind-driven circulation/ASFA.
- # 732. Stevenson RE, Gorsline DS. Upwelling and fog off the Palos Verdes Coast, Calif. U.S. Navy Hydrographic Office, Washington. 1955 NPS/Physical
oceanography/oceanography/currents/water masses.
- # 733. Klein HD, Wenner AM. Tiny Game Hunting: Environmentally Healthy ways to Trap and Kill the Pests in Your House and Garden. New York: Bantam; 1991. SCIR.
insects/eradication/pesticides.

734. Thorne RF. a supplement to the floras of Santa Catalina and San Clemente Islands, Los Angeles County, California. Aliso 1969;7(1):73-83 SCIR.
botany/SRD.

735. Wheatcroft R, Smith C, Jumars P. Dynamics of surficial trace assemblages in the deep sea. DEEP-SEA RES 1989;36(1A):71-91. The authors present a steady-state model addressing factors that determine surficial trace concentration (fraction of sea floor covered by tracks and trails) relative to the areal density and composition of mobile epibenthic megafauna. Trace concentration is posited to be a direct function of the mean production rate of new traces and their mean residence time. Explicit predictions of the model are supported by new survey and time-series data from two deep-sea sites that differ radically in epifaunal abundance, Santa Catalina Basin (1300 m, east Pacific) and the HEBBLE area (4800 m, west Atlantic).
bioturbation/traces/deep sea/Pacific Ocean/East/Atlantic Ocean/West/INE/USA/California/Santa Catalina Basin/AW/West Atlantic/sedimentology/ocean floor/benthic environment/zoobenthos/CSA Life Sciences Collection.

736. Nelson BV (Performer: California Univ., Santa Barbara. Marine Science Inst. Funder: National Oceanic and Atmospheric Administration, Rockville, MD.) Channel Islands Research Annotated Bibliography. Volume 2. N-Z and Index. ; 1989. 302p. See also Volume 1, PB90-146564. Sponsored by National Oceanic and Atmospheric Administration, Rockville, MD. PC A14/MF A02. To make scientific information about marine issues more accessible, a computerized research data base, was developed that catalogs studies conducted around the California Channel Island and the Santa Barbara Channel. The bibliography contains references from journals, books, master's theses and doctoral dissertations, and government and industry reports produced from 1978 to 1989. Included are scientific studies from a wide range of disciplines, such as biology, chemistry, geology, and oceanography. Although the database began as a resource on marine studies, it has since been expanded to include terrestrial studies. Citations in the report are arranged alphabetically by author. Volume II contains citations from N through Z and the Index.
California Channel Islands/Santa Barbara Channel/Oceanography/Chemistry/Ecology/Botany/Taxonomy/Marine biology/Marine geology/Bibliographies/Data bases/NTIS.

737. Kundu PK, Beardsley RC, Huyer A. Observed interaction between low and high frequency motions off the coasts of Peru and California. J. PHYS. OCEANOGR 1990;VOL. 20, NO. 9:pp. 1333-1348 Oceanogr. Cent., 800 N. Ocean Dr., Nova Univ., Dania, FL 33004, USA. Datasets taken near the coasts of Peru and California have been analyzed to explore the evidence of a correlation between the high frequency (period 4 day) motions. A large part of the high frequency current is consistent with internal wave dynamics. They have a near 180 degree phase change across the water column; there is also evidence of a clockwise veering with depth, presumably due to frictional effects. No correlation of the vertical Reynolds stress $v@u-w@u-$ and vertical shear $V_{sub}(z)$ is found. The horizontal stress $u@u-v@u-$ is found to be negatively correlated with the horizontal shear $V_{sub}(x)$ only when averaged over time and space scales larger than those of the mean velocity field. The implied eddy viscosity is of order $v_{sub}(H)$ similar to $10 \text{ super}(5) \text{ cm super}(2)/\text{s}$. It is suggested that the relaxation time for the wave field to lose asymmetry is larger than the time for the wave

to propagate across a typical scale of the mean shear field. Due to this the fluctuating field may locally behave like a negative eddy viscosity at certain places.

kinetic energy/ocean currents/mesoscale features/Reynolds stresses/ISE, Peru/INE, USA, California/internal waves/eddy viscosity/wave field/Oceanic Abstracts.

738. Star JL, Mulln MM. Zooplanktonic Assemblages in Three Areas of the North Pacific as Revealed by Continuous Horizontal Transects. DEEP-SEA RES. (A OCEANOGR. RES. PAP. 1981;VOL. 28, NO. 11A:pp. 1303-1322

Inst. Mar. Resources., Scripps Inst. Oceanogr., Univ. California, San Diego, La Jolla, CA 92093, USA.

Long serial sequences of macrozooplankton samples from the North Pacific Central Gyre, the western California Current, and the nearshore area off southern California indicated a strong intraspecific pattern, in that copepodite stages of each of two species in both the nearshore and California Current samples covaried in space. At the same time the authors found interspecific associations in all three areas. In neither case were the associations very strong at particular spatial scales, however. The areas differed in intensity of patchiness of the dominant species but not in characteristic spatial scales of variation, although characteristic scales of distance often differed between day and night within the Central Gyre.

zooplankton/biomass/abundance/aggregation/horizontal distribution/Pacific Ocean North/California Coast/California Current/OceanAbstracts.

739. HUBBS C. CHANGES IN THE FISH FAUNA OF WESTERN NORTH AMERICA CORRELATED WITH CHANGES IN OCEAN TEMPERATURE. J. MAR. RES. 1948

PHYSICAL OCEANOGRAPHY//OCEANOGRAPHY//BIOLOGICAL OCEANOGRAPHY//WATER MASSES//CURRENTS.

740. Littler MM, S. N. Murray, editor. Influence of domestic wastes on the structure and energetics of intertidal communities near Wilson Cove, San Clemente Island, California. Davis, California: Water Resources Center, University of California; 1977. Report No.: control no. 164. (Water Resources Center; control no. 164 (ppl-88)).

Effects of a low volume sewage outfall on the organization of rocky intertidal communities including studies of the macroinvertebrate and macrophyte standings stocks, macrophyte productivity, fish abundances, energy flow and patterns of community development and physiological responses of sewage-resistant macrophytes. Sewage, marine algae, Marine fish and invertebrates, rocky intertidal, San Clemente Island.

741. GOODMAN D, EPPLEY RW, REID FMH. SUMMER PHYTOPLANKTON ASSEMBLAGES AND THEIR ENVIRONMENTAL CORRELATES IN THE SOUTHERN CALIFORNIA BIGHT. JOURNAL MAR. RES. 42(4) 1984: 1019-1049, ILLUSTR. * PROTOZOA ** PHYLUM SARCOMASTIGOPHORA *** SUBPHYLUM MASTIGOPHORA **** PHYTOMASTIGOPHOREA.

FEEDING/FOOD AVAILABILITY/NUTRIENT CONDITIONS, SUMMER PLANKTON ASSEMBLAGES, RELATIONSHIPS/ENVIRONMENTAL FACTORS/CHEMICAL ENVIRONMENT/INORGANIC CHEMICALS/SALINITY/SUMMER PLANKTON ASSEMBLAGES, RELATIONSHIPS, CALIFORNIA (MARINE)/PHYSICAL ENVIRONMENT/ TEMPERATURE/ECOLOGY/COMMUNITY/COMMUNITY STRUCTURE/SUMMER PLANKTON, ENVIRONMENTAL FACTORS EFFECTS, CALIFORNIA (MARINE)/POPULATION STUDY/POPULATION DYNAMICS/SEASONAL ABUNDANCE/LIFE HABIT/AQUATIC HABIT/PLANKTON/SUMMER ASSEMBLAGES, ENVIRONMENTAL FACTORS EFFECTS, CALIFORNIA (MARINE)/PACIFIC

OCEAN/NORTHERN PACIFIC/SOUTHERN CALIFORNIA BIGHT/S UMMER PLANKTON
ASSEMBLAGES, ENVIRONMENTAL FACTORS EFFECTS/Zoological Index.

742. Anonymous. Santa Cruz Island. The Nature Conservancy
News 1978;28(4):11
Nature Conservancy/Santa Cruz Island.

743. Thorne RF. The California Islands. Annuals of the
Missouri Botanical Garden 1969;56:391-408
SCIR.
Channel Islands/biogeography/evolution/SRD.

744. Tays G. Captain Andres Castillero, Diplomat. California
Historical Society Quarterly 1935;September:230-268
SCIR.
history/SRD.

745. Van Vuren D, Coblentz B. Impacts and adaptations of
feral sheep on Santa Cruz Island, California, USA. Munton PN,
Clutton-Brock J, Rudge MR. Feral Mammals - Problems and Potential;
1982 Aug; Helsinki. Gland, Switzerland: International Union for
conservation of Nature and Natural Resources; 1984. p. 43-53.
SCIR.
fpub/feral animals/management/SRD.

746. Weber WA. Lichenes Exsiccati. Lichenes Exsiccati, Univ.
of Colorado 1989;Fascicles 17. 18:641-700
SCIR.
fpub/lichens/botany/systematics/biogeography/endemic species/SRD.

747. Wenner AM. Incremental color change in an Anomuran
Decopod *Hippa Pacifica* Dana. Pacific Science 1972;26(3):346-353
SCIR.
fpub/Santa Cruz Island/marine biology/crustaceans/SRD.

748. Weissman DB, Rentz DC, Alexander RD, Loher W. Field
crickets (*Gryllus* and *Acheta*) of California and Baja
California, Mexico (Orthoptera: Gryllidae: Gryllinae). Trans.
American Entomological Society 1980;106:327-356 SCIR.
fpub/Santa Cruz Island/San Nicolas Island/Santa Catalina
Island/insects/entomology/SRD.

749. Walker P. A quantitative analysis of dental attrition
rates in the Santa Barbara Channel Area. Amer. Journ. Physical
Anthropology 1978;48(1):101-106 SCIR.
fpub/archaeology/anthropology/chumash/SRD.

750. Weissman DB, Rentz DC. Zoogeography of the grasshoppers
and their relatives (Orthoptera) on the California Channel Islands.
Journal of Biogeography 1976;3:105-114
SCIR.
fpub/insects/entomology/biogeography/Santa Cruz Island/SRD.

751. Weissman DB. Geographical variability in the
pericentric inversion system of the Grasshopper *Trimerotropis*
pseudofasciata. Chromosoma 1976;55:325-347
SCIR.
fpub/insects/entomology/genetics/Santa Cruz Island/SRD.

752. Haury LR. An offshore eddy in the California Current
System. IV. Plankton distributions [Zooplankton]. Prog Oceanogr.
Oxford : Pergamon Press. 1984. 1984;13(1):p.95-111
Foreign Includes references. Article.

California/Pacific Ocean/California Current/AGRICOLA.

753. Lavaniegos-Espejo BE, Lara-Lara JR. Zooplankton of the Gulf of California after the 1982-1983 El Nino event: Biomass distribution and abundance. PAC. SCI 1990;44(3):297-310. From 23 March to 7 April 1984, we studied the responses of zooplankton populations to the 1982-1983 El Nino event in the Gulf of California. Twenty six stations were sampled for zooplankton distribution and abundance. Mean displacement volume was 388 cm super(3)/1000 m super(3), a value higher than biomass values reported for the California Current and the eastern tropical Pacific. Maximum values (up to 60 mg/m super(3) of dry weight) were registered on the eastern shore of the gulf. At other stations biomass values ranged from 11.2 to 39.2 mg/m super(3). No significant differences were observed in the mean biomass of the central gulf between spring 1983 and spring 1984. However, biomass increased in the southern gulf during spring 1984. abundance/California Gulf/El Nino/biomass/distribution records/El Nino phenomena/coastal zone/ISE/California Gulf/zooplankton/ASFA.

754. Strickland JDH. Solar radiation penetration the ocean. J. Fish Res. Ed. Can. 1958;15(3):453-493
NPS/Physical oceanography/oceanography/water masses.

755. Arnold JE (Institute of Archaeology/Dept. of Anthropology, UCLA). The Santa Cruz Island Project: Research on Complex Hunter-Gatherer-Fishers of Coastal California. Society for California Archaeology, Annual Meeting; 1991; Sacramento, CA. SCIR.
fspub/anthropology/archaeology/chumash/Santa Cruz Island.

756. Yeaton RI, Laughrin L. Fall resource division in Santa Cruz Island hummingbirds. The Wilson Bulletin 1976;88(2):272-279
SCIR.
fspub/birds/ecology/SRD.

757. Kahru M (Performer: Joint Publications Research Service, Arlington, VA. Funder: National Aeronautics and Space Administration, Washington, DC.) Comparison between the Variability Structure of the Remotely Sensed Sea-Surface Temperature and Pigment Distributions. ; 1989. 10p.
In Its JPRS Report: Science and Technology. USSR: Space. 16th International Congress of the International Society for Photogrammetry and Remote Sensing, Volume 1 p 193-202. Trans. into English from International Archives of Photogrammetry and Remote Sensing (Kyoto, Japan), V. 27, p 252-260 1988. (Order as N89-28876/5, PC A12/MF A01).
The spatial variance spectra of the near-surface pigment concentrations (from the coastal zone color scanner) and the sea surface temperature (from the advanced very high resolution radiometer) are analyzed. Most of the images originate from the California Current area, and a few from the North and Baltic Seas. Plankton/Advanced very high resolution radiometer/Chlorophylls/Coastal zone color scanner/Remote sensing/Pigments/Satellite imagery/Sea surface temperature/Spectrum analysis/Temperature distribution/Translations/Foreign technology/NTIS.

758. Smith RL, Huyer A, Godfrey JS, Church JA. The Leeuwin Current off Western Australia, 1986-1987. J. PHYS. OCEANOGR 1991;VOL. 21, NO. 2:pp. 323-345 Coll. Oceanogr., Oregon State Univ., Corvallis, OR 97331-5503, USA. The Leeuwin Current in the Indian Ocean off Western Australia differs from the other major

eastern boundary currents, e.g., California Current, since it flows rapidly poleward against the prevailing equatorward wind. The first large-scale study of the Leeuwin Current was conducted between North West Cape (22 degree S) and the southwestern corner of Australia (35 degree S) from Sept 1986 to Aug 1987. As part of this Leeuwin Current Interdisciplinary Experiment (LUCIE), current meters were deployed along the shelf-edge (from 22 degree to 35 degree S) and across the shelf and upper slope (at 29.5 degree and 34 degree S), and CTD surveys were made out from the shelf at several latitudes. Except for about one month (Jan) the flow between the surface and about 250 m was strongly poleward within 100 km of the shelf-edge, with a poleward transport of about 5 Sv (Sv identical with 10 super(6) m super(3)/s). The 325-day mean currents at the shelf-edge were poleward at about 10 cm/s, opposing a mean equatorward wind stress of 0.3 dyn/cm super(2). The monthly mean current over the upper slope exceeded 50 cm/s poleward at times and had a 325-day mean of 30 cm/s; an equatorward undercurrent existed below about 300 m and had a 325-day mean of 10 cm/s at 450 m. ISW, Leeuwin Current/eastern boundary currents/Ekman transport/ocean circulation/wind stress/current observations/current direction/OCEANIC ABSTRACTS.

759. Silver MW, Bruland KW. Differential Feeding and Fecal Pellet Composition of Salps and Pteropods, and the Possible Origin of the Deep-Water Flora and Olive-Green "Cells". MAR. BIOL 1981;VOL. 62, NO. 4:pp. 263-273 Ctr. Coast Mar. Studies, Univ. California, Santa Cruz, CA 95060, USA. Salps (mainly *Salpa fusiformis* and, to a lesser extent, *Pegea socia*) and a web-building pteropod (*Corolla spectabilis*) were studied in epipelagic waters of the central California Current. Fecal pellet analysis indicated that their diet differs significantly when they feed together, probably because of differences both in the pore sizes of their nets and in their feeding methods. Since fecal pellets transport most biogenic material to the deep sea, changes in herbivore species composition at a given geographic location can change the chemistry of materials entering deep water; at the study site, the more salps, the greater the calcite flux, and, the more pteropods, the greater the silica flux. Fecal pellets of both salps and pteropods include partially digested residues of phytoplankton that appear as olive-green sheres, having an ultrastructure identical with that of the so called olive-green "cells." The feces of epipelagic herbivores the likely sources of much of the flora of the deep ocean.
Salpa fusiformis/Pegea socia/Corolla spectabilis/feeding/phytoplankton/feces/chemical composition/deep water/bathyal organisms/California Current/Pacific Ocean Northeast/OceanAbstracts.

760. HUGHES P. A DETERMINATION OF THE RELATION BETWEEN WIND AND SEA-SURFACE DRIFT. QUART. J. ROY. MET. SOC. 1956;82 PHYSICAL OCEANOGRAPHY//OCEANOGRAPHY//METEROLOGY//CURRENTS.

761. Littler MM, S. N. Murray. Influence of domestic wastes on energetic pathways in rocky intertidal communities. Journal of Applied Ecology 1978;15:583-595
An analysis of energetic pathways based on the dominant macroinvertebrate and macrophyte populations in sewage impacted and nearby unpolluted rocky intertidal communities of Wilson Cove, San Clemente Island. Includes assessments of calorific yield and gut contents of dominant populations. . . .
Marine Algae, Marine invertebrates, rocky intertidal, energetics, sewage, San Clemente Island.

- # 762. STRAUGHAN D. ECOLOGICAL CHARACTERISTICS OF SANDY BEACHES IN THE SOUTHERN CALIFORNIA BIGHT. DEVELOPMENTS HYDROBIOL. 19 1983: 441-447, ILLUSTR. ECOLOGY/COMMUNITY/COMMUNITY STRUCTURE/SPECIES DIVERSITY/BEACHES, SOUTHERN CALIFORNIA BIGHT/HABITAT/MARINE HABITAT/SUPRALITTORAL ZONE/ BEACH/SPECIES DIVERSITY, SOUTHERN CALIFORNIA BIGHT/PACIFIC OCEAN/NORTHERN PACIFIC/SOUTHERN CALIFORNIA BIGHT/SPECIES DIVERSITY, BEACHES/Zoological Index.
- # 763. Anonymous. Texaco spuds another Santa Barbara Channel well. Oil Gas J. (Tulsa) 1978;76(36):44
petroleum exploration/continental shelf/offshore geology/petroleum.
- # 764. Wenner AM. Sex ratio as a function of size in marine crustacea. Amer. Naturalist 1972;106(949):321-350
SCIR.
fspub/Santa Cruz Island/marinebiology/crustaceans/SRD.
- # 765. Wenner AM, Fusaro C, Oaten A. Size at onset of sexual maturity and growth rate in crustacean populations. Canadian Journ. Zoology 1974;52(9):1095-1106
SCIR.
fspub/marine biology/Santa Cruz Island/SRD.
- # 766. Bakus GJ, Green KD. The distribution of marine sponges collected from the 1976-1978 Bureau of Land Management Southern California Bight program. Bull. South. Acad. Sci. 1987;86(2):57-88.
MINERALS MANAGEMENT SERVICE.
- # 767. Wright MB. Growth in the Black Abalone, *Haliotis cracherodii*. The Veliger 1975;18:194-199
SCIR.
fspub/marine biology/intertidal/mollusks/Santa Cruz Island/SRD.
- # 768. Wells H. A distance coefficient as a hybridization index: an example using *Mimulus longiflorus* and *M. fleminigii* (Scrophulariaceae) from Santa Cruz Island, California. Taxon 1980;29(1):53-65
SCIR.
fspub/botany/systematics/evolution/SRD.
- # 769. Balch WM. Are red tides correlated to spring-neap tidal mixing? Use of a historical record to test mechanisms responsible for dinoflagellate blooms. Lecture Notes on Coastal and Estuarine Studies, Tidal Mixing and Plankton Dynamics 1986;17:193-223.
Hardy phytoplankton/episodic upwelling/Southern California Bight/MINERALS MANAGEMENT SERVICE.
- # 770. Westman WE. Island biogeography: studies on the xeric shrublands of the inner Channel Islands, California. Journ. Biogeography 1983;10:97-118
SCIR.
fspub/Santa Cruz Island/Anacapa Island/Santa Catalina Island/Santa Clemente Island/botany/SRD.
- # 771. Wenner AM. Field growth rate studies in Marine crustacea, with applications. . 1972. ; unpublished NSF grant proposal.
SCIR.
marine biology/SRD.
- # 772. Daily M. The Lone Woman of San Nicolas Island: a new hypothesis on her origin. California History 1989;Spring/Summer 1989:37-65

SCIR.

history/anthropology/archaeology/SRD.

773. Balcom BJ. Results of the 1975-78 BLM baseline studies and analysis programs: Subtidal benthic environments of the Southern California Bight. 1981; ecosystems/MINERALS MANAGEMENT SERVICE.

774. Hoffman R. Notes on the flora of the Channel Islands off Santa Barbara, California. Bull. Southern Calif. Acad. Sci. 1932;31(May-August):46-60 SCIR.
botany/Santa Cruz Island/Santa Rosa Island/Anacapa Island/San Miguel Island/SRD.

775. Hoffmann R. Notes on the flora of the Channel Islands off Santa Barbara, California: part II. Bull. Southern Calif. Acad. Sci. 1932;31(September-December):101-120
SCIR.
botany/Santa Cruz Island/Anacapa Island/San Miguel Island/Santa Rosa Island/SRD.

776. Haakanson JL. Condition of larval anchovy (*Engraulis mordax*) in the Southern California Bight, as measured through lipid analysis. MAR. BIOL 1989;102(2):153-159.
Northern anchovy larvae, *Engraulis mordax*, were collected on five cruises covering the Southern California Bight; one cruise in April 1984, four cruises in January, February and May 1986. There was a significant difference in each of the size-specific lipid components between the stations for four of the five cruises. This indicates that all the ocean habitats within a cruise were not equal in promoting growth (and presumably survival) in the anchovy larvae. Canonical correlation analyses revealed a significant relationship in most cases between the larval fish parameters and the physical and biological data collected from each occupied station. Cholesterol and triacylglycerol were the most important larval components, and the short-term energy storage component in the copepod *Calanus pacificus* was the most important station component.
body conditions/Teleostei/*Engraulis mordax*/Copepoda/*Calanus pacificus*/lipids/cholesterol/nutritional requirements/length-weight relationships/INE/Southern California Bight/fish larvae/ASFA.

777. Shepard F, Revelle R, Dietz RS. Ocean-bottom currents off the California coast. Science 1939;89(2317):488-489
NPS/Physical oceanography/oceanography/currents.

778. Arnold JE (Institute of Archaeology/Dept of Anthropology, UCLA). Channel Islands Production and Exchange Systems. Sixth Annual California Indian Conference and the Society for California Archaeology Data Sharing Meeting; 1990; Riverside, CA.
SCIR.
fspub/Santa Cruz Island/Chumash/anthropology/archaeology.

779. Meadows D. An annotated list of the Lepidoptera of Santa Catalina Island, California. Bull. Southern Calif. Acad Sci. 1936;35(Sept-Dec):175-179 SCIR.
entomology/insects/SRD.

780. Venkatesan MI, Kaplan IR (Performer: California Univ., Los Angeles. Inst. of Geophysics and Planetary Physics. Funder: Department of Energy, Washington, DC.) Program of Mineralization and Cycling in Marine Systems: Organic Geochemistry

of Particulates and Sediments (CaBS): Technical Progress Report, November 15, 1988-May 14, 1989. ; 1989. Report No.: DOEER603387. 3p.

Portions of this document are illegible in microfiche products. PC A02/MF A01 Contract: FG0585ER60338.

The principal objective of the current on-going project is to understand the processes involved in the cycling of organic carbon in the southern California Bight. This involves the evaluation of the relative flux of planktonic carbon to the seafloor versus the import of terrestrial carbon components and the determination of the rate of decomposition of sedimenting organic matter in the water column. These goals were achieved by the chemical characterization of sedimenting particles (from traps) as well as in the near surface sediments. The organic matter in the marine regime comprises contribution from land plants, marine productivity (plankton and bacteria) as well as anthropogenic sources. At UCLA, we have been focusing on the chemical characterization of selected classes of organic carbon compounds derived from these various sources to understand the vertical flux and the chemical composition of the particulate organic matter which are controlled by complex transport, transformation, degradation and remineralization processes.

California/Carbon Cycle/Geochemistry/Organic Compounds/Polycyclic Aromatic Hydrocarbons/Progress Report/Spatial Distribution/Coastal Waters/Sediments/ERDA/580500/NTIS.

781. Wyland RM, Thornton EB. Extremal wave statistics using three hindcasts. J. WATERWAY PORT COAST. OCEAN ENG 1991;VOL. 117, NO. 1:pp. 60-75 Dep. Oceanogr., Nav. Postgrad. Sch., Monterey, CA 93943, USA. Three hindcast wave-data sets for deep water off the central California coast region are compared using design wave-height estimates. The three independent hindcast techniques compared are from the Army Corps of Engineer's Wave Information Studies (WIS), the Navy's spectral ocean wave model (SOWM), and the Pacific Weather Analysis (PWA) model. Sampling, plotting, and distribution fitting of the three data sets are treated such that all three wave-height estimates may be compared equally. The three hindcast data sets are compared and evaluated using the 50- and 100-year significant wave-height estimates and the distribution and sampling parameters. The comparison reveals that SOWM appears to overestimate the extremal wave statistics. For the region under study, the WIS and PWA models predict similar 50- and 100-year return-period design wave heights. wave statistics/wave data/wave height/deep water/INE, USA, California, Monterey Bay/wave predicting/extreme waves/surface water waves/extreme values/Oceanic Abstracts.

782. Weller RA. Observations of the Velocity Response to Wind Forcing in the Upper Ocean. J. GEOPHYS. RES 1981;VOL. 86, NO. C3:pp. 1969-1977 Woods Hole Oceanogr. Inst., MA.

The response of the horizontal velocity field to forcing by the local wind was observed in the upper 150 m of the ocean by profiling with vector measuring current meters from the Research Platform Flip as it drifted off the coast of California in January 1977. In the mixed layer, approximately 50 m deep, motion at frequencies lower than 0.1 cph was coherent with the wind stress. Rotary cross spectral analysis showed that the shear in the surface layer was related to the local wind stress and that the structure of the response at low frequencies was similar to but did not agree completely with the predictions of simple linear, eddy viscosity models.

Wind stress/Horizontal velocity/Surface waters/Circulation processes/California Coast/Shear flow/upper ocean/OceanAbstracts.

783. HULSEMAN J, EMERY KO. STRATIFICATION IN RECENT
SEDIMENTS OF SANTA BARBARA BASIN AS CONTROLLED BY ORGANISMS AND THE
WATER CHARACTER. J. GEOL. 1961;69 PHYSICAL
OCEANOGRAPHY//OCEANOGRAPHY//WATER MASSES//BIOLOGICAL OCEANOGRAPHY.

784. Murray SN. Benthic Algae and grasses. A summary of the
knowledge of the southern California coastal zone and offshore
areas. II Biological Environment. M. D. Dailey, B. Bill, N.
Lansing, Editors. Washington, D. C.: Bureau of Land Management,
U.S. Dept. of the Interior; 1974. (; II (pp. 9-1 to 9-61)). A
review of knowledge of Southern California marine macrophytes,
including species lists for the southern California Islands.
Marine algae and grasses, .

785. SPIES R. BENTHIC-PELAGIC COUPLING IN SEWAGE-AFFECTED
MARINE ECOSYSTEMS. MARINE ENVIR. RES. 13(3) 1984: 195-230, ILLUSTR.
ANIMALS & MAN/HABITAT MODIFICATION/SEWAGE OUTFALL, EFFECTS ON
BENTHON COMMUNITY/ECOLOGY/ECOLOGICAL ENERGETICS/TROPHIC
STRUCTURE/BENTHIC/P ELAGIC COUPLING, SEWAGE OUTFALL, CALIFORNIA
(MARINE)/COMMUNITY/COMMUN ITY STRUCTURE/LIFE HABIT/AQUATIC
HABIT/BENTHON/COMMUNITY STRUCTURE & TROPHIC RELATIONS, PELAGIC
COUPLING/PACIFIC OCEAN/NORTHERN PACIFIC/ SOUTHERN CALIFORNIA
BIGHT/COMMUNITY STRUCTURE & TROPHIC RELATIONS/BEN THIC/PELAGIC
COUPLING, SEWAGE OUTFALLS/Zoological Index.

786. Anonymous. (US offshore-US West Coast). Offshore
1979;39(4):92-107 OCS oil/gas activities off southern, central, and
northern California are recapped and proposed lease sales into 1981
discussed. Emphasis is on Santa Barbara Channel developments-
including USGS oil/gas estimates, prospects for using deepwater
technology in water from 115 to 4,700 ft, and bidding interest-and
on prospects of the newest field-Beta Field in 200-ft depths in
San Pedro Bay. Other topics include the Glomar Atlantic's 1st hole
off Point Conception to =12,000 ft and the status of activities in
the Santa Ynez unit-Hondo, Pescado, and Sacate fields-and the Santa
Clara unit. Production was expected during 1979 from Platform
Hondo, Platform Grace, and Platform Henry. Channel offshore
output-1 of every 6 bbl of the California output-in Apr. 1979 was
150,000 bopd or =9,800 bopd less than 1 yr earlier. In the Beta
Field exploratory drilling activities, construction on the 80-well
Ellen and future Elly and Eureka platforms, changes in partnership,
and production estimates are recapped.
Offshore exploration/Offshore drilling/Oil and gas
operations/Offshore wells/Drilling vessels/Offshore
production/Drilling platforms/Outer continental shelves/Offshore
leases/OCS lease sales/San Pedro Bay/Beta Field/USGS
estimates/Santa Ynez and Santa Clara units/Santa Barbara
Channel/engineering/petroleum/marine technology.

787. Meadows D. An annotated list of the Lepidoptera of
Santa Catalina Island, Calif., II. Bull. Southern Calif. Acad. Sci.
1938;37(Sept-Dec):133-136 SCIR.
entomology/insects/SRD.

788. Cockerell TD. Contributions from the Los Angeles County
Museum -Channel Islands Biological Survey; No.1. Bembicid wasps
from the California Islands. Bull. Southern Calif. Acad. Sci.
1939;38(Sept-Dec):135-139 SCIR.
insects/entomology/SRD.

789. Cockerell TD. Contributions from the Los Angeles County
Museum -Channel Islands Biological Survey; No. 2. A new parasitic

bee from Santa Catalina Island. Bull. Southern Calif. Acad. Sci. 1939;38(3 (Sept-Dec)):136-137 SCIR.
insects/entomology/SRD.

790. Cockerell TD. Contributions from the Los Angeles County Museum -Channel Islands Biological Survey; No. 3. Bees obtained by the Los Angeles Museum - Channels Biological Survey. Bull. Southern Calif. Acad. Sci. 1939;38(3 (Sept-Dec)):137-140 SCIR.
insects/entomology/SRD.

791. Auguston GF. Contributions from the Los Angeles County Museum -Channel Islands Biological Survey; No. 4. A new Ixodes. Bull. Southern Calif. Acad. Sci. 1939;38(3 (Sept-Dec)):141-147 SCIR.
insects/entomology/SRD.

792. von Bloeker JC. Contributions from the Los Angeles County Museum -Channel Islands Biological Survey; No. 5. Five new melolonthid beetles. Bull. Southern Calif. Acad. Sci. 1939;38(3 (Sept-Dec)):148-151 SCIR.
insects/entomology/SRD.

793. von Bloeker JC. Contributions from the Los Angeles County Museum -Channel Islands Biological Survey; No. 6. annotated list of the Scarab beetles of the Channels. Bull. Southern Calif. Acad. Sci. 1939;38(3 (Sept-Dec)):15248-1561 SCIR.
insects/entomology/SRD.

794. Dunkle MB. Contributions from the Los Angeles County Museum - Channel Islands Biological Survey; No. 7. Revision of the Channel Islands forms of Cercocarpus. Bull. Southern Calif. Acad. Sci. 1940;39(1 (Jan-Apr)):1 SCIR.
botany/systematics/SRD.

795. Dunkle MB. Contributions from the Los Angeles County Museum - Channel Islands Biological Survey; No. 8. Ferns of the Channel Islands. Bull. Southern Calif. Acad. Sci. 1940;39(1 (Jan-Apr)):2-5 SCIR.
botany/systematics/SRD.

796. Huyer A. Coastal upwelling in the California Current system [Oregon]. Prog Oceanogr. Oxford : Pergamon Press. 1983. 1983;12(3):p.259-284 Foreign Includes references. Article. California/Oregon/AGRICOLA.

797. Montagna PA, Bauer JE, Hardin D, Spies RB. Vertical distribution of microbial and meiofaunal populations in sediments of a natural coastal hydrocarbon seep. J. MAR. RES 1989;47(3):657-680.

We studied the vertical distribution of microbes and meiofauna in natural hydrocarbon seep sediments to determine if there was a relationship between profiles of benthic trophic structure and the unique biogeochemical conditions present at the seep. Three stations in the Santa Barbara Channel represented a gradient of natural petroleum seepage, from very active, to moderate, to none. Seasonal differences were examined by sampling in the three major oceanographic seasons, upwelling (April), mixed (July), and Davidson (December). Densities of microbes and meiofauna were highest in July, and decreased in winter. All population sizes decreased with increasing depth in the sediment. Harpacticoids and

Chl a were practically restricted to the surface sediments. Harpacticoids and Chl a were more dense (number per unit volume or strata of sediment) and abundant (number per unit area of sediment or sum of the strata) at the comparison site than at the seep sites.

vertical distribution/sediments/USA/California/Santa Barbara Channel/USA/California/Santa Barbara Channel/meiobenthos/marine microorganisms/oil seepages/INE/Santa Barbara Channel/microorganisms/hydrocarbon seep/hydrocarbon seeps/ASFA.

798. Anderhalt R, Reed WE. Organic carbon and texture of benthic and intertidal sediments, southern California continental borderland. Geol. Soc. Am., Abstr. Programs. 1978;10(7):p.358 Univ. Calif., Dep. Earth and Space Sci., Los Angeles, Calif., United-States The Geological Association of Canada, The Mineralogical Association of Canada, The Geological Society of America (91st annual meeting); 1978 joint annual meeting, Toronto, Ont., Oct. 23-26, 1978 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). California/geochemistry/organic materials/abundance/sediments/clastic sediments/Southern California/continental borderland/continental shelf/textures/carbon/organic carbon/total organic carbon/grain size/statistical analysis/shelf environment/tidal environment/bathymetry/distribution/regression analysis/GEOREF.

799. Sholkovitz ER, Gieskes JM. A physical-chemical study of the flushing of the Santa Barbara basin. Limnol. Oceanogr. 1971;16(3):479-489 NPS/Physical oceanography/oceanography/currents/water masses.

800. Arnold JE (Institute of Archaeology, Dept. of Anthropology, UCLA). Economic Intensification, the Political Economy, and El Nino Events on the Prehistoric Santa Barbara Channel Islands. Society for California Archaeology, Annual Meeting; 1990; Foster City, CA. SCIR. fspub/chumash/Santa Cruz Island/archaeology/anthropology.

801. Dunkle MB. Contributions from the Los Angeles County Museum - Channel Islands Biological Survey; No. 12. New plants from the Channel Islands. Bull. Southern Calif. Acad. Sci. 1940;39(2 (May-Aug)):175-178 SCIR. botany/systematics/SRD.

802. Rieseberg L, Zona S, Abernomb L, Martin T. Hybridization in the island endemic, Catalina mahogany. CONSERV. BIOL 1989;3(1):52-58. Allozyme data, combined with traditional morphological and anatomical data, were used to evaluate the genetic status of the island endemic, *Cercocarpus traskiae* (Catalina mahogany). Comprising only seven adult plants and close to 70 seedlings, *C. traskiae* is confined to Wild Boar Gully on the southwest side of Santa Catalina Island in Los Angeles County, California. Given the evidence for hybridization described herein, the authors make two suggestions to enhance the long-term preservation of *C. traskiae*. First, it may be desirable to eliminate the single *C. betuloides* var. *blancheae* individual in Wild Boar Gully. Second, they suggest that established cuttings of true *C. traskiae* be transplanted to areas on Santa Catalina where the probability of hybridization is minimal. hybridization/genetic variance/conservation/*Cercocarpus traskiae*/USA/ California/Santa Catalina Island/endemic species/CSA

Life Sciences Collection.

803. Dalton TJ. Variation in prevalence of *Nanophyetus salmincola*, a parasite tag indicating U.S. Northwest origin, in steelhead trout (*Oncorhynchus mykiss*) caught in the central North Pacific Ocean. CAN. J. FISH. AQUAT. SCI 1991;VOL. 48, NO. 6:pp. 1104-1108
Fish. Res. Inst., Univ. Washington, Seattle, WA 98195, USA.
Infections with the parasite "tag" *Nanophyetus salmincola* indicated that in 1986 and 1987, steelhead trout (*Oncorhynchus mykiss*) from the U.S. Northwest (Washington to northern California, including Idaho) were relatively abundant in the central North Pacific Ocean as far west as 165 degree E, about 5,000-5,500 km from their area of origin. Infection prevalence (the frequency of the presence of infection) was estimated annually for specimens stratified by 5 degree -longitude areas. East-west and north-south trends in prevalence occurred in 1986 but not in 1987. Correlation analysis indicated no between-year correlation in the relative magnitude occurred in 1986 but not in 1987. Correlation analysis indicated no between-year correlation in the relative magnitude of prevalence in areas sampled in both 1986 and 1987 ($r = 0.017$). Confidence intervals (90%) for overall annual prevalence in the central North Pacific Ocean steelhead population were 29.9-61.3% (point estimate = 45.4%) for 1986 and 43.3-63.0% (point estimate = 53.2%) for 1987.
endoparasites/stock identification/*Nanophyetus salmincola*/*Oncorhynchus mykiss*/IN, Central Pacific/kidneys/OCEANIC ABSTRACTS.

804. Bruland KW, Silver MW. Sinking Rates of Fecal Pellets from Gelatinous Zooplankton (Salps, Pteropods, Doliolids). MARINE BIOL 1981;VOL. 63, NO. 3:pp. 295-300
Ctr. Coast. Marine Studies, Univ. CA, Santa Cruz.
Sinking rates were determined for fecal pellets produced by gelatinous zooplankton (salps, *Salpa fusiformis* and *Pegea socia*; pteropods, *Corolla spectabilis*; and doliolids, *Dolioletta gegenbaurii*) feeding in surface waters of the California Current. Pellets from the salps and pteropods sank at rates up to 2,700 and 1,800 m/d, respectively; such speeds exceed any yet recorded for zooplankton fecal pellets. Fecal pellets of salps were rich in organic material, with C:N ratios from 5.4 to 6.2, close to values for living plankton. The relation between volume and sinking rate indicates that salp and pteropod pellets are slightly less dense than those of pelagic Crustacea.
Feces/Sinking/Zooplankton/Tunicata/*Salpa*/*Pegea*/*Opisthobranchia*/*Gastropoda*/*Corolla*/*Thaliacea*/*Dolioletta*/California Current/S/*fusiformis*/P/*socia*/C/*spectabilis*/D/*gegenbaurii*/OceanAbstracts.

805. INMAN DL, FRAUTSCHY JD. LITTORAL PROCESSES AND THE DEVELOPMENT OF SHORELINE. 1965
PHYSICAL OCEANOGRAPHY//OCEANOGRAPHY//CURRENTS//WAVES.

806. Murray SN, M.M. Littler, Editors. Biological features of the intertidal communities near the U.S. Navy sewage outfall, Wilson Cove, San Clemente Island, California. San Diego: Naval Undersea Center; 1974. (Technical Papers Naval Undersea Center; 396: (1-85)).
Marine algae, sewage, rocky intertidal, San Clemente Island, invertebrates.

807. HAURY LR. AN OFFSHORE EDDY IN THE CALIFORNIA CURRENT SYSTEM. PART 4. PLANKTON DISTRIBUTIONS. PROGRESS OCEANOGR. 13(1) 1984: 95-111, ILLUSTR. ECOLOGY/LIFE HABIT/AQUATIC

HABIT/PLANKTON/DISTRIBUTION IN WARM CORE EDDY SYSTEM, CALIFORNIA (MARINE)/HABITAT/DISTRIBUTION WITHIN HABITAT/ PLANKTON IN WARM CORE EDDY SYSTEM, CALIFORNIA (MARINE)/PACIFIC OCEAN/ NORTHERN PACIFIC/CALIFORNIA/PLANKTON DISTRIBUTION IN WARM CORE EDDY SYSTEM/Zoological Index.

808. Anonymous. Hondo drilling delay becoming more expensive. Oil Gas J. 1979;77(30):48-50
More than 11 years have passed since Exxon acquired its federal offshore leases in the Santa Barbara channel. Under normal planning assumptions, the company anticipated beginning production from these leases more than 5 years ago. Numerous delays from federal, state, and local regulatory obstacles, however, have prevented the first barrel from being delivered. So far, it is estimated that these 5 years of delay have cost the nation over \$500 million in payments for alternative foreign crude, and each additional day of delay costs another \$350,000. The company now has over \$380 million invested in the Santa Ynez unit, and almost \$600 million in the Santa Barbara channel. The reasons for these delays including the problems associated with offshore storage and treating and water discharge and air emissions are examined.
oil production/gas production/oil exploration/gas exploration/leases/Santa Barbara Channel/petroleum/water quality/air quality/pollution/resource management.

809. Cockerell TD. Contributions from the Los Angeles County Museum -Channel Islands Biological Survey; No. 10. Bees obtained by the Los Angeles Museum - Biological Survey. Bull. Southern Calif. Acad. Sci. 1940;39(2 (May-Aug)):172-139 SCIR.
insects/entomology/SRD.

810. von Bloeker JC. Contributions from the Los Angeles County Museum -Channel Islands Biological Survey; No. 11. A new race of white footed mouse from Santa Rosa Island. Bull. Southern Calif. Acad. Sci. 1940;39(2 (May-Aug)):172-174 SCIR.
mammals/Peromyscus/SRD.

811. Pierce WD. Contributions from the Los Angeles County Museum - Channel Islands Biological Survey; No. 9. A rare myriopod from Anacapa Island compared with two Texas species. Bull. Southern Calif. Acad. Sci. 1940;39(2 (May-Aug)):15872-1714 SCIR.
arthropods/SRD.

812. Dunkle MB. Contributions from the Los Angeles County Museum - Channel Islands Biological Survey; No. 17. Supplementing paper 12. Bull. Southern Calif. Acad. Sci. 1940;39(3 (Sep-Dec)):197 SCIR.
botany/systematics/SRD.

813. Willet G. Contributions from the Los Angeles County Museum - Channel Islands Biological Survey; No. 13. A new Ischnochiton from Catalina Island. Bull. Southern Calif. Acad. Sci. 1940;39(3 (Sep-Dec)):185-186 SCIR.
marine biology/ Santa Catalina Island/SRD.

814. Barber RT, Huntsman SA, Kogelschatz JE. Coastal upwelling ecosystems analysis data report 32. Outfall I, Mescal II, Outfall II, F.S. Meteor Reise 36, El Nino watch cruise. 1976;:177.
upwelling/oceanographic surveys/marine biology/coasts/north Atlantic Ocean/north Pacific Ocean/ocean currents/oceanographic

ships/physical
properties/ecology/primary biological productivity/water
pollution/Southern California Bight/Ecuador/Peru/spanish
sahara/Mauritania/Eganhouse/chemical oceanography/Algae
spermatophytes Bray Murray/Hickey/physical oceanography/MINERALS
MANAGEMENT SERVICE.

815. Clarke JFG. Contributions from the Los Angeles County
Museum - Channel Islands Biological Survey; No. 14. A new species
of Arachnis from California (Lepidoptera: Arctiidae). Bull.
Southern Calif. Acad. Sci. 1940;39(3 (Sep-Dec)):187-188
SCIR.
entomology/insects/Anacapa Island/endemic species/SRD.

816. Barcelona M, Cummings LC, Lieberman SH, Fastenau HS,
North WJ. Marine farming the coastal zone: Chemical and
hydrographic considerations. Calif. Coop. Oceanic Fish. Invest.
Rep. 1982;23:180-187.
Marine aquaculture/hydrography/chemical oceanography/kelps
pollution effects/coastal zone/upwelling/nutrients/INE/Southern
California Bight/INE/USA/California/Macrocystis pyrifera/algae
Hood/ecosystem/Bray/Murray/spermatophytes/Reish/Anderson/anthropo
genic/Eganhouse e/geochemistry/MINERALS MANAGEMENT SERVICE.

817. Comstock JA, Henne C. Contributions from the Los
Angeles County Museum - Channel Islands Biological Survey; No. 15.
A comparison of the larvae of Arachnispicta insularis and Arachnis
picta maia. Bull. Southern Calif. Acad. Sci. 1940;39(3 (Sep-
Dec)):189-190
SCIR.
entomology/insects/Anacapa Island/endemic species/SRD.

818. Timberlake FH. Contributions from the Los Angeles
County Museum -Channel Islands Biological Survey; No. 16. New or
little known California bees. Bull. Southern Calif. Acad. Sci.
1940;39(3 (Sep-Dec)):190-196 SCIR.
entomology/insects/bees/SRD.

819. Pierce WD. Contributions from the Los Angeles County
Museum - Channel Islands Biological Survey; No. 18. A
strepsipterous parasite of a leaf hopper with descriptions of
related species from the same host genus. Bull. Southern Calif.
Acad. Sci. 1941;40(1 (Jan-Apr)):1-10
SCIR.
entomology/insects/Anacapa Island/SRD.

820. PROPOSED SOUTHERN CALIFORNIA LEASE OFFERING, FEBRUARY
1984. LOS ANGELES, CALIFORNIA DEPARTMENT OF THE INTERIOR, MINERALS
MANAGEMENT SERVICE JUNE 1983 (EPA: JUNE 17, 1983) 641 PAGES 1983
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Monograph ENV.
PURSALE OF OIL AND GAS DEVELOPMENT LEASES ON 11.6 MILLION ACRES OF
OUTER CONTINENTAL SHELF LANDS IN THE PACIFIC OCEAN OFF SOUTHERN
CALIFORNIA IS PROPOSED. LEASE AREAS ARE LOCATED IN THE SANTA
BARBARA CHANNEL, INNER BASIN, AND OUTER BASIN AND BANKS AREAS.
DEVELOPMENT OF THE LEASED AREAS UNDER THE PREFERRED SCHEME WOULD
INVOLVE 44 TO 154 EXPLORATORY WELLS BETWEEN 1984 AND 1988, 55 TO
186 DELINEATION WELLS BETWEEN 1985 AND 1989, 215 TO 950 DEVELOPMENT
WELLS BETWEEN 1989 AND 1994 OR 1998, 7 TO 27 PLATFORMS BETWEEN 1989
AND 1991 OR 1995, 75 TO 423 MILES OF PIPELINE BETWEEN 1989 AND 1991
OR 1995, AND 6 TO 30 SUBSEA COMPLETIONS BETWEEN 1992 AND 1995 OR

1997. OIL AND GAS PRODUCTION WOULD BEGIN IN 1989 AND CONTINUE THROUGH 2008. ALL HIGH AND LOW DEVELOPMENT ESTIMATES WERE PRODUCED ACCORDING TO EXTREMES IN THE ESTIMATES OF AVAILABLE RESOURCES IN THE AREA. ESTIMATES FOR TOTAL HYDROCARBON RESOURCES RANGE FROM 320 MILLION TO 1.55 TRILLION BARRELS OF OIL AND 640 TRILLION TO 3,680 TRILLION CUBIC FEET OF GAS. POSTDEVELOPMENT OF OIL AND GAS RESOURCES WITHIN THE LEASE AREAS WOULD ENHANCE THE NATION'S ABILITY TO PROVIDE FOR ITS OWN HYDROCARBON NEEDS, REDUCING DEPENDENCE ON FOREIGN SOURCES OF OIL AND GAS. DEVELOPMENT ACTIVITIES WOULD ALSO EMPLOY SIGNIFICANT NUMBERS OF PERSONS IN THE SOUTHERN CALIFORNIA AREA. NEGWATER QUALITY IN THE VICINITY OF EXPLORATORY AND DEVELOPMENT ACTIVITIES WOULD BE DEGRADED, AND SOME SPILLING OF OIL WOULD BE EXPECTED. SHORT-TERM CONCENTRATIONS OF NITROGEN DIOXIDE COULD EXACERBATE VIOLATIONS OF STATE AIR QUALITY STANDARDS. PIPELINE CONSTRUCTION COULD DEGRADE INTERTIDAL AREAS AT EL SEGUNDO AND OCEANSIDE, AND PURPLE CORAL AND OTHER REEF RESOURCES ON TANNER AND CORTES BANKS COULD BE DAMAGED. EXPANSION OF HARBOR FACILITIES NEEDED TO ACCOMMODATE INCREASED VESSEL ACTIVITY WOULD CAUSE SIGNIFICANT LAND USE CHANGES. SIGNIFICANT ALTERATION OF MILITARY OPERATIONS WOULD BE REQUIRED DUE TO DEVELOPMENT STRUCTURES AND ACTIVITIES. LEGOUTER CONTINENTAL SHELF LANDS ACT OF 1953 (43 U.S.C. 1331 ET SEQ.).

CALIFORNIA/PACIFIC OCEAN/SANTA BARBARA CHANNEL/AIR QUALITY STANDARDS VIOLATIONS/CONTINENTAL SHELVES/EMPLOYMENT/FISHERIES/HISTORIC SITES SURVEYS/IMPACT ASSESSMENT METHODOLOGY/LEASING/MILITARY OPERATIONS JOINT/NATURAL GAS/OIL PRODUCTION/OIL SPILLS/PIPELINES/REEFS/OUTER CONTINENTAL SHELF LANDS ACT OF 1953 PROJECT AUTHORIZATION/AGRICOLA.

821. Haakanson JL. The condition of larval anchovy (*Engraulis mordax*) in the southern California Bight, as measured through lipid analysis. THE EARLY LIFE HISTORY OF FISH. THE THIRD ICES SYMPOSIUM, BERGEN, 3-5 OCTOBER 1988.; RAPP. P.-V. REUN. CIEM 1989;191:p.459.

Anchovy (*Engraulis mordax*) larvae were reared in the laboratory under a variety of food regimes and the triacylglycerol, cholesterol, and polar lipid contents of individual larvae were measured. A comparison with field-caught larvae showed that a "standard" laboratory rearing produced larvae of much too great a lipid content. Larvae could be reared in the laboratory to be similar to the field animals, but this required a very low food concentration. When groups of larvae were starved the triacylglycerol component was most labile and decreased first. All ocean habitats were not equal in promoting growth (and presumably survival) in the anchovy larvae. Canonical correlation analyses showed a significant relationship in most cases between the larval fish parameters and station data. Cholesterol was the component in the larvae that was most important for the relationship. The most important parameter was the short-term energy storage component in the copepod *Calanus pacificus* (triacylglycerol).

lipids/bioenergetics/*Engraulis mordax*/biochemical composition/diets/INE/USA/California Bight/fish larvae/dietary effects/ASFA.

822. Watson RDI, Henry MEI, Theisen AFI, DOnovan TJI, Hemphill WRI. Detection of marine oil slicks as a petroleum exploration tool. U. S. Geol. Surv., Prof. Pap. 1978(1100):p.23 Analytic; Serial; Abstract B; Bibliography and Index of Geology (1969-present). California/economic geology/petroleum/sea water/geochemistry/hydrocarbons/exploration/Santa Barbara Channel/GEOREF.

823. Smith PE. Distributional atlas of zooplankton volume in

the California Current region, 1951 through 1966. CalCOFI Atlas 13 1971:ii-xvi NPS/Physical oceanography/oceanography/currents/water masses.

824. Arnold JE (Institute of Archaeology, Dept. of Anthropology, UCLA). The Emergence of a Complex Political Economy and Linkage to Environmental Stress in Prehistoric Coastal California. Society for American Archaeology, Annual Meeting; 1990; Las Vegas, Nevada.

SCIR.

fspub/chumash/archaeology/anthropology/Santa Cruz Island.

825. Comstock JA, Dammers CM. Contributions from the Los Angeles County Museum - Channel Islands Biological Survey; No. 19. *Ctenucha brunnea* Stretch, on Santa Rosa Island. Bull. Southern Calif. Acad. Sci. 1941;40(1 (Jan-Apr)):11-12 SCIR. entomology/insects/arctiid moth/SRD.

826. Gunn JT, Hamilton P, Herring HJ, Kantha LH, Lagerloef GSE (Performer: Dynalysis of Princeton, NJ. Performer: Science Applications International Corp., Bellevue, WA. Funder: Minerals Management Service, Los Angeles, CA. Pacific OCS Region.) Santa Barbara Channel Circulation Model and Field Study. Volume 2. ; 1987. Report No.: OCSMMS870090. 224p.

See also Volume 1, PB89-213540. Prepared in cooperation with Science Applications International Corp., Bellevue, WA. Sponsored by Minerals Management Service, Los Angeles, CA. Pacific OCS Region. PC A10/MF A01 Contract: DI1412000129123.

The research program consists of two major elements: (1) a Pilot Program in the spring of 1983 to verify that the length and time scales of the observational and modelling components were representative of the circulation in the Channel and to gain experience in synthesizing the results of the two efforts, and (2) a Main Program spanning 1984 to provide a complete physical oceanographic description of the Channel both spatially and temporally. The model represented monthly and seasonal mean circulation well and the basin wide features were in agreement with the observations. The observational data and computational data have been synthesized to provide a comprehensive view of the physical oceanography of the Channel during 1984.

Mathematical models/Boundary layer

flow/Turbulence/Stresses/Equations of motion/Periodic variations/Spatial distribution/Circulation/Santa Barbara Channel/Southern Region California/NTIS.

827. Kvitek RG, Shull D, Canestro D, Bowlby EC, Troutman BL. Sea otters and benthic prey communities in Washington State. MAR. MAMM. SCI 1989;VOL. 5, NO. 3:pp. 265-280

Dep. Zool., NJ-15, Univ. Washington, Seattle, WA 98195, USA. An Aug 1987 benthic survey of otter-free and otter-occupied areas along the outer coast of Washington State's Olympic Peninsula confirms that this area has been as profoundly influenced by sea otters (*Enhydra lutris*) as other rocky, nearshore communities studied in California, Canada, and Alaska, Prey density, size and biomass were negatively correlated with sea otter abundance, suggesting that re-introduction of sea otters to this area in 1969-1970 has profoundly affected invertebrate prey abundance and distribution, particularly that of the red sea urchin, *Strongylocentrotus franciscanus*. Red urchin distribution appears to influence algal groups differently and in a manner consistent with current otter/urchin/kelp theory. Foliose red algal abundance was negatively related to urchin numbers and coralline crusts were positively correlated. Aerial photographs of *Macrocystis integrifolia* cover at Cape Alava suggest

in increase since the introduction of sea otters. Range expansion to the north may lead to possible conflicts with an increasing sea urchin fishery and Native American set net activity. population dynamics/abundance/food availability/prey/benthos/prey selection/population density/Enhydra lutris/Strongylocentrotus franciscanus/Macrocystis integrifolia/INE, USA, Washington, Olympic Peninsula/food chains/community composition/introduced species/kelps/aerial photographs/Corallinaceae/OCEANIC ABSTRACTS.

828. JENNINGS FD, SCHWARTZLOSE RA. MEASUREMENTS OF THE CALIFORNIA CURRENT IN MARCH 1958. DEEP SEA RES. 1960;7 PHYSICAL OCEANOGRAPHY//OCEANOGRAPHY//CURRENTS.

829. Murray SN, M.M. Littler. Patterns of algal succession in a perturbed marine intertidal community . Journal of Phycology 1978;14:506-512 Marine algae, San Clemente Island, Succession, Sewage.

830. GREENBLATT PR, FENG DF, ZIRINO A, LOSEE JR. OBSERVATIONS OF PLANKTONIC BIOLUMINESCENCE IN THE EUPHOTIC ZONE OF THE CALIFORNIA CURRENT. MARINE BIOL., BERL. 84(1) 1984: 75-82, ILLUSTR. WHOLE ANIMAL PHYSIOLOGY/CYCLICAL FUNCTIONS/DIURNAL FUNCTIONS/PLANKTON LUMINESCENCE, DISTRIBUTION & COLOUR, CALIFORNIA (MARINE)/LUMINESCENCE/PLANKTON, DAILY VARIATION IN DISTRIBUTION & COLOUR, CALIFORNIA (MARINE)/ECOLOGY/LIFE HABIT/AQUATIC HABIT/PLANKTON/LUMINESCENCE, DAILY VARIATION IN DISTRIBUTION & COLOUR/HABITAT/DISTRIBUTION WITHIN HABITAT/PLANKTON LUMINESCENCE, CALIFORNIA (MARINE)/BEHAVIOUR/ACTIVITY PATTERNS/CYCLICAL ACTIVITY/DIEL ACTIVITY PATTERN/PACIFIC OCEAN/NORTHERN PACIFIC/CALIFORNIA CURRENT/PLANKTON LUMINESCENCE, DAILY VARIATION IN DISTRIBUTION & COLOUR/Zoological Index.

831. Anonymous. Southern California continental borderland and extraction of natural resources. R.L. Friedheim. Managing ocean resources; a primer. : Westview Press; 1979. 45-50. Address: Univ. South. Calif., Los Angeles, Calif. oceanography/ocean floors/continental borderland/mineral resources/submarine canyons/marine geology/Los Angeles Basin/Cortez Bank/San Pedro Basin/California Channel Islands/San Diego Trough/Santa Monica Basin/Santa Barbara Basin/San Miguel Gap/Santa Cruz Basin/marine geology/oceanography.

832. Auguston GF. Contributions from the Los Angeles County Museum -Channel Islands Biological Survey; No. 20. Three new fleas. Bull. Southern Calif. Acad. Sci. 1941;40(1 (May-Aug)):101-107 SCIR. entomology/insects/Santa Barbara Island/Peromyscus/Santa Rosa Island/Santa Cruz Island/Antrozous/bats/SRD.

833. Dunkle MBF. Contributions from the Los Angeles County Museum - Channel Islands Biological Survey; No. 21. Two new plants from the Channel Islands of California. Bull. Southern Calif. Acad. Sci. 1941;40(1 (May-Aug)):108 SCIR. botany/San Clemente Island/Santa Rosa Island/SRD.

834. von Bloeker JC. Contributions from the Los Angeles County Museum -Channel Islands Biological Survey; No. 22. A new subspecies of white-footed mouse from the Anacapa Islands, California. Bull. Southern Calif. Acad. Sci. 1941;40(3 (Sept-Dec)):161-162 SCIR. Peromyscus/deermice/mammals/SRD.

835. von Bloeker JC. Contributions from the Los Angeles County Museum -Channel Islands Biological Survey; No. 23. A new shrew from Santa Catalina Island, California. Bull. Southern Calif. Acad. Sci. 1941;40(3 (Sept-Dec)):163-164 SCIR.
mammals/SRD.

836. Comstock JA, Henne C. Contributions from the Los Angeles County Museum - Channel Islands Biological Survey; No. 24. The larva and pupa of *Trichoclea edwardsi*. Bull. Southern Calif. Acad. Sci. 1941;40(3 (Sep-Dec)):165-166 SCIR.
moths/entomology/insects/San Nicolas Island/SRD.

837. Comstock JA. Contributions from the Los Angeles County Museum -Channel Islands Biological Survey; No. 26. A new race of *Arachnis picta* from Santa Catalina Island. Bull. Southern Calif. Acad. Sci. 1942;41(2 (May-Aug)):83-85 SCIR.
moths/entomology/insects/SRD.

838. Meadows D. Contributions from the Los Angeles County Museum - Channel Islands Biological Survey; No. 25. A new phalaenid moth from the Channel Islands. Bull. Southern Calif. Acad. Sci. 1942;41(2 (May-Aug)):81-82 SCIR.
moths/entomology/insects/San Clemente Island/SRD.

839. Dunkle MB. Contributions from the Los Angeles County Museum - Channel Islands Biological Survey; No. 27. Flora of the Channel Islands National Monument. Bull. Southern Calif. Acad. Sci. 1942;41(3 (Sep-Dec)):125-137 SCIR.
botany/Anacapa Island/Santa Barbara Island/SRD.

840. Jenkins KD, Brown DA, Hershelman GP, Meyer WC. Contaminants in white croakers *Genyonemus lineatus* (Ayres, 1855) from the southern California bight. I. Trace metal detoxification/toxification Fish. Physiological mechanisms of marine pollutant toxicity / edited by W.B. Vernberg. . et al. New York : Academic Press, 1982. ; 1981. p. p.177-196.
Other-US Literature review. Includes references. Article.
California/Marine Areas/AGRICOLA.

841. Kelly KA. Comment on "Empirical orthogonal function analysis of advanced very high resolution radiometer surface temperature patterns in Santa Barbara channel" by G.S.E. Lagerloef and R.L. Bernstein. J. GEOPHYS. RES. (C OCEANS) 1988;93(C12):15753-754.
remote sensing/radiometers/surface radiation
temperature/temperature measurement/INE/Santa Barbara
Channel/eigenfunctions/nearshore dynamics/empirical orthogonal functions/ASFA.

842. Peltzer ETI, Bada JL. Low molecular weight organic acids in reducing sediments. Geol. Soc. Am., Abstr. Programs. 1977;9(7):p.1128 Scripps Inst. Oceanogr., La Jolla, Calif., United-States The Geological Society of America, 90th annual meeting, Seattle, Wash., Nov. 7-9, 1977 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).
Pacific Ocean/geochemistry/organic materials/Caribbean Sea/sediments/extraction/glycolic acid/lactic acid/oxalic acid/succinic acid/pyruvic acid/Santa Barbara Basin/Deep Sea Drilling Project/Leg 15/Site 147/amino acids/GEOREF.

843. Smith RL. Upwelling. Ann. Rev. Oceanography and Marine

Biology 1968;6:11-46

NPS/Physical oceanography/oceanography/currents/water masses.

844. Hammond JG, Weigand P, Dybel B (Dept. of Physical Sciences, Pasadena City College/Dept. of Geological Sciences, Calif. St. Univ. Northridge). Petrologic character of the Willows plutonic complex, Santa Cruz Island, California. Geological Society of America, Annual Meeting; 1991; San Diego, CA. Abstracts with Programs. p. No. 5019.

SCIR.

fspub/geology/Santa Cruz Island.

845. Dunkle MB. Contributions from the Los Angeles County Museum - Channel Islands Biological Survey; No. 28. Three new plants from San Clemente Island. Bull. Southern Calif. Acad. Sci. 1943;42(1 (Jan-Apr)):31-33 SCIR.

botany/SRD.

846. Bennett S. Medically important and other ectoparasitic acarines on vertebrates from Santa Catalina island, California. BULL. SOC. VECTOR ECOL 1987;12(2):534-538.

This represents a preliminary study of ectoparasitic acarines from Santa Catalina. Host, date, and locality data for all records are presented. parasites/Acarina/surveys/medical

importance/USA/California/Santa Catalina Island/Vertebrata/CSA Life Sciences Collection.

847. Blumberg AF, Cover DE, Gunn JT, Hamilton P, Herring HJ (Performer: Dynalysis of Princeton, NJ. Performer: Science Applications International Corp., Bellevue, WA.

Funder: Minerals Management Service, Los Angeles, CA. Pacific OCS Region.) Santa Barbara Channel Circulation Model and Field Study. Appendix A: Pilot Program. ; 1987. Report No.: OCSMMS870091. 163p.

See also PB89-213557. Prepared in cooperation with Science Applications International Corp., Bellevue, WA. Sponsored by Minerals Management Service, Los Angeles, CA. Pacific OCS Region. PC A08/MF A01 Contract: DI1412000129123. Results from the Pilot Program are analyzed and the conditions in the Santa Barbara Channel during the spring of 1983 are described. Based on these findings, a set of plans and recommendations for the Main Program is presented. The oceanographic and meteorological characteristics that existed in the Channel during May and June of 1983 are described in terms of the water mass field, wind field, currents, tides and a single noteworthy synoptic event. The results are used to infer the typical spatial and temporal scales, flushing rate, wind patterns, current structure, volume transport, and tidal behavior. The report concludes with recommendations for the methods of comparing and synthesizing observational and computational results. Sensitivity studies for tidal modelling, meteorological effects and boundary forcing are proposed.

Oceanographic surveys/Water masses/Ocean currents/Wind Meteorology/Tides/Flushing/Environmental transport/Meteorological data/Oceanographic data/Circulation/Santa Barbara Channel/Southern Region California/NTIS.

848. Watanabe JM, Harrold C. Destructive grazing by sea urchins *Strongylocentrotus* spp. in a central California kelp forest: Potential roles of recruitment, depth, and predation. MAR. ECOL. PROG. SER 1991;VOL. 71, NO. 2:pp. 125-141

Monterey Bay Aquarium, 886 Cannery Row, Monterey, CA 93940-1085, USA. In January 1986, a sea-urchin mediated deforestation began in Carmel Bay, California, USA, near the center of the California sea otter's range. The deforestation occurred on an offshore rocky reef

where depths range from 17 to > 30 m. Both purple (Strongylocentrotus purpuratus) and red (S. franciscanus) sea urchins were abundant and probably belonged to a cohort that settled in 1984. By October 1986, nearly all non-crustose algae had been removed, as were most sessile invertebrates. Populations of red sea urchins at the deforested site remained fairly stable, but purple sea urchins declined to zero by July 1989. Algal spores were available during the deforestation, but recruitment of seaweeds did not occur until after sea urchin abundance had declined. grazing/Strongylocentrotus/kelps/recruitment/sessile species/food availability/natural mortality/ecological balance/INE, USA, California, Carmel Bay/Strongylocentrotus purpuratus/Strongylocentrotus franciscanus/abundance/deforestation of reefs/Oceanic Abstracts.

849. Parker BC, E. Y. Dawson. Notes on variability and range in the elk kelp, Pelagophycus. Transactions of the San Diego Society of Natural History 1964;13:301-308
Report on elk kelp based on collections and observations on Santa Catalina Island. Marine algae, Santa Catalina Island, elk kelp, Pelagophycus.

850. PICQUELLE SJ, HEWITT RP. THE NORTHERN ANCHOVY SPAWNING BIOMASS FOR THE 1982-83 CALIFORNIA FISHING SEASON. REPORT CALIF. COOP. OCEANIC FISH. INVEST. 24 1983: 16-28, ILLUSTR.
* PISCES ** SUPERCLASS GNATHOSTOMATA *** CLASS TELEOSTOMI **** DIVISION TELEOSTEI ***** SUPERORDER CLUPEOMORPHA ***** CLUPEIFORMES ***** SUBORDER CLUPEOIDEI ***** ENGRAULIDAE ***** ENGRAULIS MORDAX.
TECHNIQUES/ECOLOGICAL TECHNIQUES/POPULATION DENSITY MEASUREMENT/SPAWNING BIOMASS, CALIFORNIA (MARINE)/REPRODUCTION/REPRODUCTIVE BEHAVIOUR/SPAWNING/EGG PRODUCTION ESTIMATES, CALIFORNIA (MARINE)/ECOLOGY/ECOLOGICAL ENERGETICS/BIOMASS/SPAWNING, CALIFORNIA (MARINE)/POPULATION STUDY/POPULATION CENSUSES/PACIFIC OCEAN/NORTHERN PACIFIC/SOUTHERN CALIFORNIA BIGHT/SPAWNING BIOMASS, POPULATION CENSUS/Zoological Index.

851. Anonymous. U.S. offshore sale plan averages five a year. Oil Gas J. 1979;77(12):72
The USA plans a leasing program extending into 1985 and averaging five offshore sales a year with emphasis on the Gulf of Mexico and Alaska. The announcement of the tentative schedule carries a warning that the Department of the Interior expects timely development of any leases sold. The program will attempt to involve all offshore areas of the country in petroleum development. The new law also imposes many environmental safeguards which previously were imposed by regulations and lease terms. The draft schedule proposes this timing for sales: (a) 1980, four sales - two in the Gulf of Mexico and one each in the Gulf of Alaska and the adjoining Kodiak area. (b) 1981, five sales - one each in the South Atlantic, Cook Inlet, Gulf of Mexico, Mid-Atlantic, and off northern and central California. (c) 1982, five sales - two in the Gulf of Mexico and one each in the Santa Barbara Channel, North Atlantic, and Norton basin. (d) 1983, five sales - two in the Gulf of Mexico and one each off southern California, in the Beaufort Sea, and the Mid-Atlantic. (e) 1984, six sales - two in the Gulf of Mexico and one each in the Blake Plateau, Cook Inlet, North Atlantic, and off northern and central California. (f) 1985, one sale in the Navarin basin off western Alaska. leases/oil and gas exploration/drilling/Gulf of Mexico/Alaska/Santa Barbara Channel/petroleum.

- # 852. Wilcox J, Martin CH. Contributions from the Los Angeles County Museum - Channel Islands Biological Survey; No. 29. Robber flies (Diptera: Asilidae). Bull. Southern Calif. Acad. Sci. 1945;44(1 (Jan-Apr)):10-17 SCIR.
insects/entomology/Santa Rosa Island/San Nicolas Island/Santa Barbara Island/San Clemente Island/Santa Cruz Island/SRD.
- # 853. Willet G. Contributions from the Los Angeles County Museum - Channel Islands Biological Survey; No. 30. Remarks on some resident birds of the Santa Barbara Islands. Bull. Southern Calif. Acad. Sci. 1945;44(2 (May-Aug)):51-54 SCIR.
Hummingbirds/song sparrows/San Clemente/Santa Catalina/Santa Barbara Island/Santa Rosa Island/Santa Cruz Island/Anacapa Island/SRD.
- # 854. Hilton W. Contributions from the Los Angeles County Museum - Channel Islands Biological Survey; No. 31. An Aneides lugubris from Catalina Island. Bull. Southern Calif. Acad. Sci. 1945;44(21 (May-Aug)):54-56
SCIR.
amphibians/Santa Catalina Island/SRD.
- # 855. Hilton WA. Contributions from the Los Angeles County Museum - Channel Islands Biological Survey; No. 32. Distribution of the genus *Batrachoseps*, especially on the coastal islands of southern California. Bull. Southern Calif. Acad. Sci. 1945;44(3 (Sep-Dec)):101-129
SCIR.
amphibians/slender salamanders\Santa Catalina Island/Santa Rosa Island/Santa Cruz Island/Anacapa Island/San Miguel Island/SRD.
- # 856. Comstock JA. Contributions from the Los Angeles County Museum -Channel Islands Biological Survey; No. 33. Brief notes on the expeditions conducted between March 16, 1940 and December 14, 1941. Bull. Southern Calif. Acad. Sci. 1946;45(2 (May-Aug)):94-107
SCIR.
Santa Cruz Island/Santa Catalina Island/Santa Barbara Island/Santa Rosa Island/Anacapa Island/San Nicolas Island/SRD.
- # 857. Kanakoff GP. Contributions from the Los Angeles County Museum -Channel Islands Biological Survey; No. 34. Some observations on the land snails of San Clemente Island. Bull. Southern Calif. Acad. Sci. 1950;49(3 (Sep-Dec)):79-896
SCIR.
San Clemente Island/SRD.
- # 858. Stager KE, Reeder. W. G. Contributions from the Los Angeles County Museum - Channel Islands Biological Survey; No. 35. Occurrence of the False Killer Whale, *Pseudorca*, on the California coast. Bull. Southern Calif. Acad. Sci. 1951;50(1 (Jan-Apr)):14-206
SCIR.
San Nicolas Island/marine mammals/SRD.
- # 859. Lee RD, Ryckman E, Ryckman R, Christianson CP. a note on several species of aquatic hemiptera from Santa Catalina Island, California. Bull. Southern Calif. Acad. Sci. 1955;54(1 (Jan-Apr)):20-21
SCIR.
insects/entomology/SRD.
- # 860. Brown DA, Gossett RW, Jenkins KD. Contaminants in white croakers *Genyonemus lineatus* (Ayres, 1855) from the southern

California bight. II. Chlorinated hydrocarbon detoxification/toxication Fish. Physiological mechanisms of marine pollutant toxicity / edited by W.B. Vernberg. . et al. New York : Academic Press, 1982. ; 1981. p. p.197-213.
Other-US Literature review. Includes references. Article.
California/Marine Areas/AGRICOLA.

861. Butler JL. Growth during the larval and juvenile stages of the northern anchovy, *Engraulis mordax* , in the California Current during 1980-84. FISH. BULL 1989;87(3):645-652.
Increment widths and back-calculated growth rates for northern anchovy, *Engraulis mordax* , did not differ during the years 1980-84. This evidence of stable larval growth rates does not support the theory that it is the variation in larval growth rates that directly affects the magnitude of recruitment. Furthermore, since growth rates remained stable, even though zooplankton volumes in 1983 were well below the long-term mean, it follows that surviving post-feeding larval anchovies may not be food limited. The size of juvenile northern anchovy was reduced during the 1982-83 El Nino "phenomenon" in the California Current. Mean lengths of anchovy juveniles collected in the fall were greatest in 1980, least in 1982, and intermediate in 1981, 1982, and 1984.
Pacific Ocean/California Current/El Nino/Engraulis mordax/INE/California Current/ISE/California Current/growth/ASFA.

862. Snodgrass FE, Munk WH, Miller GR. Long period waves over California's continental borderland, Part I. J. Mar. Res. 1962;20(1):3-30 NPS/Physical oceanography/oceanography/waves.

863. Tissot BN (Oregon State University, Corvallis, Ore.) Patterns of Growth in Black Abalone during Mass Mortality in Southern California. Western Society of Naturalists, 72nd Annual Meeting; 1991 Dec 27; Santa Barbara, CA. Program and Abstracts. p. p. 41.
SCIR.
fspub/molluscs/Santa Cruz Island/marine biology/El Nino/intertidal/.

864. Arnold JE. Channel Islands Archaeological Research Project. Backdirt 1990;1990:2
SCIR.
fspub/chumash/archaeology/anthropology/SRD.

865. McCosker J. Freshwater eels (family Anguillidae) in California: Current conditions and future scenarios. CALIF. FISH GAME 1989;75(1):4-10. Exotic freshwater eels of the genus *Anguilla* (family Anguillidae) have been found in California in increasing numbers, probably the result of their accidental and/or intentional release. Increasing consumption of freshwater eels has engendered plans for largescale introduction of living eels, requiring an investigation of hazards associated with their introduction as adults or juveniles destined for growout facilities. The life history of several *Anguilla* species is summarized and discussed, suggesting that their escapement, possible establishment, predation upon and competition with the native fauna, and disease introduction are likely events if importation of live eels continues. indigenous
species/Pisces/predation/competition/introduced
species/synopsis/transplantation/fish
culture/risks/Anguilla/USA/California/exotic species/effects on/CSA
Life Sciences Collection.

866. Gunn JT, Hamilton P, Herring HJ, Kantha LH, Lagerloef

GSE (Performer: Dynalysis of Princeton, NJ. Performer: Science Applications International Corp., Bellevue, WA. Funder: Minerals Management Service, Los Angeles, CA. Pacific OCS Region.) Santa Barbara Channel Circulation Model and Field Study. Appendix C: Observational Data. C.1: Hydrography. ; 1987. Report No.: OCSMMS870093. 125p.

See also PB89-213573. Prepared in cooperation with Science Applications International Corp., Bellevue, WA. Sponsored by Minerals Management Service, Los Angeles, CA. Pacific OCS Region. PC A06/MF A01 Contract: DI1412000129123. The research program consists of a Main Program spanning 1984 to provide a complete physical oceanographic description of the Channel both spatially and temporally. Four comprehensive and one abbreviated hydrographic surveys were carried out during the Main Program of the Field Study. The Appendix contains hydrographic data products from the results of each of these surveys. Vertical sections of temperature, salinity and sigma-t are presented first. These are followed by maps of surface temperature and temperature and salinity contours on various surfaces of constant sigma-t. Finally, contours of dynamic heights relative to various levels of no motion are shown. Oceanographic surveys/Ocean temperature/Salinity/Conductivity/Ocean waves/Height/Oceanographic charts/Circulation/Oceanographic data/Santa Barbara Channel/Southern Region California/NTIS.

867. Bowlby MR, Widder EA, Case JF. Disparate forms of bioluminescence from the amphipods *Cyphocaris faurei*, *Scina crassicornis* and *S. borealis*. MAR. BIOL 1991;VOL. 108, NO. 2:pp. 247-253

Dep. Neurobiol., Harvard Med. Sch., 220 Longwood Ave., Boston, MA 02115, USA. Bioluminescence from the gammarid amphipod *Cyphocaris faurei* and the hyperiid amphipods *Scina crassicornis* and *Scina borealis* was measured with a photomultiplier coupled to an integrating sphere, and with a video camera. *C. faurei* and *S. crassicornis* were collected in Jul 1986 and 1987 off Oahu, Hawaii; *S. crassicornis* was also collected in May 1987 in the northern Sargasso Sea, and in Oct 1988 north of Hawaii, and *S. borealis* was obtained in Sep 1989 off the southern California coast. Emission spectra were obtained with an optical multichannel analyzer. Bioluminescence of *C. faurei* appeared as a secretion through integumentary pores on the telson and uropods, and as a glow from a single location on the cephalothorax. The emission spectrum was bimodal or unimodal, with distinct blue-green and orange peaks. bioluminescence/spectral composition/mechanical stimuli/Amphipoda/*Cyphocaris faurei*/*Scina crassicornis*/*Scina borealis*/ASW, Sargasso Sea/ISE, USA, Hawaii, Oahu/INE, USA, California/marine crustaceans/Oceanic Abstracts.

868. Silva PC. The genus *Codium* in California with observations on the structure of the walls of the utricles. Univer. Calif. Publ. Bot. 1951;25:79-114 includes some distributional information on *Codium* on the Southern California Islands. Marine algae, *Codium* .

869. MCLAIN DR, THOMAS DH. YEAR-TO-YEAR FLUCTUATIONS OF THE CALIFORNIA COUNTER CURRENT AND EFFECTS ON MARINE ORGANISMS. REPORT CALIF. COOP. OCEANIC FISH. INVEST. 24 1983: 165-181, ILLUSTR. ENVIRONMENTAL FACTORS/PHYSICAL ENVIRONMENT/WATER/CALIFORNIA COUNTER CURRENT FLUCTUATIONS, EFFECTS ON PLANKTON/ECOLOGY/POPULATION STUDY/POPULATION DYNAMICS/PLANKTON, EFFECTS OF COUNTER CURRENT FLUCTUATIONS, EASTERN PACIFIC/LIFE HABIT/AQUATIC HABIT/PLANKTON/CALIFORNIA COUNTER CURRENT FLUCTUATION EFFECTS, EASTERN PACIFIC/PACIFIC OCEAN/EASTERN PACIFIC/CALIFORNIA COUNTER CURRENT/COUNTER CURRENT FLUCTUATIONS & EFFECTS ON

PLANKTON/Zoological Index.

870. Anonymous. (US offshore operations). Offshore 1980;40(4):103-138 Recent offshore drilling activity off the US East Coast included a gas discovery in Baltimore Canyon that may be commercially feasible (although most companies have slowed or stopped activities in this area), disappointing results from the Southeast Georgia Embayment, and the sale of leases on Georges Bank. Drilling activity in the Gulf of Mexico was expected to increase 20-40% in 1980; most of the increase was to be offshore Texas. Leasing should be accelerated to 3 sales/yr in 1980. New fields in San Pedro Bay and the Santa Barbara Channel should begin production in 1980; these fields could add 60,000 bopd to California's offshore production. Environmental considerations will delay awarding of leases in the Beaufort Sea. Alaska became the second largest oil producing state in 1979 due to production at Prudhoe Bay. Plans have been made to sell LNG from Cook Inlet. Gulf research and development has modified the tension-leg platform to a hexagonal-leg hull with wells through each leg and a track encircling the deck where the rotary rig is located; the hexagonal hull should be less sensitive to wind and wave action. Offshore leases/Offshore drilling/Gas fields/Submarine canyons/Offshore production/Oil production/Floating platforms/lease sales/tension leg platforms US West Coast/Gulf of Mexico/Texas Coast/California Coast/San Pedro Bay/Santa Barbara Channel/Alaska Coast/Prudhoe Bay/Beaufort Sea/Baltimore Canyon/Southeast Georgia Embayment/Georges Bank/petroleum.

871. Alexander CP. Undescribed species of Nearctic Tipulidae (Diptera). Great Basin Naturalist 1973;33(3):189-196 new species from 1970 Remington collections. fspub/insects/entomology/flies/Santa Cruz Island/SRD.

872. Andrews FG. A revision of the North American species of Metophtalmus (Coleoptera: Lathridiidae). Coleop. Bull. 1976;30(1):37-56 fspub/insects/entomology/beetles/Santa Cruz Island/SRD.

873. Ball GE, Negre J. The taxonomy of the Nearctic species of the genus Calathus Bonelli (Coleoptera: Carabidae: Agonini). Trans. Amer. Ent. Soc. 1972;98:412-539 fspub/insects/entomology/Santa Cruz Island/SRD.

874. Bohart RM, Grissell EE. California wasps of the subfamily Philanthinae (Hymenoptera: Sphecidae). Bull. Calif. Insect Survey 1975;19:1-92 fspub/insects/entomology/Santa Cruz Island/SRD.

875. Bohart RM, Horning DSJ. California Bembicine sand wasps. Bull. Calif. Insect Survey 1971;13:1-49 fspub/insects/entomology/Santa Cruz Island/Bembix/SRD.

876. Bohart RM, Kimsey LS. a revision of the new world species of Hedychridium (Hymenoptera: Chrysididae). Proc. Biol. Soc. Wash. 1978;91(3):590-635 fspub/Santa Cruz Island/insects/entomology/SRD.

877. Bouseman JK, LaBerge WE. A revision of the bees of the genus Andrena of the western hemisphere. Part IX. Subgenus Melandrena. Trans. Amer. Ent. Soc. 1979;104:275-389 fspub/insects/entomology/Santa Cruz Island/SRD.

878. Brailovsky AH. Una nueva especie genero Melanopleurus Stal (Hemiptera-Heteroptera-Lygaeidae-Lygaeinae) de California,

Estados Unidos de Norteamericana. Anales Inst. Biologia,
Universidad Nacional Autonomoma de Mex. Ser. Zool. 1977;48(1):129-132
fpub/insects/entomology/Santa Cruz Island/SRD.

879. Braun AF. Tischeriidae of America north of Mexico
(Micro-lepidoptera). Mem. Amer. Ent. Soc. 1972;28:1-148
fpub/insects/entomology/Santa Cruz Island/moths/SRD.

880. Perkins EM, Brown DA, Jenkins KD. Contaminants in white
croakers *Genyonemus lineatus* (Ayres, 1855) from the southern
California bight. III. Histopathology Fish, toxicity, marine areas.
Physiological mechanisms of marine pollutant toxicity / edited by
W.B. Vernberg. . et al. New York : Academic Press, 1982. ill. ;
1981. p. p.215-231.
Other-US Literature review. Includes references. Article.
California/Marine Areas/AGRICOLA.

881. Mullin MM, Conversi A. Biomasses of euphausiids and
smaller zooplankton in the California Current -- geographic and
interannual comparisons relative to the Pacific whiting, *Merluccius
productus* , fishery. FISH. BULL 1989;87(3):633-644.
We examined data on size-fractionated zooplankton biomasses from
the California Current in summer to 1) verify that euphausiid and
smaller zooplankton biomasses varied in similar ways geographically
and interannually, and 2) test for increase in euphausiid biomass
after 1966, concurrent with initiation of a fishery on Pacific
whiting (*Merluccius productus*) (a major predator of euphausiids),
and distinct from general, interannual changes. We accomplished
purpose 1, but were unable to detect a significant effect
attributable to the Pacific whiting fishery.
zooplankton/Euphausiacea/geographical
variations/biomass/fisheries/Merluccius
productus/distribution/INE/California Current/Pacific Ocean/
California Current/annual variations/effects on/ASFA.

882. Vedder JG, Howell DG. Interrelations of Catalina
Schist, Miocene igneous rocks, and post Cretaceous(?) strata, Santa
Catalina Island, California. Geol. Soc. Am., Abstr. Programs.
1977;9(7):p.1210
U. S. Geol. Surv., Menlo Park, Calif., United-States The
Geological Society of America, 90th annual meeting, Seattle, Wash.,
Nov. 7-9, 1977 Analytic; Serial; Conference publication; Abstract
B; Bibliography and Index of Geology (1969-present).
Pacific Coast/stratigraphy/Tertiary/metamorphic
rocks/schists/petrology/structural
analysis/interpretation/melange/igneous rocks/andesite rhyolite
family/dacite/ichnofossils/biostratigraphy/Paleogene/California/a
real geology/Santa Catalina Island/Los Angeles County/Catalina
Schist/Miocene/imbrication/folds/isoclinal folds/dikes/sedimentary
rocks/Upper Cretaceous/intrusions/stocks/quartz diorite/GEOREF.

883. Squire JL,J. Surface currents as determined by drift
card releases over the continental shelf off central and southern
California. NCAA Tech. Rep. NPS/Physical
oceanography/oceanography/currents.

884. Kuris A, Stevens T, Kushner D (Dept. of Biol. Sciences,
UC Santa Barbara). Black Abalone, *Haliotis cracherodii*, in the
Channel Islands: Characterization and Epidemiology of Withered Foot
Disease. Western Society of Naturalists, Annual Meeting ; 1991 Dec
27; Santa Barbara, CA. Program and Abstracts. p. p. 24.
SCIR.
fpub/molluscs/marine biology/intertidal/Santas Cruz Island/El

Nino.

885. Bright DEJ, Stark RW. The bark and ambrosia beetles of California (Coleoptera: Scolytidae and Platypodidae). Bull. Calif. Insect Survey 1973;16:1-169
fpub/insects/entomology/Santa Cruz Island/SRD.

886. van VD, Coblenz B. Population characteristics of feral sheep on Santa Cruz Island. J. WILDL. MANAGE 1989;53(2):306-313. The authors evaluated population characteristics of feral sheep (*Ovis aries*) on Santa Cruz Island from 1979 to 1981. Santa Cruz Island supported an estimated 21,240 feral sheep on 22,000 ha; mean densities were as high as 2.1 sheep/ha. Sheep attained adult weight by 2.5 years. Physical condition varied seasonally according to reproductive chronology, with no evidence of emaciation. A young age structure suggested an increasing population, and female-biased sex ratios probably resulted from higher mortality of reproductively active males. Lambing occurred during a 1-month period that coincided with the onset of the growing season; lamb survival was close to 100%. The authors concluded that feral sheep were maintaining a healthy population despite habitat degradation due to long-term overgrazing, and recommended that feral sheep be removed from the island. That recommendation was carried out.
population structure/sheep/USA/California/Santa Cruz Island/feral populations/wildlife management/demography/CSA Life Sciences Collection.

887. Gunn JT, Hamilton P, Herring HJ, Kantha LH, Lagerloef GSE (Performer: Dynalysis of Princeton, NJ. Performer: Science Applications International Corp., Bellevue, WA. Funder: Minerals Management Service, Los Angeles, CA. Pacific OCS Region.) Santa Barbara Channel Circulation Model and Field Study. Appendix C: Observational Data. C.2: Current Meter Data. ; 1987. Report No.: OCSMMS870094. 221p. See also PB89-213581. Portions of this document are not fully legible. Prepared in cooperation with Science Applications International Corp., Bellevue, WA. Sponsored by Minerals Management Service, Los Angeles, CA. Pacific OCS Region. PC A10/MF A01 Contract: DI1412000129123. The research program consists of a Main Program spanning 1984 to provide a complete physical oceanographic description of the Channel both spatially and temporally. Surface and subsurface current meter moorings were deployed for two periods during the Main Program Field Study. The first Phase began with Cruise SB-4 from January 17 through 24, 1984 and ended on July 11, 1984. Phase 2 began with Cruise SB-7 from July 30 through August 3, 1984 and ended with Cruise SB-8 from January 2 through January 7, 1985. The first section contains time series data which consists of 35-hour low-pass filtered velocity components and temperature and salinity. Stick plots of current vectors are also shown at 12 hourly intervals.
Moorings/Flowmeters/Time series analysis/Sites/Flow rate/Oceanographic charts/Ocean temperature/Salinity/Circulation/Ocean currents/Santa Barbara Channel/Southern Region California/NTIS.

888. Younger WR, Yeager B, Chamberlain GW(. Crawfish (Texas aquaculture). 1990 Texas Aquaculture Conf. TEXAS AQUACULTURE: STATUS OF THE INDUSTRY. REVIEW DRAFT FOR 1990 TEXAS AQUACULTURE CONFERENCE, JANUARY 30-FEBRUARY 1, 1990, CORPUS CHRISTI, TEXAS 1990:pp. 83-85
Texas Agric. Ext. Serv., Sea Grant Coll. Program, Rm. 326, Courthouse, Bay City, TX 77414-1178, USA. Crawfish are fished for bait or food over their entire range. Over

300 spp. of crawfish have been identified in the US, but the majority of commercial production is attributed to the red swamp crawfish (*Procambarus clarkii*) and secondarily to the white crawfish (*P. acutus*). Crawfish culture historically has been confined to south Louisiana. Culture of crawfish for food elsewhere in Louisiana increased markedly in the 1970's and early 1980's in response to demand for an increased and consistent supply. Louisiana continues to produce at least 95% of the total U.S. supply of crawfish. Texas, Mississippi, Alabama, Florida, Oklahoma, Oregon, California, Virginia, Missouri, North Carolina, and South Carolina are relatively minor producers of crawfish. A moderately strong, although poorly documented, demand for crawfish as bait and food also exists in Texas. In response to that demand, small scale, commercial production of crawfish was initiated in 1973 in Orange County. According to a recent survey of producers 5,000 acres of crawfish ponds are estimated to be in production in Texas. Crawfish can be farmed in either rice-field ponds in which crawfish/rice polyculture is practiced or in open ponds used exclusively for crawfish. Outlined in this paper are production methods, marketing, water use, management and trade associations. crayfish culture/pond culture/rice field aquaculture/polyculture/procambarus/USA, Texas/aquaculture development/aquaculture economics/aquaculture techniques/human food/bait/marketing/water use/Oceanic Abstracts.

889. Heinbokel JF. Studies on the functional role of tintinnids in the Southern California Bight. II. Grazing rates of field populations. MARINE BIOLOGY 1978;47(2):191-197
Johns Hopkins Univ., Chesapeake Bay Inst., Baltimore, MD 21218. The feeding behavior of relatively undisturbed natural populations of tintinnids was studied in a series of experiments which utilized water samples collected in Southern California coastal waters. Dilute suspensions of corn starch were presented to the tintinnids and the rates of ingestion of this visual tracer determined after 5 to 20 min incubations followed by fixation in Lugol's iodine fixative. Tintinnids ingested particles of diameters up to 43% of their lorica oral diameter and at rates proportional to their oral diameters. Grazing rates observed in these experiments ranged up to 110 l/tintinnid/hr and generally agreed well with the rates observed in experiments utilizing laboratory cultures of tintinnids. No significant diel periodicity in feeding rates was observed in the one study extending over a 24-hr period. AM. Protozoa/Ciliata/Feeding/California Coast/Southern California Bight/grazing rates/tintinnids/OceanAbstracts.

890. Silva PC. Notes on Pacific marine algae. Madrono 1957;14:41-51 contains algal distributional data for the southern California islands. Marine Algae.

891. LOEB VJ, SMITH PE, MOSER HG. RECURRENT GROUPS OF LARVAL FISH SPECIES IN THE CALIFORNIA CURRENT AREA. REPORT CALIF. COOP. OCEANIC FISH. INVEST. 24 1983: 152-164, ILLUSTR. ECOLOGY/COMMUNITY/COMMUNITY STRUCTURE/RECURRENT LARVAL GROUPS, CALIFORNIA CURRENT/SPECIES DIVERSITY/RELATIVE ABUNDANCE/PACIFIC OCEAN/EASTERN PACIFIC/CALIFORNIA CURRENT/DISTRIBUTION OF RECURRENT LARVAL GROUPS/Zoological Index.

892. Anonymous. Chevron tests Sacate find in Santa Barbara Channel. Oil Gas J. (Tulsa) 1980;78(9):29
formation testing/formation sampling/natural gas/Santa Barbara Channel/geology/petroleum.

893. Daly HV. Bees of the genus *Ceratina* in America north

of Mexico (Hymenoptera: Apoidea). U. Calif. Publ. Entomol.
1973;74:1-113 fspub/insects/entomology/Santa Cruz Island/SRD.

894. Davis DR. *Careospina quercivora*, a new genus and
species of moth infesting live oaks in California (Lepidoptera:
Incurvariidae). Proc. Ent. Soc. Wash. 1972;74(1):121-128
fspub/insects/entomology/SRD.

895. Davis DR. A revision of the North American moths of the
superfamily Eriocranioidea with the proposal of a new family,
Acanthopterocetidae (Lepidoptera). Smith. Cont. Zool.
1978;251:1-131
fspub/insects/entomology/Santa Cruz Island/SRD.

896. Doyen JT. Biology and systematics of the genus *Coelus*
(Coleoptera: Tentyriidae). J. Kansas Entomol. Soc.
1976;49(4):595-624
fspub/insects/entomology/Santa Cruz Island/San Clemente Island/SRD.

897. Duckworth WD. Neotropical Microlepidoptera XX: Revision
of the genus *Setiostoma* (Lepidoptera: Stenomidae). Smith. Cont.
Zool. 1971;106:1-45 fspub/insects/entomology/Santa Cruz Island/SRD.

898. Barnett AM, Sertic P, Walker HJ. Seasonal patterns &
abundance of larval fishes in the nearshore Southern California
Bight off San Onofre, California. Marine Rev. Comm. Doc. No.
D79-237 1980;
fish/MINERALS MANAGEMENT SERVICE.

899. Emmel TC, Emmel JF. The butterflies of Southern
California. Nat. Hist. Mus. Los Angeles Co., Science Series
1973;26:1-148
fspub/insects/entomology/SRD.

900. Gertsch WJ, Soleglad M. Studies of North American
scorpions of the genera *Uroctonus* and *vejovis* (Scorpionida).
Bull. Amer. Mus. Nat. Hist. 1972;148(4):567-608
fspub/arachnids/Santa Cruz Island/Anacapa Island/Santa Rosa
Island/SRD.

901. Gordon RD. The Scymnini (Coleoptera: Coccinellidae) of
the United States and Canada: key to genera and revision of
Scymnus, *Nephus*, and *Diomus*. Bull. Buffalo Soc. Natural Sciences
1976;28:1-362
fspub/insects/entomology/Santa Cruz Island/new species/SRD.

902. Grigarick AA, Schuster RO. A revision of *Actium* Casey
and *Actiastas* Casey. Univ. Calif. Publ. Entomol. 1971;67:1-56
fspub/insects/entomology/SRD.

903. Nelson CS. Climatology of surface heat fluxes over the
California current region. Seattle, Wash. (7600 Sand Point Way N.E.
Seattle 98115) : U.S. Dept. of Commerce, National Oceanic and
Atmospheric Administration, National Marine Fisheries Service,
Scientific Publications Office, 1983. 1983;iii:p.155 United States.
National Marine Fisheries Service. NOAA technical report NMFS SSRF;
763. Other-US "February 1983." Bibliography: p. 31-32.
Monograph; Bibliography. AGRICOLA.

904. Mangel M. From egg surveys to ecosystem models:
Biological assumptions in fisheries management. FISHERY SCIENCE AND
MANAGEMENT. OBJECTIVES AND LIMITATIONS.; LECT. NOTES COAST. ESTUAR.
STUD. 1988;(28):75-103. The biological assumptions associated with

fishery management are discussed within the framework of three problems of increasing complexity. The first is the use of egg or larval surveys to estimate spawning biomass and the associated questions about modelling aggregation. The second is management of krill in the Antarctic and the relationship between catch per unit effort and stock abundance. The importance of behavioral models in fishery management is discussed. The third topic is the management of multiple pelagic species in California coastal waters and the need for the development of community ecology models for the California Current.

ichthyoplankton surveys/spawning populations/multispecies fisheries/Sardinops sagax/Euphausia superba/statistical models/biomass/biological sampling/food webs/catch/effort/population number/graphics/INE/USA/California/INE/California Current/PS/Antarctic Ocean/fishery management/ASFA.

905. Draft environmental impact report for resumption of drilling in the Santa Barbara Channel from existing Standard Oil Company of California platforms. 1976
Woodward-Clyde Consultants, United-States Monographic; Report B; Bibliography and Index of Geology (1969-present) Calif. State Lands Comm., Long Beach, Calif., United States.
California/environmental geology/impact statements/Santa Barbara Channel/petroleum/production/oil spills/assessment/effects/land use/pollution/GEOREF.

906. Squires JL, J. Measurements of sea surface temperature on the eastern Pacific continental shelf using airborne infrared radiometry, August 1963-July 1968. U.S. Coast Guard Oceanogr. Rpt. 47
NPS/Physical oceanography/oceanography/water masses.

907. Colten R. Faunal Exploitation and Emergent Complexity on Santa Cruz Island. Society for California Archaeology, Annual Meeting; 1991; Sacramento, CA. SCIR.
fspub/Chumash/archaeology/anthropology/Santa Cruz Island.

908. Hockett HC. The Anthomyiidae of California exclusive of the subfamily Scatophaginae (Diptera). Bull. Calif. Insect Survey 1971;12:1-121 fspub/insects/entomology/flyes/Santa Cruz Island/SRD.

909. Koske R, Halvorson W. Mycorrhizal associations of selected plant species from San Miguel Island, Channel Islands National Park, California. PAC. SCI 1989;43(1):32-40.
Vesicular-arbuscular mycorrhizae (VAM) were detected in six native plant species: Camissonia cheiranthifolia ssp. Cheiranthifolia, Coreopsis gigantea, Distichlis spicata, Dudleya greenei, Eriogonum grande spp. rubescens, and Lavatera assurgentiflora. Levels of root colonization were greater in November than in July. No mycorrhizae were apparent in plants of Cakile maritima, Mesembryanthemum crystallinum, or M. nodiflorum. A total of ten species of VAM fungi, three of them undescribed, were recovered from root zones of Dudleya, Coreopsis, and Lavatera. Genera of fungi included Entrophospora, Glomus, and Scutellospora.
USA/California/plants/vesicular-arbuscular mycorrhizas/roots/colonization/Camissonia cheiranthifolia/Coreopsis gigantea/Distichlis spicata/Dudleya greenei/Eriogonum grande/Lavatera assurgentiflora/islands/USA/California/Channel Islands Natl. Park/CSA Life Sciences Collection.

910. Gunn JT, Hamilton P, Herring HJ, Kantha LH, Lagerloef

GSE (Performer: Dynalysis of Princeton, NJ. Performer: Science Applications International Corp., Bellevue, WA. Funder: Minerals Management Service, Los Angeles, CA. Pacific OCS Region.) Santa Barbara Channel Circulation Model and Field Study. Appendix C: Observational Data. C.4: Wave Spectra. ; 1987. Report No.: OCSMMS870096. 122p. See also PB89-213706. Prepared in cooperation with Science Applications International Corp., Bellevue, WA. Sponsored by Minerals Management Service, Los Angeles, CA. Pacific OCS Region. PC A06/MF A01 Contract: DI1412000129123. As part of the Santa Barbara Channel Circulation Model and Field Study, the surface wave field was measured using a Datawell Waverider buoy with a SeaData internal recorder. The report presents the data collected during the Main Program. The data presented are plots of the wave spectra for a 48-hour period. The spectra were calculated from each 8.5-minute sample period (512 data points) by taking ensemble averages of eight 64-point FFT's and applying overlapping Hanning windows. Time increases upward in these plots. All wave height data is in meters and all times are GMT.

Measurement/Buoys/Power spectra/Periodic variations/Height/Time series analysis/Circulation/Ocean waves/Santa Barbara Channel/Southern Region California/NTIS.

911. Grenell P, Goda T, et al. (eds.). Non-regulatory approaches to management of coastal resources and development in San Francisco Bay. Int. Conf. on the Environmental Management of Enclosed Coastal Seas '90: EMECS '90 ENVIRONMENTAL MANAGEMENT AND APPROPRIATE USE OF ENCLOSED COASTAL SEAS -- EMECS '90 1991:pp. 503-507

California State Coastal Conserv., 1330 Broadway, Suite 1100, Oakland, CA 94612, USA.

San Francisco Bay is the largest coastal water body in California. Many large, enclosed water bodies in other countries are likely to experience at least some of the Bay's problems. The management of the Bay's coastal resources may be relevant for other nations now facing similar problems. In particular, the California State Coastal Conservancy's experience as a non-regulatory problem-solving agency may be pertinent to situations which either have similar complex regulatory systems as the Bay Area, or which face problems not amenable to regulatory solution.

INE, USA, California, San Francisco Bay/coastal zone management/coastal waters/land use/wetlands/California State Coastal Conservancy/Oceanic Abstracts.

912. Heinbokel JF. Studies on the functional role of tintinnids in the Southern California bight. I. Grazing and growth rates in laboratory cultures. MARINE BIOLOGY 1978;47(2):177-189 Johns Hopkins Univ., Chesapeake Bay Inst., Baltimore, MD 21218. *Amphorella quadrilineata*, *Tintinnopsis* cf. *beroidea*, *T.* cf. *acuminata*, *Eutintinnus pectinis*, and *Helicostomella subulata* were isolated from Southern California coastal waters and maintained in laboratory cultures which were used to investigate several aspects of feeding dynamics and population growth rates. Both *E. pectinis* and *H. subulata* displayed ingestion and growth rates which increased with increasing food concentration until a maximum rate was obtained which then remained essentially constant as food levels increased further. Maximum hourly ingestion was equivalent to approximately 10 to 20% of the body wt of the tintinnids. *T.* cf. *acuminata* showed no such maximum ingestion rate, as ingestion rates increased throughout the entire range of food concentrations used. The dependence of growth rate of *T.* cf. *acuminata* on food concentration also differed from the other species, being characterized by a broad region of maximum growth at intermediate

food levels with reduced growth at both lower and higher food concentrations. Maximum observed growth rates represented doubling times of 12 hr for both *E. pectinis* and *T. cf. acuminata* and 24 hr for *H. subulata*. The data suggested gross growth efficiencies exceeding 50% over much of the range of food concentrations used. No strong evidence supporting the existence of feeding thresholds or "switching" behavior was collected during these experiments, although apparently selective feeding was observed in one experiment with *E. pectinis*. AM.

Growth rates/California Coast/Amphorella/Tintinnopsis/Eutintinnus/Helicostomella/Feeding/Protozoa/Ciliata/grazing/Southern California Bight/A/quadrilineata/T/cf/acuminata/T/cf/beroidea/E/pectinis/H/subulata/tintinnids/OceanAbstracts.

913. Nicholson N, R. L. Cimberg. The Santa Barbara oil spills of 1969: a post-spill survey of the rocky intertidal. Biological and oceanographic survey of the Santa Barbara Channel oil spill 1969-1970. . D. Straughan, Compiler. University of Southern California: Allan Hancock Foundation; 1971. (Biological and oceanographic survey of the Santa Barbara Channel oil spill 1969-1970. ; I (325-399)).
Post-spill survey of the algal populations at selected rocky intertidal stations following the 1969 Santa Barbara OIL Spills. Included are species lists obtained by grabs and divers from sites near 7 of the Southern California Islands. Marine Algae, Oil spill.

914. LOEB VJ, SMITH PE, MOSER HG. GEOGRAPHICAL AND SEASONAL PATTERNS OF LARVAL FISH SPECIES STRUCTURE IN THE CALIFORNIA CURRENT AREA, 1975. REPORT CALIF. COOP. OCEANIC FISH. INVEST. 24 1983: 132-151, ILLUSTR.
ECOLOGY/COMMUNITY/COMMUNITY STRUCTURE/LARVAE, DISTRIBUTION & SEASONAL PATTERNS, CALIFORNIA CURRENT/SPECIES DIVERSITY/LARVAE, CALIFORNIA CURRENT/POPULATION STUDY/POPULATION DYNAMICS/SEASONAL ABUNDANCE/ZOOGEOGRAPHY/DISTRIBUTION PATTERNS/PACIFIC OCEAN/EASTERN PACIFIC/CALIFORNIA CURRENT/LARVAL DISTRIBUTION & SEASONAL PATTERNS/Zoological Index.

915. Anonymous. Chevron makes find in Santa Barbara Channel. Ocean Ind. (Houston) 1980;15(5):63-64
natural gas discoveries/Santa Barbara Channel/geology/petroleum.

916. Hockett HC. The Muscidae of California exclusive of subfamilies Muscinae and Stomoxyinae. Bull. Calif. Insect Survey 1975;18:1-148 fspub/insects/entomology/flyes/Santa Cruz Island/SRD.

917. Lawrence JF, Powell JA. Host relationships in North American fungus feeding moths (Lepidoptera: Oecophoridae, Oinophilidae, Tineidae). Bull. Mus. Comp. Zool., Harvard 1969;138(2):29-51
fspub/insects/entomology/Santa Cruz Island/SRD.

918. Linsley EG, MacSwain JW, Raven PH, Thorp RW. Comparative behavior of bees and Onagraceae. V. *Camissonia* and *Oenothera* bees of cismontane California and Baja California. Univ. Calif. Publ. Entomol. 1973;71:1-68
fspub/insects/entomology/bees/Santa Cruz Island/SRD.

919. Menke AS, et al. The semiaquatic and aquatic Hemiptera of California (Heteroptera: Hemiptera). Bull. Calif. Insect Survey 1979;21:1-166 fspub/insects/entomology/Santa Cruz Island/SRD.

920. Middlekauff WW, Lane RS. Adult and immature Tabanidae (Diptera) of California. Bull. Calif. Insect Survey 1980;22:1-99

fspub/insects/entomology/Santa Cruz Island/horseflies/SRD.

921. Novak Ja. A taxonomic revision of *Dioxyna*- and *Paroxyna* (Diptera: Tephritidae) for America north of Mexico. *Melanderia* 1974;16:1-53 fspub/insects/entomology/Santa Cruz Island/SRD.

922. Opler PA. Biological and systematic considerations on the "emarginana group" of the genus *Epinotia* (Tortricidae). *J. Lepid. Soc.* 1971;25(2):115-123 fspub/insects/entomology/Santa Cruz Island/SRD.

923. Opler PA. Seven new leaf miners associated with *Quercus agrifolia* (Heliozelidae, Gracilariidae). *J. Lepid. Soc.* 1971;25(3):194-211 fspub/insects/entomology/Santa Cruz Island/SRD.

924. Opler PA. Biology, ecology, and host specificity of Microlepidoptera associated with *Quercus agrifolia* (Fagaceae). *Univ. Calif. Publ. Entomol.* 1974;75:1-83 fspub/insects/entomology/Santa Cruz Island/SRD.

925. Fiedler PC. Surface manifestations of subsurface thermal structure in the California Current. *J. GEOPHYS. RES. (C OCEANS)* 1988;93(C5):4975-4983. Remote sensing is useful for studying certain oceanographic problems only if the signal obtained from the sea surface contains information about subsurface structure. Historical bottle temperature data from the California Current were analyzed for surface manifestations of vertical structure and subsurface mesoscale structure. Results showed that surface temperature is useful in predicting thermocline strength over a large area south of Point Conception: the error of a regression estimate is 20-30% less than the error of the seasonal mean. However, surface temperature gives little useful information about mixed layer depth. Mesoscale patterns of temperature at the surface and at depth (caused by eddies, meanders and upwelling) are coherent ($r^2 > 0.50$) to a depth below the mixed layer only off central California and Point Conception and along the coast of Baja California. satellite sensing/surface temperature/thermal structure/permanent thermocline/ocean currents/geosensing/INE/California Current/ISE/California Current/dynamical oceanography/ASFA.

926. Final environmental impact report for resumption of drilling in the Santa Barbara Channel from existing Standard Oil Company of California platforms. [dissertation] ; 1976. Woodward-Clyde Consultants, United-States Monographic; Report B; Bibliography and Index of Geology (1969-present) Calif. State Lands Comm., Long Beach, Calif., United States. 110 p. California/environmental geology/impact statements/Santa Barbara Channel/petroleum/production/oil spills/assessment/effects/land use/pollution/GEOREF.

927. Robison BB. Reconnaissance survey of Anacapa Island. State Water Resources Control Board. Water Quality Monitoring Report 79-7 1979 Physical Oceanography/Biological Oceanography/Anacapa Island.

928. Brown AK. The Aboriginal Population of the Santa Barbara Channel . Berkeley, CA; 1967. (University of California Archaeological Survey Report (No. 69)). anthropology/archaeology/Chumash.

929. Opler PA. Biology, ecology, and host specificity of Microlepidoptera associated with *Quercus agrifolia* (Fagaceae). [dissertation] : UC Berkeley; 1970. 348 pp PhD Diss. fspub/insects/entomology/Santa Cruz Island/SRD.

930. Gunn JT, Hamilton P, Herring HJ, Kantha LH, Lagerloef GSE (Performer: Dynalysis of Princeton, NJ. Performer: Science Applications International Corp., Bellevue, WA. Funder: Minerals Management Service, Los Angeles, CA. Pacific OCS Region.) Santa Barbara Channel Circulation Model and Field Study. Appendix D: Computational Data. D.1: Daily Horizontal Sections: Winter. ; 1987. Report No.: OCSMMS870097. 138p. See also PB89-213607. Prepared in cooperation with Science Applications International Corp., Bellevue, WA. Sponsored by Minerals Management Service, Los Angeles, CA. Pacific OCS Region. PC A07/MF A01 Contract: DI1412000129123. The report includes prognostic calculations of the physical oceanographic conditions in the Santa Barbara Channel which have been performed for two periods; January 27, 1984 through June 30, 1984 and August 6, 1984 through December 31, 1984. Lateral boundary conditions were derived from current meter data on the boundaries and surface forcing from wind stations and meteorological buoys in the Channel. Archived results include daily averaged distributions of the calculated oceanographic properties for 15 levels on the computational grid. Horizontal sections of selected properties are displayed for the winter season. Mathematical models/Boundary layer flow/Wind Meteorology/Air water interactions/Winter/Circulation/Ocean currents/Santa Barbara Channel/Southern Region California/NTIS.

931. Goda T, et al. (eds.)., Wakeman N. Providing access for the public to the shoreline of San Francisco Bay. Int. Conf. on the Environmental Management of Enclosed Coastal Seas '90: EMECS '90 ENVIRONMENTAL MANAGEMENT AND APPROPRIATE USE OF ENCLOSED COASTAL SEAS -- EMECS '90 1991:pp. 637-638 San Francisco Bay Conserv. and Dev. Comm., 30 Van Ness Ave., Rm. 2011, San Francisco, CA 94201, USA. This paper will discuss how the San Francisco Bay Conservation and Development Commission has responded to the public need to get to the shoreline and view the water as part of its regulatory program for the San Francisco Bay Area. The Commission's authority will be discussed as well as the way the Commission uses its Design Review Board and design guidelines to assure that public access areas are well designed and integrated into project development. public access/coastal zone management/recreation/INE, USA, California, San Francisco Bay/sociological aspects/Oceanic Abstracts.

932. Sherwood MJ. Fin regeneration in Dover sole. ; 1977. Pacific Ocean East/California Coast/Soles/microstomus/Fins/Wastewaters/Marine pollution/Regeneration/Development/Laboratory rearing/Sampling methods/Hydrocarbons/Chlorine compounds/Diseases/Southern California Bight/M/pacificus/fin regeneration/fin erosion/ Palos Verdes shelf/bent fin rays/chlorinated hydrocarbons/OceanAbstracts.

933. Neushul M, D. Clarke, D. W. Brown. Subtidal plant and animal communities of the Southern California Islands. . R. N. Philbrick, editor. Proceedings of the symposium on the biology of the California Islands.; Santa Barbara, CA. Santa Barbara, CA: Santa Barbara Botanic Garden; 1967. p. 37-55. Review of the biogeographic affinities of the southern California is presented along with original data from subtidal studies near Anacapa Island. Emphasizes the distribution of larger brown algae, particularly

Macrocyctis pyrifera and Eisenia arborea. Appendix includes records of species obtained from the study site based upon their northern or southern affinities .
MARINE ALGAE, KELPS, ANACAPA ISLAND.

934. LOEB V, SMITH PE, MOSER HG. ICHTHYOPLANKTON AND ZOOPLANKTON ABUNDANCE PATTERNS IN THE CALIFORNIA CURRENT AREA, 1975. REPORT CALIF. COOP. OCEANIC FISH. INVEST. 24 1983: 109-131, ILLUSTR.
ECOLOGY/LIFE HABIT/AQUATIC HABIT/PLANKTON/ABUNDANCE PATTERNS 1975, CALIFORNIA CURRENT/ZOOGEOGRAPHY/DISTRIBUTION PATTERNS/CALIFORNIA CURRENT/PLANKTON ABUNDANCE PATTERNS 1975/PACIFIC OCEAN/NORTHERN PACIFIC/Zoological Index.

935. Anonymous. Exxon's Hondo Field to go onstream in 1981. Ocean Indust. 1980;15(3):25-26
Exxon was preparing to begin production from its 200-million-bbl Hondo Field via its \$80-million, 945-ft-tall, 28-slot platform in Santa Barbara Channel in 1981 - a scant 11 yr. after the company was awarded the field leases and only 5 yr. after the Hondo platform was installed. Key to reactivating production plans was the Ninth Circuit Court of Appeals' ruling on Aug. 21 that the Interior Department, not the EPA had jurisdiction in regulating air emissions on the OCS. Petroleum operations/Offshore structures/Legal aspects/Exxon/OCS/Santa Barbara Channel/Hondo Field/petroleum.

936. Opler PA. Oaks as evolutionary islands for leaf-mining insects. Amer. Sci. 1974;62(1):71
fspub/entomology/evolution/Santa Cruz Island/SRD.

937. Opler PA. A review of North American Rhodophaea (Phycitinae: Pyralidae), with description of six new species. J. Lepid. Soc. 1977(41-56) fspub/Santa Cruz
Island/insects/entomology/SRD.

938. Opler PA, Davis DR. The leafmining moths of the genus Caneraria associated with Fagaceae in California (Lepidoptera: Gracillariidae). Smithson. Contr. Zool. 1980
fspub/Santa Cruz Island/insects/entomology/SRD.

939. Barton CL. Carbonate surface sediments of Tanner and Cortes banks, California continental borderland. 1976;
tanner bank/cortes bank/continental shelves/carbonates/sedimentation/algae and spermatophytes/bray/california/sampling/ocean bottom/submarine topographic features/sea level/marine biology/north pacific ocean/theses/MINERALS MANAGEMENT SERVICE.

940. Pierce WD. The sand dune weevils of the genus Trigonoscuta Motschulsky (Coleoptera: Curculionidae). . 1975. 160 pp. Published by author's estate; Orange Co., Calif.
insects/entomology/stantoni/SRD.

941. Powell JA. Biological and taxonomic studies on tortricine moths, with reference to the species in California. Univ. Calif. Publ. Entomol. 1964;32:1-317
fspub/insects/entomology/Santa Cruz Island/Anacapa Island/SRD.

942. Powell JA. A previously undescribed moth reared from Catalina ironwood on Santa Cruz Island, California. Pan-Pacific Entomologist 1967;43(3):220-227 fspub/insects/entomology/Santa Cruz Island/SRD.

- # 943. Powell JA. Taxonomic status and descriptions of some fungus feeding Tineidae (Lepidoptera). Pan-Pacific Entomologist 1967;43(4):292-307 fspub/insects/entomology/Santa Cruz Island/lichens/SRD.
- # 944. Bascom W. The ecology of the Southern California Bight: Implications for water quality management. South. Calif. Coastal Water Res. Proj. 1973;:531. Geesey/Microbiology/Text/MINERALS MANAGEMENT SERVICE.
- # 945. Powell JA. *Apomyelois bistriatella*: A moth which feeds in an Ascincycete fungus (Lepidoptera: Pyralidae). Journ. New York Ent. Soc. 1967;75(4):190-194 fspub/insects/entomology/Santa Cruz Island/Hypoxylon/SRD.
- # 946. Powell JA. A synopsis of Nearctic adelid moths, with descriptions of new species (Incurvariidae). (Lepidoptera: Pyralidae). J. Lepid. Soc. 1969;23(4):211-240 fspub/insects/entomology/Santa Cruz Island/SRD.
- # 947. Goeden RD, Ricker DW. Santa Cruz Island revisited. Sequential photography records the causation, rates of progress, and lasting benefits of successful biological weed control California. Proceedings of the Fifth International Symposium on Biological Control of Weeds, July 1980 / E.S. Del Fosse, editor. Melbourne Australia : CSIRO, Australia, 1981. 1980:p.355-365 Foreign 2 p. ref. Article. California/AGRICOLA.
- # 948. Lagerloef GSE, Bernstein RL. Empirical Orthogonal Function analysis of Advanced Very High Resolution Radiometer surface temperature patterns in Santa Barbara Channel. J. GEOPHYS. RES. (C OCEANS) 1988;93(C6):6863-6873. Empirical orthogonal functions (EOF) analyses of a yearlong, advanced very high resolution radiometer (AVHRR) sea surface temperature (SST) data set from the Santa Barbara Channel describe a spatial and temporal variability which is consistent with in situ measurements. The analyses combine an unconventional decomposition of the spatial variance with a more conventional analysis of temporal variance modes to identify features in the AVHRR data such as fronts, eddies, and annual temperature cycles. The methodology has practical applications in the EOF analysis of remote sensing data which are more densely sampled in space than in time. satellite sensing/radiometers/surface temperature/INE/Santa Barbara Channel/spectral analysis/shelf dynamics/Empirical Orthogonal Function/AVHRR/ASFA.
- # 949. Field ME, Clarke SHJ, Green HG. Evaluation of geologic hazards in outer continental shelf petroleum lease areas, southern California continental borderland. Offshore Tech. Conf., Prepr. 1977;9(1):p.69-78 U. S. Geol. Surv., United-States Ninth offshore Technology Conference, Houston, Tex., May 2-5, 1977 Analytic; Serial; Conference publication B; Bibliography and Index of Geology (1969-present). California/engineering geology/geologic hazards/Pacific Ocean/oil and gas fields/continental borderland/sedimentation/tectonics/site exploration/seismicity/mass movements/erosion/faults/Southern California/GEOREF.
- # 950. Robison BB. Reconnaissance survey of santa Cruz Island. State Water Resources Water Control board. water Quality

Monitoring report 79-8 1979:109 Physical Oceanography/Biological Oceanography/Santa Cruz Island.

951. Craig S. The Basketry of the Ventureño Chumash. ; 1967. 738-754. (UCLA Archaeological Survey Annual Report; 9). archaeology/anthropology/chumash.

952. Powell JA. Synopsis of Decodes, with descriptions of new species and a related new genus in Mexico (Lepidoptera: Tortricidae). Pacific Insects 1980;23(4):211-240 fspub/insects/entomology/Santa Cruz Island/SRD.

953. Jefferts K. Zoogeography of cephalopods from the northeastern Pacific Ocean. BULL. OCEAN RES. INST., UNIV. TOKYO 1988;26(1):123-157. The zoogeography of cephalopods in the northeastern Pacific is discussed in both qualitative and quantitative terms. Distribution patterns are derived and compared to water mass distributions and to patterns defined for other taxa of plankton and micronekton. Several distributional types show closest agreement with patterns discerned in small pelagic fishes. Shannon diversity is highest in Central Pacific and California Current Waters, lowest in Transition Zone and Subarctic Waters. Central Pacific Waters are dominated by Eupoloteuthidae and Subarctic Waters by Gonatidae, and California Current and Transition Zone faunas are intermediate in species composition. The dominant taxa in each area are considered to represent the same functional group. zoogeography/Cephalopoda/Pacific Ocean/Northeast/CSA Life Sciences Collection.

954. Gunn JT, Hamilton P, Herring HJ, Kantha LH, Lagerloef GSE (Performer: Dynalysis of Princeton, NJ. Performer: Science Applications International Corp., Bellevue, WA. Funder: Minerals Management Service, Los Angeles, CA. Pacific OCS Region.) Santa Barbara Channel Circulation Model and Field Study. Appendix D: Computational Data. D.2: Daily Horizontal Sections: Spring. ; 1987. Report No.: OCSMMS870098. 190p. See also PB89-213615. Prepared in cooperation with Science Applications International Corp., Bellevue, WA. Sponsored by Minerals Management Service, Los Angeles, CA. Pacific OCS Region. PC A09/MF A01 Contract: DI1412000129123. Prognostic calculations of the physical oceanographic conditions in the Santa Barbara Channel have been performed for two periods; January 27, 1984 through June 30, 1984 and August 6, 1984 through December 31, 1984. Lateral boundary conditions were derived from current meter data on the boundaries and surface forcing from wind stations and meteorological buoys in the Channel. Archived results include daily averaged distributions of the calculated oceanographic properties for 15 levels on the computational grid. Horizontal sections of selected properties are displayed herein for the spring season. Mathematical models/Boundaries/Wind Meteorology/Spring Season/Periodic variations/Oceanographic data/Circulation/Ocean waves/Santa Barbara Channel/Southern Region California/NTIS.

955. Tripp-Quezada A. Spawning and spat settlement of the catarina scallop *Argopecten circularis* in Bahia Magdalena, B.C.S., Mexico. 1990 Annu. Meet. of the National Shellfisheries Association. SHELLFISH RES 1989;VOL. 8, NO. 2:p. 488 Cent. Interdisciplinario Cienc. Mar., AP 592, La Paz, BCS, Mexico. The populations of *Argopecten circularis* in coastal water of Baja California Sur have been overfished, so the commercial extraction of this resource is no longer appealing. In order to increase scallop production, aquaculture techniques and repopulation of

previously productive areas using scallop spat caught at sea, have been promoted. A study was conducted to determine what parameters were useful in planning activities of extensive cultivation based on culture of *A. circularis* in Bahia Magdalena. The following aspects were considered: 1) spawning season; 2) selection of sites to obtain scallop spat; and 3) determination of the efficiency of three types of spat collectors. The results of this study show that in Bahia Magdalena, the best season to collect scallop spat is in winter time; the best sites of collection are Santa Elena and San Vicente; and the most efficient spat collector was onion bags filled with plastic mesh.

scallop culture/aquaculture systems/aquaculture techniques/larval settlement/spat/seed collection/Argopecten circularis/ISE, Mexico, Baja California Sur/Oceanic Abstracts.

956. Sherwood MJ. Fin erosion disease and liver chemistry: Los Angeles and Seattle. ; 1977.
Pacific Ocean East/California Coast/Washington Coast/Flatfish/Diseases/Fins/Marine pollution/Wastewaters/Lipids/Contamination/Hydrocarbons/Chlorine compounds/Metals/Metal uptake/Livers/Tissues/Histopathology/Measuring methods/Biochemical analysis/Southern California Bight/fin erosion/Duwamish estuary/Seattle/ chlorinated hydrocarbons/trace metals/liver damage/lipid increase/OceanAbstracts.

957. Murray SN, M. M. Littler, I.A. Abbott. Biogeography of the California marine algae with emphasis on the Southern California Islands. Power DM. The California Islands: proceedings of a multidisiplinary symposium; Santa Barbara, CA. Santa Barbara, CA: Santa Barbara Museum of Natural History; 1980. p. 325-339. An assessment of species richness as a function of latitude for California algae. Includes a tabulation of range endpoints to determine distributional barriers to benthic algae. Monterey Bay, Point Conception, and the Southern California Bight represent regions of numerous species range terminations. Quantitative assessments of species occurrences on the Southern California Islands revealed three distinct island floras with differential relationships to the mainland algal floras north and south of Point Conception. .
Marine Algae.

958. LAURS RM. THE NORTH PACIFIC ALBACORE - AN IMPORTANT VISITOR TO CALIFORNIA CURRENT WATERS. REPORT CALIF. COOP. OCEANIC FISH. INVEST. 24 1983: 99-106, ILLUSTR.
* PISCES ** SUPERCLASS GNATHOSTOMATA *** CLASS TELEOSTOMI ****
DIVISION TELEOSTEI ***** SUPERORDER ACANTHOPTERYGII *****
PERCIFORMES ***** SUBORDER SCOMBROIDEI ***** SCOMBRIDAE
***** THUNNUS ALALUNGA.
ECOLOGY/POPULATION STUDY/POPULATION DYNAMICS/SEASONAL ABUNDANCE/CALIFORNIA BIGHT/PACIFIC OCEAN/EASTERN PACIFIC/CALIFORNIA CURRENT/SEASONAL DISTRIBUTION & ABUNDANCE/Zoological Index.

959. Anonymous. Offshore fault traced (in the Santa Barbara Channel). Geotimes (Washington DC) 1980;25(6):30
faults/earthquakes/Santa Barbara Channel/geology.

960. Rindge FM. A revision of the genus *Sabulodes* (Lepidoptera, Geometridae). Bull. Amer. Mus. Nat. Hist. 1978;160(4):193-292 fspub/insects/entomology/Santa Cruz Island/SRD.

961. Rindge FM. A revision of the moth genera *Hulstina* and *Pterotaea* (Lepidoptera, Geometridae). Bull. Amer. Mus. Nat. Hist. 1970;142(4):255-342 fspub/insects/entomology/Santa Cruz Island/SRD.

962. Schlising RA. Seed destruction of California morning glories (Convolvulaceae, *_Calystegia_*) by bruchid beetles. Madrono 1980;27:1-16 fspub/Santa Cruz Island/insects/entomology/SRD.

963. Smetana A. Revision of the tribe Quediini of America north of Mexico (Coleoptera: Sta. Mem. Ent. Soc. Can. 1971;79:1-303 fspub/insects/entomology/Quedius/beetles/Santa Cruz Island/SRD.

964. Bascom W, Brooks N, Eppley R, Hendricks T, Knauer G, Pritchard D, Sherwood M, Word J. Southern California Bight. Assimilation Capacity of U.S. Coastal Waters for Pollutants. National Oceanic and Atmospheric Administration, U.S. Dep. of Commerce, Boulder, CO 1979;:179-224.
text/chemical oceanography/Eganhouse/Venkatesan/MINERALS MANAGEMENT SERVICE.

965. Tauber CA. Taxonomy and biology of the lacewing genus *_Meleoma_* (Neuroptera: Chrysopidae). Univ. Pub. Ent. 1969;58:1-94 fspub/insects/entomology/Santa Cruz Island/SRD.

966. Wasbauer MS. Some sex associations in the Brachycistidinae (Hymenoptera: Tiphidae). Pan-Pacific Entomol. 1968;44(4):297-299 fspub/insects/entomology/Santa Cruz Island/Bracystis/SRD.

967. Wilcox J. The genera *_Stenopogon_* Loew and *_Scleropogon_* Loew in America north of Mexico (Diptera: Asilidae). Occ. Papers Calif. Acad. Sci. 1971;89:1-134 fspub/insects/entomology/Santa Cruz Island/Santa Rosa Island/Santa Barbara Island/SRD.

968. Van Vuren D, Hedrick PW. Genetic conservation in feral populations of livestock. Conservation Biology 1989;3(3):312-317 SCIR.
fspub/feral sheep/Santa Cruz Island/SRD.

969. Tissot BN (Ore. St. Univ.) Mass Mortality of Black Abalone on Santa Cruz Island. Abstracts: So. Cal. Acad. Sci. Ann. Meet. 1989; 1989 May 12; Cal. Lutheran Univ. Thousand Oaks, Ca.; 1989. p. # 30. Abstract. SCIR.
fspub/marine biology/abalone/SRD.

970. Rienecker MM, Mooers CNK, Smith RL. Mesoscale variability in current meter measurements in the California Current system off northern California. J. GEOPHYS. RES. (C OCEANS) 1988;93(C6):6711-6734.
Current meter data from a triad of moorings located on the continental rise offshore of Point Reyes-Point Arena and from a mooring site located about 250 km offshore and to the northwest of the array are analyzed. The continental rise moorings were deployed from October 1984 to July 1985, and each had five meters at depths from about 150 to about 3560 m. The offshore mooring was deployed from September 1982 to August 1983 with six meters positioned from about 150 to 3800 m. Velocity components were highly vertically coherent in the upper 600 m and were in phase for periods longer than about 10 days; temperature tended to be less coherent. There was some horizontal coherence in the continental rise array.
INE/California Current/INE/USA/California/Point Reyes/ocean circulation/current observations/barotropic mode/baroclinic mode/continental rise/wind-driven currents/Ekman pumping/gravity waves/ocean currents/dynamical oceanography/ASFA.

- # 971. Robison BB, Cox JL. Reconnaissance survey report ASBS 17: Santa Rosa Island. State Water Resources Control Board. Water Quality Monitoring Report Physical Oceanography/Biological Oceanography/Santa Rosa Island.
- # 972. Erlandson JM. Of Millingstones and Molluscs: The Cultural Ecology of Early Holocene Hunter-Gathers of the California Coast [dissertation] [Unpublished Ph.D. dissertation]. Santa Barbara: UC Santa Barbara; 1988. archaeology/anthropology/chumash.
- # 973. Savage K, Despard S (Cal. St. Univ. Northridge). Correlation of the Miocene Blanca Formation and Beecher's Bay member of the Monterey Formation, northern Channel Islands, California. Abstracts: So. Cal. Acad. Sci. Ann. Meeting 1989; 1989 May 12; Thousand Oaks, CA. ; 1989. p. #35. abstract. SXCIR. fspub/geology/Santa Cruz Island/SRD.
- # 974. Gunn TJ, Hamilton P, Herring HJ, Kantha LH, Lagerloef GSE (Performer: Dynalysis of Princeton, NJ. Performer: Science Applications International Corp., Bellevue, WA. Funder: Minerals Management Service, Los Angeles, CA. Pacific OCS Region.) Santa Barbara Channel Circulation Model and Field Study. Appendix D: Computational Data. D.3: Daily Horizontal Sections: Summer. ; 1987. Report No.: OCSMMS870099. 120p. See also PB89-213623. Prepared in cooperation with Science Applications International Corp., Bellevue, WA. Sponsored by Minerals Management Service, Los Angeles, CA. Pacific OCS Region. PC A06/MF A01 Contract: DI1412000129123. The report includes prognostic calculations of the physical oceanographic conditions in the Santa Barbara Channel have been performed for two periods; January 27, 1984 through June 30, 1984 and August 6, 1984 through December 31, 1984. Lateral boundary conditions were derived from current meter data on the boundaries and surface forcing from wind stations and meteorological buoys in the Channel. Archived results include daily averaged distributions of the calculated oceanographic properties for 15 levels on the computational grid. Horizontal sections of selected properties are displayed herein for the summer season. Mathematical models/Boundaries/Wind Meteorology/Summer/Periodic variations/Oceanographic data/Buoys/Circulation/Ocean waves/Santa Barbara Channel/Southern Region California/NTIS.
- # 975. Pierce KV, McCain B, Sherwood MJ. Histology of liver tissue from Dover sole. ; 1977. Pacific Ocean East/California Coast/Coastal waters/Soles/Microstomus/Livers/Tissues/Histology/Wastewaters/Marine pollution/Sampling methods/Histopathology/Fins/Diseases/Contamination/Southern California Bight/Dover sole/Palos Verdes shelf/live damage/ fin erosion/M/pacificus/OceanAbstracts.
- # 976. Barnard JL. Amphipoda of the family Ampeliscidae collected in the Eastern Pacific Ocean by the Velero III and Velero IV. Allan Hancock Pacific Expeditions 1954;18(1):1-137 Reports of many sandy subtidal amphipod species from the Channel Islands including Santa Cruz Island, Santa Rosa Island , and San Miguel Island. Invertebrates, sandy subtidal, Santa Cruz Island, Santa Rosa Island , San Miguel Island.
- # 977. KLINGBEIL RA. PACIFIC MACKEREL: A RESURGENT RESOURCE AND FISHERY OF THE CALIFORNIA CURRENT. REPORT CALIF. COOP. OCEANIC FISH. INVEST. 24 1983: 35-45, ILLUSTR.
* PISCES ** SUPERCLASS GNATHOSTOMATA *** CLASS TELEOSTOMI ****
DIVISION TELEOSTEI ***** SUPERORDER ACANTHOPTERYGII *****

PERCIFORMES ***** SUBORDER SCOMBROIDEI ***** SCOMBRIDAE
***** SCOMBER JAPONICUS.

BIOMETRICS/MEASUREMENTS/RELATIVE MEASUREMENTS/CALIFORNIA BIGHT/ECOL
OGY/ECOLOGICAL ENERGETICS/BIOMASS/SPAWNING ESTIMATES, CALIFORNIA
CURRENT/POPULATION STUDY/POPULATION DYNAMICS/POPULATION CHANGES/INC
REASING NUMBERS, CALIFORNIA CURRENT/PACIFIC OCEAN/NORTHERN
PACIFIC/C ALIFORNIA CURRENT/POPULATION INCREASE, SPAWNING
BIOMASS/Zoological Index.

978. Anonymous. West Coast picks up pace. Offshore
1980;40(4):121-126 The significant reserves expected in San Pedro
Bay and Santa Barbara Channel have stimulated production of oil and
gas to accelerate offshore California, as well as encourage
exploration. DE- oil and gas production; oil and gas exploration.
oil and gas production/oil and gas exploration/San Pedro Bay/Santa
Barbara Channel/petroleum.

979. Haemig PD. Island Jay (*Aphelocoma coerulescens*
insularis) stores lizards in the relict tree *Lyonothamnus*
asplenifolius. Southwestern Naturalist 1989;34(1):146-147
SCIR.
fspub/Santa Cruz Island/birds/island jay/SRD.

980. Tissot BN. Multivariate Analysis. Heterochrony in
Evolution. McKinney, M. L. ed. : JPlenum Publishing Corp.; 1988. p.
35-51.
SCIR.
fspub/Santa Cruz Island/black abalone/statistics/SRD.

981. Vivrette NJ (Santa Barbara Botanic Garden). Shifting
distribution patterns of coastal annuals controlled by differential
cormancy. International Botanical Congress; 1987 Aug; Berlin, Germ.
; 1987. p. # 6-17a-4; Environmental Biology. Abstract.
SCIR.
fspub/botany/Santa Cruz Island/Fraser Point/SRD.

982. Jenkins KD, Brown DA, Oshida PS, Perkins EM. Cytosolic
metal distribution as a indicator of toxicity in sea urchins from
the Southern California Bight Marine pollution. Mar Pollut Bull.
Oxford : Pergamon Press. Dec 1982. 1982;13(12):p.413-420
Foreign 1 p. ref. Article.
California/AGRICOLA.

983. Lynn RJ, Simpson JJ. The California Current system: The
seasonal variability of its physical characteristics. J. GEOPHYS.
RES. (C OCEANS) 1987;92(C12):12947-966.
The seasonal variation of the physical characteristics and of
large-scale current patterns of the California Current system is
examined using harmonic analysis applied to the 23 years of
California Cooperative Oceanic Fisheries Investigations data
collected between 1950 and 1978. The amplitude and phasing of
seasonal variation in dynamic height and the overall standard
deviation of dynamic height define three domains: oceanic, coastal,
and an intervening transition zone. The transition zone is a broad
band centered approximately 200-300 km offshore and parallel to the
coast in which the seasonal range of dynamic height is a relative
minimum and the standard deviation is a maximum. The transition
zone is coincident with the core of flow of the California Current.
A strong interaction between the core of the California Current and
the mesoscale eddy field is evident. dynamic height/mesoscale
eddies/ocean currents/INE/California Current/current
data/statistical analysis/seasonal variations/dynamical
oceanography/ASFA.

984. Fine RA, Oestlund HG. Tritium front at 6 degrees N in the Pacific. *Eos (Am. Geophys. Union, Trans.)*. 1977;58(12):p.1155
Rosenstiel Sch. Mar. and Atmos. Sci., Miami, Fla., United-States
American Geophysical Union; 1977 fall annual meeting, San
Francisco, Calif., Dec. 5-9, 1977 Analytic; Serial; Conference
publication; Abstract B; Bibliography and Index of Geology (1969-
present).

Pacific Ocean/oceanography/ocean circulation/sea
water/geochemistry/tritium/abundance/North Pacific/Equatorial
Pacific/mixing/currents/salinity/California Current/North
Equatorial Counter Current/GEOREF.

985. Roden GI. Spectral Analysis of sea surface temperature
and atmospheric pressure record off southern California. *J. Mar.
Res.* 1958;16(2):90-95 Physical Oceanography/Oceanography/water
masses.

986. Erlandson JM. Early Maritime Adaptations on the
Northern Channel Islands. In: *Hunter-Gathers of Early Holocene
Coastal California*. Erlandson JM, Colten RH, editors. Los Angeles,
CA: Institute of Archaeology, University of California, Los
Angeles; 1991. *Perspectives in California Archaeology*, vol. 1. p.
101-111.

archaeology/anthropology/chumash.

987. Johnson N, Marten J. Evolutionary genetics of
flycatchers. II. Differentiation in the *Empidonax difficilis*
complex. *AUK* 1988;105(1):177-191. The authors used starch-gel
electrophoresis to assess variability at 41 genetic loci in 208
individuals from 11 breeding populations of the Western Flycatcher
(*Empidonax difficilis*) complex. Genic variability was substantial
in most populations and equivalent to levels found in other avian
taxa. A sample of *E. d. insulicola* from Santa Catalina Island,
however, showed reduced heterozygosity and an unusually low
percentage of polymorphic loci. They attribute this to a bottleneck
at the time of the original colonization. Nei's genetic distances
among populations of one taxon ranged from $D_{u-} = 0.0003$ (in *E. d.*
difficilis) to $D_{u-} = 0.0033$ (in *E. d. hellmayri*). Intertaxon
Nei's D ranged from 0.009 (*E. d. insulicola* vs. *E. d. difficilis*)
and 0.0149 (*E. d. difficilis* vs. *E. d. hellmayri*) to 0.0228 (*E. d.*
insulicola vs. *E. d. hellmayri*). $F_{sub(st)}$ statistics revealed
significant population subdivision within the complex.
loci/*Empidonax difficilis*/evolution/genetic variability/CSA Life
Sciences Collection.

988. Gunn JT, Hamilton P, Herring HJ, Kantha LH, Lagerloef
GSE (Performer: Dynalysis of Princeton, NJ. Performer: Science
Applications International Corp., Bellevue, WA.
Funder: Minerals Management Service, Los Angeles, CA. Pacific OCS
Region.) Santa Barbara Channel Circulation Model and Field Study.
Appendix D: Computational Data. D.4: Daily Horizontal Sections:
Fall. ; 1987. Report No.: OCSMMS870100. 192p. See also
PB89-213631. Prepared in cooperation with Science Applications
International Corp., Bellevue, WA. Sponsored by Minerals Management
Service, Los Angeles, CA. Pacific OCS Region. PC A09/MF A01
Contract: DI1412000129123. The research program consists of a Main
Program spanning 1984 to provide a complete physical oceanographic
description of the Channel both spatially and temporally. The
report includes prognostic calculations of the physical
oceanographic conditions in the Santa Barbara Channel have been
performed for two periods; January 27, 1984 through June 30, 1984
and August 6, 1984 through December 31, 1984. Lateral boundary

conditions were derived from current meter data on the boundaries and surface forcing from wind stations and meteorological buoys in the Channel. Archived results include daily averaged distributions of the calculated oceanographic properties for 15 levels on the computational grid. Horizontal sections of selected properties are displayed for the fall season. Mathematical models/Boundary layer flow/Wind Meteorology/Air water interactions/Autumn/Circulation/Ocean currents/Santa Barbara Channel/Southern Region California/NTIS.

989. Dewees CM, Strange EM, Guagnono G. Competing for the recreational dollar: An analysis of the California commercial passenger-carrying fishing vessel industry. MAR. FISH. REV 1990;VOL. 52, NO. 1:pp. 1-6
Sea Grant Ext., Wildl. and Fish. Biol. Dep., Univ. California, Davis, CA 95616, USA.
Objectives of this project were to measure commercial passenger-carrying fishing vessel (CPFV) owner's and anglers' demographics, information sources, decision-making behavior, and perceptions; and also to recommend strategies for industry to improve and market their recreational product, based on survey results.
sport fishing/fishing vessels/fishery economics/fishermen/surveys/INE, USA, California/Oceanic Abstracts.

990. Word JQ, Myers BL, Mearns AJ. Animals that are indicators of marine pollution. ; 1977.
Pacific Ocean East/California Coast/Marine pollution/Marine organisms/Bioindicators/Habitats/Species diversity/Abundance/Benthic fauna/Solemya/Shistomeringos/Capitella/Armandia/Parvilucina/Tharyx/Euphilomedes/Mediomastus?/Amphiodia/Southern California Bight/community structure/indicator species/S/panamensis/S/longicornus/C/capitata/A/bioculata/P/tenuisculpta/ M.? californiensis/Gleason's Diversity Index/OceanAbstracts.

991. Barnard JL. The Amphipod family Photocephalidae in the Eastern Pacific Ocean, with analyses of other species and notes for a revision of the family. Allan Hancock Pacific Expedition 1960;18(3):175-375
Includes a few subtidal species from the northern Channel Islands including Santa Cruz Island.
Sandy subtidal, marine invertebrates, Santa Cruz Island.

992. BEDFORD DW, HAGERMAN FB. THE BILLFISH FISHERY RESOURCE OF THE CALIFORNIA CURRENT. REPORT CALIF. COOP. OCEANIC FISH. INVEST. 24 1983:70-78 * PISCES ** SUPERCLASS GNATHOSTOMATA *** CLASS TELEOSTOMI **** DIVISION TELEOSTEI ***** SUPERORDER ACANTHOPTERYGII ***** PERCIFORMES ***** SUBORDER SCOMBROIDEI ***** ISTIOPHORIDAE ***** TETRAPTURUS AUDAX ***** XIPHIIDAE ***** XIPHIAS GLADIUS.
ECOLOGY/POPULATION STUDY/POPULATION DYNAMICS/SEASONAL ABUNDANCE/CALIFORNIA CURRENT/PACIFIC OCEAN/NORTHERN PACIFIC/DISTRIBUTION & SEASONAL ABUNDANCE/Zoological Index.

993. Brumbaugh RW, Renwick WH, Loeher LL. Effects of vegetation change on shallow landsliding: Santa Cruz Island, California Grazing effects, soil erosion. U S D A For Serv Gen Tech Rep PSW U S Pac Southwest For Exp Stn. Berkeley, Calif., The Station. June 1982. 1982(58):p.397-402
USDA 17 ref. Article.
California/channel Islands/AGRICOLA.

994. Gotschalk CC, Alldredge AL. Enhanced primary production and nutrient regeneration within aggregated marine diatoms. MAR.

BIOL 1989;103(1):119-129. Blooms of chain-forming diatoms often terminate with the mass flocculation and subsequent settlement of cells from the nutrient-depleted euphotic zone. Diatom aggregates were collected by SCUBA divers in the Santa Barbara Channel (34 degree 23'N; 119 degree 50'W) on 4 March 1987 and monitored for 9 d in the laboratory. Diatom aggregates sustained chlorophyll a-specific primary production rates two to nine times higher than those of freely suspended diatoms from the surrounding seawater. The timing of maximum productivity was strongly correlated with the appearance of remineralized ammonia within the aggregates. Chlorophyll a-specific nitrate-uptake rates were routinely three to nine times lower in diatom aggregates than in the surrounding seawater. Primary production and pigment concentrations of diatom aggregates aged in situ displayed changes similar to those observed in the laboratory.

ecological aggregations/chlorophylls/nutrients (mineral)/algal blooms/flocculation/community composition/carbon fixation/nitrates/ammonia/adsorption/Bacillariophyceae/primary production/ASFA.

995. Hollenberg GJ. Phycological notes VIII; Two brown algae (Phaeophyta) new to California. South. Calif. Acad. Sci., Bull. 1978;77(1):p.28-35 Univ. Redlands, Dep. Biol., Redlands, Calif., United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present).
California/paleobotany/algae/Phaeophyta/morphology/Santa Catalina Island/Avalon/modern/Cutleria cylindrica/Myriactularivulariae/occurrence/GEOREF.

996. Roden GI. On the heat and salt balance of the California Current Region. J. Mar. Res. 1959;18(1) Physical Oceanography/Oceanography/water masses/temperature/salinity.

997. Melham T. Channel Islands: A World Apart . In: Dickinson MB, Managing Editor. America's Hidden Treasures: Exploring Our Little-Known National Parks.

Washington, D.C.: Book Division, National Geographic Society; 1992. p. pp. 92-117.
Channel Islands National Park/Santa Cruz Island/history/.

998. Gunn JT, Hamilton P, Herring HJ, Kantha LH, Lagerloef GSE (Performer: Dynalysis of Princeton, NJ. Performer: Science Applications International Corp., Bellevue, WA. Funder: Minerals Management Service, Los Angeles, CA. Pacific OCS Region.) Santa Barbara Channel Circulation Model and Field Study. Appendix D: Computational Data. D.6: Time Series. ; 1987. Report No.: OCSMMS870102. 165p.
See also PB89-213656. Prepared in cooperation with Science Applications International Corp., Bellevue, WA. Sponsored by Minerals Management Service, Los Angeles, CA. Pacific OCS Region. PC A08/MF A01 Contract: DI1412000129123. The report includes prognostic calculations of the physical oceanographic conditions in the Santa Barbara Channel have been performed for two periods; January 27, 1984 through June 30, 1984 and August 6, 1984 through December 31, 1984. Lateral boundary conditions were derived from current meter data on the boundaries and surface forcing from wind stations and meteorological buoys in the Channel. The results of

these calculations have been archived in two forms. The most comprehensive archive is that of daily averaged fields of all computational data for 15 levels on the computational grid. As a secondary archive, six hourly averaged profiles of selected computational variables have been saved at twelve locations.

Profiles/Ocean

currents/Measurement/Flowmeters/Boundaries/Mathematical

models/Diurnal variations/Flow rate/Ocean

temperature/Salinity/Circulation/Oceanographic data/Santa Barbara Channel/Southern Region California/NTIS.

999. Gerrodette T, DeMaster DP. Quantitative determination of optimum sustainable population level. MAR. MAMM. SCI 1990;VOL. 6, NO. 1:pp. 1-16 Southwest Fish. Cent., La Jolla Lab., Natl. Mar. Fish. Serv., NOAA, P.O. Box 271, La Jolla, CA 92038, USA.

Quantitative methods are reviewed and compared for determining whether a marine mammal population is at an optimum sustainable population (OSP) level, a management goal specified by the U.S. Marine Mammal Protection Act. Methods of OSP determination fall into two general types: those that require an estimate of a population's maximum net productivity level (back-calculation method) and those that do not (dynamic response analysis). Back-calculation and dynamic response analyses are compared using data on the California gray whale (*Eschrichtius robustus*). Marine mammal monitoring programs should be designed to detect trends in both the abundance of a population and its condition relative to carrying capacity, because both quantities are involved in the definition of OSP. The value of using both abundance and condition indices in an assessment is illustrated with data on the northern fur seal (*Callorhinus ursinus*).

marine mammals/*Eschrichtius robustus*/nature conservation/population number/*Callorhinus ursinus*/abundance/body conditions/condition factor/models/optimum sustainable population/OCEANIC ABSTRACTS.

1000. Oshida PS. Toxicity of a chlorinated benzene to sea urchin embryos. ; 1977.

Pacific Ocean East/California Coast/Coastal waters/Marine pollution/ Hydrocarbons/Chlorine compounds/Sea

urchins/Embryos/Wastewaters/

Toxins/Toxicity/Eggs/*Strongylocentrotus*/Pollutant

detection/Southern California Bight/chlorinated benzene/municipal wastewaters/ *S.purpuratus*/tolerance levels/toxicity levels/OceanAbstracts.

1001. Berkeley E, C. Berkeley. On a collection of Polychaeta from Southern California. Bull. Southern Calif. Acad. Sciences 1941;40(1):16-60 Sandy subtidal, marine invertebrates, polychaetes, Santa Cruz Island.

1002. Anonymous. First natural gas production platform for Santa Barbara Channel. Ocean Ind. (Houston) 1981;16(6):68-69

natural gas/natural gas exploration/exploration

management/production management/Santa Barbara Channel/continental shelf/offshore geology/petroleum.

1003. Bedford DW, Hagerman FB. The billfish fishery resource of the California Current. Calif. Coop. Oceanic Fish. Invest. Rep. 1983;24:70-78. Swordfish/*Xiphias gladius*/fishery/fish/Cross/TEXT Allen/MINERALS MANAGEMENT SERVICE.

1004. Beers JR. Organisms and the food web. Lecture notes on coastal and estuarine studies. Plankton dynamics of the Southern California Bight 1986;15:84-175.

text/chemical oceanography/Eganhouse/Venkatesan/ecosystem
interrelationships/bacterioplankton/phytoplankton/protozoa/zooplankton/nekton/detritus/benthic-pelagic/interaction/trophic relationship/southern california bight/Pieper/Reish/red tides/episodic plankton/Geesey/microbiology/algae/marine spermatophytes/Bray/Murray/nitrogen/phosphorous/silicate/amino acid/benthic/pelagic/interaction/Hickey/physical oceanography/MINERALS MANAGEMENT SERVICE.

1005. Beers JR, Stewart GL. Microzooplankton in the euphotic zone at five locations across the California Current. J. Fish. Res. Board Can. 1967;24:2053-2068.
Pieper/Dawson/Zooplankton/Text/MINERALS MANAGEMENT SERVICE.

1006. Minnich RA. Grazing, fire, and the management of vegetation on Santa Catalina Island, California History, Natural Resources Management Plan, erosion control. U S D A For Serv Gen Tech Rep PSW U S Pac Southwest For Exp Stn. Berkeley, Calif., The Station. June 1982. 1982(58):p.444-449 USDA 15 ref. Article.
California/Islands/AGRICOLA.

1007. Chess JR. *Aciconula acanthosoma*, new species, a caprellid amphipod from southern California, with notes on its ecology. J. CRUST. BIOL 1989;9(4):662-665.
A caprellid amphipod, *Aciconula acanthosoma*, new species, is described from nearshore waters of Santa Catalina Island, California. Previously the genus *Aciconula* was monotypic, known only from the western Pacific species *A. miranda*. The new species was common and persistent during 15 years of sampling, and was found on 12 types of substrata and in the gut contents of eight species of fishes. It is distinguished from *A. miranda* primarily by the spination of the head and pereionites.
Aciconula acanthosoma/animal morphology/taxonomy/ecology/INE/USA/California/Santa Catalina Island/new species/ASFA.

1008. Krishnaswami S, Lal D, Amin BS, Soutar A. Geochronological studies in Santa Barbara Basin; Fe as a unique tracer for particulate settling. Limnol. Oceanogr. 1973;18(5):p.763-770
Scripps Inst. Oceanogr., La Jolla, Calif., United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present). absolute age/methods/Pb 210/sedimentation/rates/coastal environment/sediments/geochemistry/isotopes/iron/Fe 55/lead/thorium/tracers/geochronology/suspended materials/settling/Santa Barbara Basin/Pacific Ocean/North Pacific/radionuclides/marine environment/cores/GEOREF.

1009. Roden GI. On the non-seasonal variation in sea level along the west coast of North America. Journal Geophysical Resources 1960;65(9):2809-2826 Physical Oceanography/Oceanography/water masses.

1010. Walker PL, Snethkamp P. Archaeological Investigations on San Miguel Island: Archaeological and Physical Anthropological Research. San Francisco. CA: National Park Service; 1984.
archaeology/anthropology/Chumash.

1011. Bennett S. A new record of a short-tailed whip scorpion from Santa Catalina Island, California (Schizomida: Schizomidae). PAN-PAC. ENTOMOL 1985;61(4):321-322.
One adult male and female *Schizomus pentapeltis* were found in February 1982 under the same rock in Gallaghers Canyon, ca. 3.3 km NW of the city of Avalon, on the leeward side of Santa Catalina

Island and represent the first records of schizomids from the southern Channel Islands.

Schizomus pentapeltis/new records/geographical distribution/USA/California/Santa Catalina Island/Schizomidae/CSA Life Sciences Collection.

1012. Gunn JT, Hamilton P, Herring HJ, Kantha LH, Lagerloef GSE (Performer: Dynalysis of Princeton, NJ. Performer: Science Applications International Corp., Bellevue, WA. Funder: Minerals Management Service, Los Angeles, CA. Pacific OCS Region.) Santa Barbara Channel Circulation Model and Field Study. Appendix D: Computational Data. D.7: Spectra. ; 1987. Report No.: OCSMMS870103. 88p.

See also PB89-213664. Prepared in cooperation with Science Applications International Corp., Bellevue, WA. Sponsored by Minerals Management Service, Los Angeles, CA. Pacific OCS Region. PC A05/MF A01 Contract: DI1412000129123. The report includes prognostic calculations of the physical oceanographic conditions in the Santa Barbara Channel have been performed for two periods; January 27, 1984 through June 30, 1984 and August 6, 1984 through December 31, 1984. Six hourly averaged profiles of selected computational variables have been saved at the twelve locations. From these profiles two depths, 30 m and 100 m, have been selected and rotary spectral correlations have been prepared between various pairs of current time series at these two depths. The left hand plot contains rotary auto spectra for each time series and the overall phasor correlation between them. The right hand plot contains the inner and outer coherence squared and phase for the pair of time series. In all cases the dot-dash curve represents the clockwise component and the solid line, the counter-clockwise component of the spectrum.

Profiles/Ocean currents/Correlation techniques/Depth/Time series analysis/Power spectra/Circulation/Oceanographic data/Santa Barbara Channel/Southern Region California/NTIS.

1013. Price DW, Kizer KW. Toxic dinoflagellate blooms and paralytic shellfish poisoning in California, 1927-1989. 1990 Annu. Meet. of the National Shellfisheries Association. SHELLFISH RES 1989;VOL. 8, NO. 2:pp. 442-443 Environ. Manage. Branch, California Dep. Health Serv., CA, USA. Paralytic shellfish poisoning (PSP) has been a public health concern in California for over 60 years. Expansion of the shellfishing industry and growing numbers of people involved in sport shellfishing activities in recent years have heightened concern by public health officials in PSP prevention, and prompted a review of available information on PSP incidents and toxic dinoflagellate blooms in California. This paper presents information on the seasonal occurrence, geographic distribution, and types of shellfish involved in PSP illnesses in California. Data from the coastal shellfish monitoring program are used to describe the frequency, intensity, seasonal occurrence, geography, and dynamics of toxic dinoflagellate blooms along the California coast. Also noted are differences in toxin levels in mussels, oysters, and other types of shellfish exposed to the same bloom conditions. Toxic bloom characteristics and changes in commercial and sport shellfishing activities are discussed in relation to PSP risks and the State's PSP prevention program. algal blooms/shellfish/food poisoning/monitoring systems/public health/Dinoflagellata/INE, USA, California/Oceanic Abstracts.

1014. Oshida PS, Wright JL. Effects of hexavalent chromium on sea urchin embryos and brittle stars. ; 1977. Pacific Ocean East/California Coast/Coastal waters/Wastewaters/Sea urchins/Chromium/Marine pollution/Toxicity/Brittle stars/

Ophiothrix/Strongylocentrotus/Embryos/Mortality rates/Measuring methods/Southern California Bight/hexavalent chromium/O/spiculata/S/ purpuratus/acute toxicity levels/tolerance levels/OceanAbstracts.

1015. Busath AI. Genetic differentiation of the semi-terrestrial amphipod, *Orchestia traskiana* in an expanded habitat on Santa Cruz Island. D. M. Power. The California Islands: Proceedings of a multidisciplinary symposium.; Santa Barbara, CA. Santa Barbara, CA: Santa Barbara Museum of Natural History; 1980. p. 395-402. Sandy intertidal, marine invertebrates, Santa Cruz Island.

1016. Anonymous. Jacobs Engineering Group to do environmental reports (for exploratory oil and gas drilling in Santa Barbara Channel). Sea Technol. (Arlington) 1981;22(11):53 petroleum pollution/petroleum exploration/environmental reports/oil drilling/gas drilling/Santa Barbara Channel/geology/petroleum.

1017. Brumbaugh RW, Leishman NJ. Vegetation change on Santa Cruz Island, California: the effect of feral animals Sheep grazing. U S D A For Serv Gen Tech Rep PSW U S Pac Southwest For Exp Stn. Berkeley, Calif., The Station. June 1982. 1982(58):p.589 USDA 4 ref. Article. California/Santa Barbara channel/Santa Cruz Island/AGRICOLA.

1018. Torres-Moye G, Alvarez-Borrego S. Effects of the 1984 El Nino on the summer phytoplankton of a Baja California upwelling zone. J. GEOPHYS. RES. (C OCEANS) 1987;92(C3):14383-386. During the summer of 1984, nanoplankton dominated the phytoplankton assemblages of the coastal upwelling zone off San Quintin bay (30 degree 24'N, 116 degree 00'W), Baja California, Mexico. Upwelling was masked by the warming of surface and near-surface waters as a product of El Nino influence. Diatom and dinoflagellate abundances were between 1 and 2 orders of magnitude lower than those reported for the summers of 1977 and 1979. A 21-day time series shows that assimilation numbers of surface phytoplankton had a range of 2.0 to 5.4 mg C mg chlorophyll a super(-1)h super(-1). These values are lower than those reported for coastal waters of the California Current for 1969, 1970, 1977, and 1979 and are similar to values reported for 1983. In 1984, surface chlorophyll a concentrations and primary productivity were an order of magnitude lower than values reported for 1977 and 1979. ISE/Mexico/Baja California/ISE/California Current/El Nino phenomena/phytoplankton/biomass/chlorophylls/coastal upwelling/climatology/ASFA.

1019. Barnes RO, Bertine KK, Goldberg ED. N2:Ar, nitrification and denitrification in Southern California borderland basin sediments. Limnol. Oceanogr. 1975;20(6):p.962-970 Scripps Inst. Oceanogr., La Jolla, Calif., United-States; San Diego State Univ., United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present). California/geochemistry/sediments/nitrogen/argon/pore water/Southern California/California Borderland/deep sea environment/marine environment/nitrification/denitrification/distribution/abundance/GEOREF.

1020. Roden GI. On the non-seasonal temperature and salinity variations along the west coast of the United States and Canada. CalCOFI 1961;8:95-119 Physical Oceanography/Oceanography/water masses.

1021. Walker PL, Erlandson JM. Dental Evidence for Prehistoric Dietary Change on the Northern Channel Islands, California. *American Antiquity* 1986;51:375-383
archaeology/anthropology/Chumash.

1022. Stewart B, Yochem P. Radio-tagged harbor seal, *Phoca vitulina richardsi*, eaten by white shark, *Carcharodon carcharias* in the Southern California Bight. *CALIF. FISH GAME* 1985;71(2):113-115.

On 22 July 1983 a commercial fishing vessel caught a male white shark, *Carcharodon carcharias* in a gill net approximately 15 km south of Anacapa Island, California (lat. 34 degree 00'N., long, 119 degree 25'W), Sea World, Inc., San Diego, obtained the shark and packed it in ice until it was necropsied on 26 July. The shark weighed 948 kg and measured 4.7 m in total length (4.3 m fork length). The shark's stomach contained the remains of a juvenile elephant seal, *Mirounga angustirostris*, an adult harbor seal, *Phoca vitulina richardsi*, a radio-transmitter, and a red Dalton Roto tag. The seals were apparently consumed in large pieces. The head of each was severed cleanly from the torso through the neck, the harbor seal at the third cervical vertebra and the elephant seal behind the occipital condyles. The heads and other tissues were in very early stages of digestion and were likely consumed within several days of the shark's capture. The quantity of tissue and bones in the shark's stomach indicates that most, if not all, of each seal was eaten.

Pacific Ocean/California Bight/predation/food organisms/stomach content/*Phoca vitulina richardsi*/*Carcharodon carcharias*/tagging/INE/USA/ California/CSA Life Sciences Collection.

1023. Gunn JT, Hamilton P, Herring HJ, Kantha LH, Lagerloef GSE (Performer: Dynalysis of Princeton, NJ. Performer: Science Applications International Corp., Bellevue, WA. Funder: Minerals Management Service, Los Angeles, CA. Pacific OCS Region.) Santa Barbara Channel Circulation Model and Field Study. Appendix D: Computational Data. D.8: Diagnostic Results. ; 1987. Report No.: OCSMMS870104. 23p. See also PB89-213672. Prepared in cooperation with Science Applications International Corp., Bellevue, WA. Sponsored by Minerals Management Service, Los Angeles, CA. Pacific OCS Region. PC A03/MF A01 Contract: DI1412000129123. The research program consists of two major elements: (1) a Pilot Program in the spring of 1983 to verify that the length and time scales of the observational and modelling components were representative of the circulation in the Channel and to gain experience in synthesizing the results of the two efforts, and (2) a Main Program spanning 1984 to provide a complete physical oceanographic description of the Channel both spatially and temporally. Results from the diagnostic simulation at the beginning of each prognostic simulation for the two phases are presented in the report. The simulations are for January 27 and August 5 for Phases 1 and 2 respectively. The model mass fields are initialized with observational hydrographic data from cruise SB4 for Phase 1 and SB7 for Phase 2. The mass field is then allowed to evolve prognostically for another 1/2 day to smooth out the noise in the circulation fields. The model computational grid and topography are shown in the report. During each phase, hydrographic initialization fields are presented first followed by the model forcing, and the dynamic and thermodynamic fields from the diagnostic run for the starting day of that phase. Mathematical models/Water masses/Wind pressure/Hydrography/Bathymetry/Submarine topography/Circulation/Oceanographic data/Santa Barbara

Channel/Southern Region California/NTIS.

1024. Lein AY, Galuzinskaya AK, Shaposhnikov GL. (The chemical composition of animals of active hydrothermal fields in the ocean.); Khimicheskij sostav zhivotnykh aktivnykh gidrotermal'nykh polej okeana. GEOKHIMIYA 1991;NO. 2:pp. 278-284 Inst. Geokhim. Anal. Khim. AN SSSR, Moscow, USSR.
All major species of animals inhabiting active hydrothermal fields at specific points on Juan de Fuca ridge (1560 m), in Gulf of California (2000 m) in the Pacific, and at 26 degree N in the Atlantic (3600 m) were sampled in 1986 and 1988 for their element composition. The hypothesis of constant chemical content of living matter regardless of the mode of synthesis is confirmed. The high content of sulphur is explained by haemosynthetic nature of organic matter resulting from bacterial processes of oxidation of hydrothermal H sub(2)S. The stable parts of exterior of animals (shells, tubes and carapace) contain chemical and isotope information and may be used for palaeoreconstruction in delineating new and old ore deposits.
marine invertebrates/biochemical composition/hydrogen sulfide/INE, Juan de Fuca Ridge/biosynthesis/biogeochemistry/hydrothermal springs/ISE, California Gulf/AN, North Atlantic/oxidation/chemosynthesis/Oceanic Abstracts.

1025. Oshida PS. A safe level of hexavalent chromium for a marine polychaete. ; 1977.
Pacific Ocean East/California Coast/Coastal waters/Polychaeta/Chromium/Wastewaters/Effluents/Neanthes/Metal uptake/Industrial wastes/Toxicity/Measuring methods/Southern California Bight/hexavalent chromium/N/arenaceodontata/ municipal wastewaters/tolerance levels/OceanAbstracts.

1026. Clarke WD, M. Neushul. Subtidal ecology of the southern California coast. . T. A. Olson/F. J. Burgess. Pollution and Marine Ecology. New York: Interscience; 1967. p. 29-42.
A study of subtidal algae and invertebrate macrofuana on a a sandy substrate with rocky outcroppings.
Sandy Subtidal, marine invertebrates, Anacapa Island .

1027. Anonymous. Quake watching from the seafloor. Offshore 1981;41(4):172 The article describes a device, known as the Seafloor Earthquake Measurement System (SEMS), that measures the response of the ocean floor to earthquakes and other disturbances. Four advanced prototypes of SEMS are being tested as part of a program to provide better data for the design and construction of safe, cost-effective production platforms in California's Santa Barbara Channel. ocean floor/earthquakes/seismographs/production platforms/Santa Barbara Channel/geology/seismology/petroleum.

1028. Hobbs E. Vegetation dynamics of a California island Santa Cruz Island, includes forests, Pinus muricata, Lyonothamnus floribundus, 1929 1970. U S D A For Serv Gen Tech Rep PSW U S Pac Southwest For Exp Stn. Berkeley, Calif., The Station. June 1982. 1982(58):p.603
USDA 1 ref. Article.
California/Islands/California Channel Islands/Santa Cruz Island/AGRICOLA.

1029. Alldredge AL, Gotschalk CC. The relative contribution of marine snow of different origins to biological processes in coastal waters. CONT. SHELF RES 1990;10(1):41-58.
While a disproportionate quantity of photosynthetic and heterotrophic microbial activity can occur on marine snow in

surface waters, the significance of these macroscopic aggregates as sites for the transformation of matter in the euphotic zone appears to be highly variable. We investigated the hypothesis that this variability results from differences in aggregate origin by comparing the properties of marine snow at 13 stations in the Southern California Bight and California Current. Four types of marine snow were encountered including larvacean houses, diatom flocs, fecal aggregates and aggregates composed primarily of miscellaneous debris and detritus. More than 95% of the aggregates observed at any one station were of the same type.

ecological aggregations/biological production/coastal waters/INE/USA/ California/INE/California Current/suspended particulate matter/ASFA.

1030. Ishiwatari R, Rohrback BG, Kaplan IR. Hydrocarbon generation by thermal alteration of kerogen from different sediments. *Am. Assoc. Pet. Geol., Bull.* 1978;62(4):p.687-692

Univ. Calif., Inst. Geophys. Planet. Phys., Los Angeles, Calif., United-States Analytic; Serial Univ. Calif., Inst. Geophys. Planet. Phys.; Publ. No. 1725. B; Bibliography and Index of Geology (1969-present).

petroleum/genesis/experimental studies/diagenesis/materials/organic materials/kerogen/alteration/sediments/marine environment/California/geochemistry/Gulf of California/simulation/samples/thermal alteration/temperature/analysis/data/maturation/Southern California/Tanner Basin/Santa Barbara Basin/Banderas Bay/Mexico/alkanes/n alkanes/hydrocarbons/source materials/Pacific Ocean/Northeast Pacific/GEOREF.

1031. Reid JLJ. Measurements of the California Counter Current off Baja California. *Journal Geophys. Res.* 1963;68:4819-4820

Oceanography/Physical Oceanography/currents.

1032. Walker PL, DeNiro MJ. Stable Nitrogen and Carbon Isotope ratios in Bone Collagen as Indices of Prehistoric Dietary Dependence on Marine and Terrestrial Resources in Southern California. *Amer. Journ. of Physical Anthropology* 1986;71:51-71

anthropology/archaeology/Chumash.

1033. Anderson D, Gress F. Brown pelicans and the anchovy fishery off Southern California. *MARINE BIRDS: THEIR FEEDING ECOLOGY AND COMMERCIAL FISHERIES RELATIONSHIPS.*; 1984; pp. 128-135

Prey-species-diversity for seabirds such as brown pelicans (*Pelecanus occidentalis californicus*) is low in the Southern California Bight (SCB) Breeding success and winter populations of brown pelicans in crease or decrease with increases or decreases in the dominant prey, northern anchovy (*Engraulis mordax*). Availability of anchovies is usually related to their abundance, SCB seabirds could be affected by intensive commercial fishing activities, as has been documented in other areas, such as Peru, South Africa, and northern California. In the SCB, negative effects of commercial anchovy fishing on brown pelican populations remain a potential threat rather than a reality, but fishing impact has been recently suggested by low pelican reproductive rates and breeding population declines at one breeding colony close to an intensive fishery in Mexico. The authors suggest that fishing restrictions at low levels of anchovy abundance will be more effective than restrictions at high levels. Seabird populations would probably be least affected by fishing regulations that avoid prolonged low fish abundance.

fisheries/Pacific Ocean/Southern California Bight/population levels/population dynamics/food availability/marine

birds/fisheries/quota regulations/Pelecanus occidentalis
californicus/Engraulis mordax/abundance/INE/USA/Southern California
Bight/interaction/CSA Life Sciences Collection.

1034. Gunn JT, Hamilton P, Herring HJ, Kantha LH, Lagerloef
GSE (Performer: Dynalysis of Princeton, NJ. Performer: Science
Applications International Corp., Bellevue, WA.
Funder: Minerals Management Service, Los Angeles, CA. Pacific OCS
Region.) Santa Barbara Channel Circulation Model and Field Study.
Appendix E: Observational-Computational Data Comparison. E.1:
Horizontal Distributions. ; 1987. Report No.: OCSMMS870105. 193p.
See also PB89-213680. Prepared in cooperation with Science
Applications International Corp., Bellevue, WA. Sponsored by
Minerals Management Service, Los Angeles, CA. Pacific OCS Region.
PC A09/MF A01 Contract: DI1412000129123. The research program
consists of a Main Program spanning 1984 to provide a complete
physical oceanographic description of the Channel both spatially
and temporally. Comparisons between horizontal distributions of
observational and computational data are possible in several forms.
Since the majority of moorings have current meters at or near the
30 meter depth, plots of these observed currents have been plotted
for comparison with the model predictions for 30 meters. The second
grouping of products are monthly and seasonal averages of the same
quantities. Another comparison of horizontal distributions is
provided by the hydrographic surveys which were performed during
the calculation period. Following the hydrographic distributions
are the distributions of transport, elevation, wind stress and heat
flux at the surface and the predicted currents at corresponding
depths. The reader is referred to the main body of the report for
details concerning the compilation and synthesis of the results and
for a general discussion of the calculation.
Ocean currents/Spatial distribution/Environmental transport/Wind
pressure/Heat flux/Depth/Mathematical
models/Circulation/Oceanographic data/Santa Barbara
Channel/Southern Region California/NTIS.

1035. Baxa DV, Groff JM, Wishkovsky A, Hedrick RP.
Susceptibility of nonictalurid fishes to experimental infection
with *Edwardsiella ictaluri*. DIS. AQUAT. ORG 1990;VOL. 8, NO. 2:pp.
113-117
Dep. Med., Sch. Vet. Med., Univ. California, Davis, CA 95616, USA.
Studies were conducted to determine the potential pathogenicity of
Edwardsiella ictaluri to economically important nonictalurid fishes
in California, USA. White sturgeon *Acipenser transmontanus*,
striped bass *Morone saxatilis*, and chinook salmon *Oncorhynchus*
tshawytscha were immersion-challenged in parallel with channel
catfish *Ictalurus punctatus*. During a 14 d period, chinook salmon
and channel catfish succumbed to infections with *E. ictaluri* but
the other species did not. An immersion exposure to 4.0 and 7.9 x
10⁸ super(8) cfu/ml of *E. ictaluri* for 30 s resulted in a 92 and
48% mortality among chinook salmon and rainbow trout *O. mykiss*,
respectively. A Gram-negative septicemia occurred in infected
fishes, and pure cultures of *E. ictaluri* were recovered from dead
and surviving fish. There was a moderate to severe necrosis of the
liver and kidney in both salmonids and channel catfish.
Intracellular bacteria occurred within mononuclear inflammatory
cells and hepatocytes. Results suggest that *E. ictaluri* is a
potential pathogen of salmonid fishes.
fish diseases/bacterial diseases/*Edwardsiella ictaluri*/*Acipenser*
transmontanus/*Morone saxatilis*/*Oncorhynchus*
tshawytscha/*Oncorhynchus mykiss*/*Salmo gairdneri*/*Ictalurus*
punctatus/pathology/antibodies/commercial
species/susceptibility/OCEANIC ABSTRACTS.

1036. Young DR, Alexander GV. Metals in mussels from harbors and outfall areas. ; 1977.

Pacific Ocean East/California Coast/Coastal waters/Harbors/Outfalls/Wastewaters/Metals/Metal uptake/Mussels/Mytilus/Paints/Contamination/Bioindicators/Copper/Zinc/Silver/Cadmium/Chromium/Nickel/Lead/Tin/Measuring methods/Shipyards/Southern California Bight/M/edulis/trace metals/antifouling paints/ Newport Harbor/OceanAbstracts.

1037. Clements T. The Pleistocene history of the Channel Islands region, southern California. Essays in the Natural Sciences in honor of Captain Allan Hancock on the occasion of his birthday July 26, 1955. Los Angeles, CA: University of Southern California Press; 1955. p. 311-323.

Marine invertebrates, Sandy subtidal, geology, Anacapa Island, Santa Cruz Island, Santa Rosa Island, San Miguel Island, Santa Barbara Island.

1038. LASKER R. FACTORS CONTRIBUTING TO VARIABLE RECRUITMENT OF THE NORTHERN ANCHOVY (ENGRAULIS MORDAX) IN THE CALIFORNIA CURRENT: CONTRASTING YEARS, 1975 THROUGH 1978. RAPPORTS P.-V. REUN. CONS. PERM. INT. EXPLOR. MER 178 1981: 375-388, ILLUSTR.

* PISCES ** SUPERCLASS GNATHOSTOMATA *** CLASS TELEOSTOMI **** DIVISION TELEOSTEI ***** SUPERORDER CLUPEOMORPHA ***** CLUPEIFORMES ***** SUBORDER CLUPEOIDEI ***** ENGRAULIDAE ***** ENGRAULIS MORDAX.

ENVIRONMENTAL FACTORS/PHYSICAL ENVIRONMENT/LARVAL RECRUITMENT & ANNUAL VARIATION RELATIONSHIPS, CALIFORNIA (MARINE)/ECOLOGY/POPULATION STUDY/POPULATION DYNAMICS/LARVAL RECRUITMENT, ANNUAL VARIATION & INFLUENCING FACTORS, NORTH PACIFIC/CYCLES OF ABUNDANCE/ANNUAL VARIATION & INFLUENCING FACTORS, LARVAE, CALIFORNIA (MARINE)/PACIFIC OCEAN/NORTHERN PACIFIC/SOUTHERN CALIFORNIA BIGHT/LARVAL RECRUITMENT & ANNUAL ABUNDANCE, INFLUENCING FACTORS/Zoological Index.

1039. Anonymous. A second major oil discovery has been made in Santa Barbara Channel off California. Energy Miner.

Resour.(Silver Spring) 1982;10(28):271
petroleum discoveries/Santa Barbara Channel/continental shelf/offshore geology/petroleum.

1040. Benson A, Risebrough R, Burlingame A, Moberg M. Southern California baseline study and analysis (1975/1976).

Principal investigator work element reports. Report sections 3.3-3.6; book 9 of 10. 1978;III:379. crude oil/ecology/marine biology/water pollution/Southern California Bight/Eganhouse/chemical oceanography/hydrocarbons/intertidal zone/chemical analysis/aquatic plants/aquatic animals/abundance/distribution property/chromatographic analysis/gas chromatography/mass spectra/zooplankton/Pieper/invertebrates/Thompson/MINERALS MANAGEMENT SERVICE.

1041. Harding LWJ, Prezelin BB, Sweeney BM, Cox JL. Primary production as influenced by diel periodicity of phytoplankton photosynthesis Santa Barbara Channel, California. Mar Biol. Berlin, Springer International. 1982. 1982;67(2):p.179-186

Foreign Includes ref. Article.
California/Littoral Zone/Santa Barbara Channel/AGRICOLA.

1042. Sheres D, Kenyon KE. A double vortex along the

California Coast. J. GEOPHYS. RES. (C OCEANS)
1989;94(C4):4989-4997.

A double vortex was observed at the entrance to the Santa Barbara Channel, California, with sequential IR imagery from the NOAA 7 satellite during May 1984. While the wind blew strongly to the southeast, the double vortex moved westward with a velocity greater than that estimated for the mutual interaction of two idealized vortices. The effect of the double vortex on incoming Pacific swell is calculated by numerical integration of the ray equations. This calculation shows areas of focusing of the rays near the entrance to the channel, which suggests elevated wave energy there with reduced wave energy nearby. The pattern of wave refraction by mesoscale features, such as a double vortex, can help detect them and estimate their velocity distribution from remotely sensed surface wave imagery. The similarities and differences between refraction patterns produced by double vortices and by eddies is outlined. The double vortex and its generation by an episodic or tidal flow is investigated using Kashiwai's (1984) approach. An example of the related generation of a single vortex in the Alboran Sea by tidal flow in the Strait of Gibraltar is briefly discussed. satellite sensing/infrared imagery/oceanic eddies/swell/wave energy/mesoscale features/INE/USA/California/Santa Barbara Channel/MED/ Alboran Sea/MED/Gibraltar Strait/nearshore dynamics/mathematical models/vortices/ASFA.

1043. Berry RW, Fischer PJ. Clay mineral distribution and ocean currents; southern California continental borderland. Geol. Soc. Am., Abstr. Programs. 1978;10(3):p.96
San Diego State Univ., Dep. Geol. Sci., San Diego, Calif., United States; Calif. State Univ., Dep. Geosci., Northridge, Calif. The Geological Society of America, Cordilleran Section, 74th annual meeting, Tempe, Ariz., March 29-31, 1978 Analytic; Serial; Abstract B; Bibliography and Index of Geology (1969-present). California/oceanography/sediments/composition/clay mineralogy/areal studies/Pacific Coast/Pacific Ocean/sedimentation/environment/marine environment/clastic sediments/clay/Los Angeles County/continental borderland/Southern California/distribution/currents/sorting/Point Dume/chlorite/illite/Santa Catalina Island/Coal Oil Point/GEOREF.

1044. Reid JL, J. Intermediate waters of the Pacific Ocean. Johns Hopkins Oceanographic Study 1965;2
Oceanography/Physical oceanography/currents.

1045. Walker PL. Cranial Injuries as Evidence of Violence in Prehistoric Southern California. American Journ. of Physical Anthropology 1989;80:313-323 anthropology/archaeology/Chumash.

1046. Gunn JT, Hamilton P, Herring HJ, Kantha LH, Lagerloef GSE (Performer: Dynalysis of Princeton, NJ. Performer: Science Applications International Corp., Bellevue, WA. Funder: Minerals Management Service, Los Angeles, CA. Pacific OCS Region.) Santa Barbara Channel Circulation Model and Field Study. Appendix C: Observation Data. C.3: Drifter Data. ; 1987. Report No.: OCSMMS870095. 42p.
See also PB89-213599. Prepared in cooperation with Science Applications International Corp., Bellevue, WA. Sponsored by Minerals Management Service, Los Angeles, CA. Pacific OCS Region. PC A03/MF A01 Contract: DI1412000129123. The research program consists of a Main Program spanning 1984 to provide a complete physical oceanographic description of the Channel both spatially and temporally. Five hydrographic survey were completed on a 50 cast grid and three 10 day long drifter studies were performed.

Three drifter tracking experiments were carried out during the Main Program of the Field Study. The Appendix contains drifter trajectories from the three drifter tracking experiments. Oceanographic surveys/Windward drift/Trajectories/Tracking Position/Profiles/Air water interactions/Ocean waves/Circulation/Santa Barbara Channel/Southern Region California/NTIS.

1047. Tershy BR, Breese D, Meyer GM. Kleptoparasitism of adult and immature brown pelicans by Heermann's gulls. CONDOR 1990;VOL. 92, NO. 4:pp. 1076-1077 Sect. Neurobiol. and Behav., Seeley G. Mudd Hall, Cornell Univ., Ithaca, NY 14853, USA. We studied kleptoparasitism by Heerman's Gulls (*L. heermanni*) on the piscivorous Brown Pelican (*Pelecanus occidentalis*) in the Gulf of California, Mexico to answer two questions: (1) did adult or immature Heermann's Gulls differ in their frequency of kleptoparasitic attempts?, and (2) did Heermann's Gulls attempt to kleptoparasitize immature or adult Brown Pelicans more often? The study area was a 20 x 45 km section of the Canal de Ballenas. kleptoparasitism/*Larus heermanni*/*Pelecanus occidentalis*/feeding behavior/agonistic behavior/ISE, California Gulf/Oceanic Abstracts.

1048. Jan TK, Moore MD, Young DR. Metals in seafoods near outfalls. ; 1977.

Pacific Ocean East/California Coast/Coastal waters/Outfalls/Wastewaters/Metals/Metal uptake/Seafoods/Contamination/Pollutant detection/Invertebrata/Fish/Sampling methods/Bioindicators/Southern California Bight/trace metals/Palos Verdes shelf/municipal wastewater discharges/12 species/island control area/coastal control area/Los Angeles County/Joint Water Pollution Control Plant/JWPCP/ Orange County outfall system/OceanAbstracts.

1049. Cockerell TDA. San Miguel Island, California. Science Mo. 1938;46:180-187
General natural history account emphasizing terrestrial plants and vertebrates. Marine Invertebrates, sandy subtidal, San Miguel Island, terrestrial flora, fauna.

1050. BAILEY KM, STEVENS PR. THE LIFE HISTORY AND FISHERY OF PACIFIC WHITING, *MERLUCCIIUS PRODUCTUS*. REPORT CALIF. COOP. OCEANIC FISH. INVEST. 23 1982:81-98
* PISCES ** SUPERCLASS GNATHOSTOMATA *** CLASS TELEOSTOMI ****
DIVISION TELEOSTEI ***** SUPERORDER PARACANTHOPTERYGII *****
GADIFORMES ***** SUBORDER GADOIDEI ***** MERLUCCIIDAE
***** MERLUCCIIUS PRODUCTUS.
LIFE CYCLE & DEVELOPMENT/CALIFORNIA (MARINE)/ECOLOGY/POPULATION STUDY/POPULATION DYNAMICS/SEASONAL ABUNDANCE/MORTALITY/ANNUAL RATES, CALIFORNIA (MARINE)/BEHAVIOUR/MIGRATION/MIGRATORY PATTERNS, CALIFORNIA (MARINE)/PACIFIC OCEAN/NORTHERN PACIFIC/CALIFORNIA CURRENT/LIFE HISTORY, ABUNDANCE & MIGRATORY PATTERNS/Zoological Index.

1051. Anonymous. Houston oil field in the Santa Barbara Channel, offshore southern California. Oilweek (Calgary) 1982;33(23):31
petroleum discoveries/Santa Barbara Channel/continental shelf/offshore geology/petroleum.

1052. Berelson WM. Studies of water column mixing and benthic exchange of nutrients, carbon and radon in the southern California borderland. Dissertation, Univ. of South. Calif., Los Angeles 1985;

mixing coastal seawater/california/nutrient exchange/coastal seawater/benthos/carbon exchange/coastal seawater benthos/radon exchange/coastal seawater benthos/Thompson/invertebrates/benthos/aquatic organism/ocean/coastal/MINERALS MANAGEMENT SERVICE.

1053. Berelson WM, Hammond DE, Fuller C. Radon-222 profiles in California borderland basins: Models of basin water mixing and the flux of radon from basin sediments. EOS, Trans., Am. Geophys. Union 1981;62(45):894.
eganhouse/geochemistry/chemical/oceanography/isotopes/Pacific Ocean/radon/radium sediments/rn-222/ra-226/diffusion/Santa Barbara Basin/Channel Islands/San Nicolas Basin/continental borderland/radioactive isotopes/geochemical profiles/MINERALS MANAGEMENT SERVICE.

1054. Berelson WM, Hammond DE, Fuller C. Radon-222 as a tracer for mixing in the water column and benthic exchange in the southern California borderland. Earth Planet. Sci. Lett. 1982;61:41-54.
marine water/mixing/radon tracer/sediment/isotope/geochem/water mixing/Eganhouse/chemical oceanography/thompson/invertebrates/geological sediments/text/ecosystem/interrelationships/MINERALS MANAGEMENT SERVICE.

1055. Berelson WM, Hammond DE, Johnson KS. Benthic fluxes and the carbon budget in two southern California borderland basins. EOS, Trans., Am. Geophys. Union 1985;66(46):939.
eganhouse/geochemistry/chemical oceanography/sediments/carbon/San Pedro Basin/San Nicolas Basin/MINERALS MANAGEMENT SERVICE.

1056. Berelson WM, Hammond DE, Johnson KS. Benthic fluxes and the cycling of biogenic silica and carbon in two southern California USA borderland basins. Geochim Cosmochim Acta 1987;51(6):1345-1364.
mathematical model/radon-222/ecology/oceanography/mathematical biology/statistical methods/biochemical studies/minerals/biophysics/biocybernetics/soil science/physics/chemistry/Hood/Ecology photography/methods/materials/apparatus/radiation biology/radiation/isotope/techniques/biogenic/silica/benthic flux/california/carbon/eganhouse/chemical/oceanography/MINERALS MANAGEMENT SERVICE.

1057. Bergan ML. Holocene sedimentological parameters of the outer California Continental Borderland. Master's Thesis, Univ. South. Calif., Los Angeles, CA 1988;:156.
text/chemical oceanography/Eganhouse/Venkatesan/MINERALS MANAGEMENT SERVICE.

1058. Greenblatt PR. Small scale horizontal distributions of zooplankton taxa in the California Current. Mar Biol. Berlin, Springer International. 1982. 1982;67(1):p.97-111
Foreign Includes ref. Article.
California/AGRICOLA.

1059. Pares-Sierra A, O'Brien JJ. The seasonal and interannual variability of the California Current system: A numerical model. J. GEOPHYS. RES. (C OCEANS) 1989;94(C3):3159-3180.
A reduced gravity model that incorporates the geometry of western North America has been used to study the dynamics of the California Current system. Three experiments were performed: first the model

was run using 19 years of wind stress from the Comprehensive Ocean-Atmosphere Data Set (local model); a second experiment (remote model) consisted of forcing the model through its southern boundary using the results of a similar reduced gravity equatorial model; in a third experiment, both forcings were used simultaneously (local plus remote model). The main objective of this work was to analyze the low-frequency variability on the California Current system in terms of its contributions from remote and local forcing. Away from the coast, the basic (steady) state of the model is determined by the predominantly negative wind curl through a Sverdrup balance. The general seasonal cycle is in agreement with what has been described by other authors. Most of the interannual variability in sea level height at the coast is due to disturbances of equatorial origin that propagate into the region in the form of coastally trapped Kelvin waves. For the annual frequency variability, both local and remotely forced variability contribute to the total variance.

current prediction/El Nino phenomena/ocean-atmosphere system/atmospheric forcing/sea level variations/trapped waves/Kelvin waves/equatorial oceanography/ocean circulation/IE/California Current/mathematical models/annual variations/seasonal variations/variability/wind stress/ASFA.

1060. Madden CT. Elephants of the Santa Barbara Channel islands, southern California. Geol. Soc. Am., Abstr. Programs. 1977;9(4):p.458-459 Univ. Colo., Dep. Anthropol., Boulder, Colo., United-States The Geological Society of America, Cordilleran Section, 73rd annual meeting., Sacramento, Calif., April 5-7, 1977 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). California/paleontology/Mammalia/Sirenia/Pleistocene/Santa Barbara County/Santa Barbara Channel/San Miguel Island/Santa Rosa Island/Irvingtonian/Rancholabrean/Mammuthus/occurrence/biogeography/evolution/S anta Barbara Islands/Southern California/GEOREF.

1061. Reid JL,J. Physical oceanography of the region near Point Arguello. University of California 1962 Oceanography/Physical oceanography/currents.

1062. Walker PL. Porotic Hyperostosis in a Marine Dependent California Indian Population. Amer. Journ. of Physical Anthropology 1986;69:345-354 archaeology/anthropology/Chumash.

1063. Ward B, Carlucci A. Marine ammonia- and nitrite-oxidizing bacteria: Serological diversity determined by immunofluorescence in culture and in the environment. APPL. ENVIRON. MICROBIOL 1985;50(2):194-201. Immunofluorescence assays for marine ammonium- and nitrite-oxidizing bacteria were used to assess the diversity of nitrifying bacteria isolated from marine environments. The antisera show relatively broad specificity, in that each reacts with several strains of the same physiological type as the strain to which the antiserum was prepared. The antisera do not, however, react with any strains of differing physiological type. Seventy percent of the 30 unidentified ammonium isolates tested reacted with one or both of the antisera produced to marine ammonium-oxidizing strains, and 8 of the 9 unidentified nitrite-oxidizing strains tested reacted with 1 or more of the 3 nitrite oxidizer antisera used. Ammonium- and nitrite-oxidizing bacteria were enumerated in samples taken in a depth profile (to 750 m) in the Southern California Bight by immunofluorescence assays for two ammonium oxidizers and two nitrite oxidizers. Average abundances of the two types of nitrifiers were 3.5×10^5 and 2.8×10^5 cells liter

super(-1), respectively. Nitrifiers constitute 0.1 to 0.8% of the total bacterial population in these samples.

ammonium/nitrite/immunofluorescence/marine environment/ammonia/nitrites/immunity/serological studies/identification keys/bacteria/fluorescence/oxidation/identification/CSA Life Sciences Collection.

1064. Brink KH, Hickey BM, Mooers CNK, Simpson JJ (Performer: Dynalysis of Princeton, NJ. Performer: Science Applications International Corp., Bellevue, WA. Funder: Minerals Management Service, Los Angeles, CA. Pacific OCS Region.) Santa Barbara Channel Circulation Model and Field Study. Appendix F: Scientific Review. ; 1987. 15p.

See also PB89-213722. Prepared in cooperation with Science Applications International Corp., Bellevue, WA. Sponsored by Minerals Management Service, Los Angeles, CA. Pacific OCS Region. PC A03/MF A01 Contract: DI1412000129123. The research program consists of two major elements: (1) a Pilot Program in the spring of 1983 to verify that the length and time scales of the observational and modelling components were representative of the circulation in the Channel and to gain experience in synthesizing the results of the two efforts, and (2) a Main Program spanning 1984 to provide a complete physical oceanographic description of the Channel both spatially and temporally. An integral part of a research program is a scientific review by an independent panel. The comments contained in the report followed submission of the Draft Final Report and address both the Report itself and the Research Program as a whole. A portion of the reviews contained specific recommendations relating to the format and representation of the material in the Report. The major portion of the reviews are directed toward scientific issues which relate to or enlarge upon the finished product. Oceanographic surveys/Ocean waves/Seasonal variations/Periodic variations/Meteorological data/Reviews/Recommendations/Circulation/Oceanographic data/Santa Barbara Channel/Southern Region California/NTIS.

1065. Tershy BR, Breese D, Alvarez-Borrego S. Increase in cetacean and seabird numbers in the Canal de Ballenas during an El Nino-Southern Oscillation event. MAR. ECOL. PROG. SER 1991;VOL. 69, NO. 3:pp. 299-302 Sect. Neurobiol. and Behav., Seeley G. Mudd Hall, Cornell Univ., Ithaca, NY 14853-2702, USA.

El Nino-Southern Oscillation (ENSO) events cause a decline in upwelling-based primary productivity throughout the California Current system and southern Gulf of California. However, in the Canal de Ballenas, central Gulf of California, primary productivity is based on tidal mixing and appears unaffected by ENSO events. Between the ENSO year of 1983 and the anti-ENSO year of 1985 we censused 4 piscivores (Bryde's whale *Balaenoptera edeni* ; common dolphin *Delphinus delphis* ; blue-footed booby *Sula nebouxii* and brown booby *S. leucogaster*) and 3 planktivores (fin whale *B. physalus* ; black storm-petrel *Oceanodroma melania* ; and least storm-petrel *O. microsoma*). For all species the number of individuals sighted per hour declined by 77 to 94% over the 3 yr period. This suggests that during ENSO events the Canal de Ballenas may serve as a refugium of high productivity and prey abundance for these highly mobile marine animals. El Nino phenomena/Southern Oscillation/environmental effects/primary production/growth/plankton feeders/marine birds/marine mammals/refuges/ISE, California Gulf, Canal de Ballenas/Oceanic Abstracts.

1066. Young DR, Heesen TC. Chlorinated benzenes in Palos Verdes flatfish. ; 1977.

Pacific Ocean East/California Coast/Coastal waters/Hydrocarbons/
Chlorine compounds/Pollutant analysis/Tissues/Wastewaters/
Metabolism/Pollutant detection/Bioindicators/Flatfish/PCB
compounds/Outfalls/Benthic organisms/Gas chromatography/Southern
California Bight/chlorinated benzenes/pollutant uptake/ Palos
Verdes/OceanAbstracts.

1067. Cockerell TDA. Studies of Island Life. Univ. Colorado
Studies 1938;26:3-20
Geologic history and terrestrial ecology of the California Islands,
mentions fossil molluscs, discusses Guadalupe Island, Mexico and
compares it with the Channel Islands.

1068. ANDERSON DW, GRESS F, MAIS KF. BROWN PELICANS:
INFLUENCE OF FOOD SUPPLY ON REPRODUCTION. OIKOS 39(1) 1982: 23-31,
ILLUSTR.
* PISCES ** SUPERCLASS GNATHOSTOMATA *** CLASS TELEOSTOMI ****
DIVISION TELEOSTEI ***** SUPERORDER CLUPEOMORPHA *****
CLUPEIFORMES ***** SUBORDER CLUPEOIDEI ***** ENGRAULIDAE
***** ENGRAULIS MORDAX.
FEEDING/CARNIVOROUS FEEDING/PREDATION/PREDATORS/PELECANUS
OCCIDENTALIS CALIFORNICUS (AVES)/FLEDGEING SUCCESS, EFFECT OF PREY
ABUNDANCE, NORTHERN PACIFIC/ECOLOGY/ECOLOGICAL ENERGETICS/BIOMASS/A
BUNDANCE, EFFECT ON AVIAN PREDATOR FLEDGEING SUCCESS, NORTHERN
PACIFIC/ POPULATION STUDY/POPULATION DYNAMICS/POPULATION
SIZE/PACIFIC OCEAN/ NORTHERN PACIFIC/SOUTHERN CALIFORNIA
BIGHT/DENSITY, EFFECT ON PREDATOR FLEDGEING SUCCESS/Zoological
Index.

1069. Anonymous. Santa Barbara Channel strike due
development. Oil Gas J. (Tulsa) 1982;80(27):54+1
oil field appraisal/oil development/production
management/petroleum/Santa Barbara Channel/continental
shelf/geology/petroleum.

1070. Bernal PA. Large-scale biological events in the
California Current. Calif. Coop. Oceanic Fish. Invest. Rep.
1979;20:89-101.
plankton/secondary production/Hickey/physical
oceanography/biomass/variance analysis/pieper variability/time
series analysis/epipelagic
zone/Reish/introduction/biological/TEXT/Dawson/MINERALS MANAGEMENT
SERVICE.

1071. Bernal PA. Large-scale biological events in the
California Current: The low frequency response of the epipelagic
ecosystem. Dissertation, Univ. of Calif., San Diego 1980;:184.
Pieper/Dawson/plankton/Text/MINERALS MANAGEMENT SERVICE.

1072. Bernal PA. A review of the low-frequency response of
the pelagic ecosystem in the California Current. Calif. Coop.
Oceanic Fish. Invest. Rep. 1981;22:49-62.
TEXT/CROSS/ALLEN/FISH/Pieper/Dawson/zooplankton/MINERALS MANAGEMENT
SERVICE.

1073. Bernal PA, McGowan JA. Advection and upwelling in the
California Current. IDOE Int. Symposium on Coastal Upwelling, Los
Angeles, CA (USA), 4 Feb 1980. Coast. Estuar. Sci.: Coastal
Upwelling 1981;(1):381-399. coastal upwelling/horizontal
advection/Pieper/Dawson/Hardy/phytoplankton/TEXT/zooplankton/biom
ass/Hickey/phy sical oceanography/MINERALS MANAGEMENT SERVICE.

1074. Bernal PA, Chelton DB, Sharp GD, Csirke eds. J.

Variabilidad biologica de baja frecuencia y gran escala en la Corriente de California, 1949-1978. (Low-frequency, large-scale biological variability in the California Current, 1949-1978). Proceedings of the Expert Consultation to Examine Changes in Abundance and Species Composition of Neritic Fish Resources, San Jose (Costa Rica), 18-29 April 1983. A Preparatory Meeting for the FAO World Conference on Fisheries Management and Development 1983;:713-729.

fishery/oceanography/current observations/INE/California Current/ISE/California Current/Hickey/physical oceanography/MINERALS MANAGEMENT SERVICE.

1075. Pennings SC. Multiple factors promoting narrow host range in the sea hare, *Aplysia californica*. OECOLOGIA 1990;82(2):192-200.

Juvenile sea hares, *Aplysia californica*, utilize only the red algae *Plocamium cartilagineum* and *Laurencia pacifica* as host plants at Santa Catalina Island, CA. I tested three hypotheses which might account for this pattern of host choice: 1) *A. californica* specialize on the algae on which they grow best, 2) *A. californica* specialize on algae from which they acquire secondary compounds that protect them from predators, and 3) *A. californica* specialize on certain algae in order to lower their encounter rates with predators. The results suggested that host range in the *Aplysia californica* system is affected by more than one factor. The first hypothesis was supported. *A. californica* of three size classes grew well on *Plocamium*, but could not grow at all on most other species of algae. Larger *A. californica* were able to grow on species of algae that smaller ones could not. The second hypothesis was also supported. The third hypothesis was rejected. habitat selection/colonization/*Aplysia californica*/USA/California/Santa Catalina Island/host range/specialization/defensive mechanisms/*Plocamium cartilagineum*/*Laurencia pacifica*/INE/USA/California/Santa Catalina I./ASFA.

1076. LeFever RD, Anderhalt R, Reed WE. Trend surface analysis of textural data from the Southern California borderland. Geol. Soc. Am., Abstr. Programs. 1977;9(4):p.451

Univ. Calif., Dep. Geol., Los Angeles, Calif., United-States The Geological Society of America, Cordilleran Section, 73rd annual meeting., Sacramento, Calif., April 5-7, 1977 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).

California/oceanography/continental shelf/sediments/clastic sediments/textures/Los Angeles County/grain size/Santa Catalina Island/Point Dume/Dume Canyon/submarine canyons/Borderland/trend surface analysis/Southern California/continental borderland/GEOREF.

1077. Reid JL,RA. Direct measurements of the Davidson Current off central California. J. Geophys. Res. 1962;67(6):2491-2497

Oceanography/Physical oceanography/currents.

1078. Rozaire CE. Archaeological Investigations on Anacapa Island, California. Los Angeles, CA: Los Angeles County Museum of Natural History; 1978. anthropology/archaeology/Chumash.

1079. Berner LD. Distributional atlas of Thaliacea in the California Current region. Calif. Coop. Oceanic Fish. Invest. Atlas No. 8 1967;:322. Pieper/Dawson/Zooplankton/Text/MINERALS MANAGEMENT SERVICE.

1080. Gunn JT, Hamilton P, Herring HJ, Kantha LH, Lagerloef

GSE (Performer: Dynalysis of Princeton, NJ. Performer: Science Applications International Corp., Bellevue, WA. Funder: Minerals Management Service, Los Angeles, CA. Pacific OCS Region.) Santa Barbara Channel Circulation Model and Field Study. Appendix E: Observational-Computational Data Comparison. E.2: Time Series and Spectra. ; 1987. Report No.: OCSMMS870106. 136p. See also PB89-213698. Prepared in cooperation with Science Applications International Corp., Bellevue, WA. Sponsored by Minerals Management Service, Los Angeles, CA. Pacific OCS Region. PC A07/MF A01 Contract: DI1412000129123. The research program consists of a Main Program spanning 1984 to provide a complete physical oceanographic description of the Channel both spatially and temporally. A set of current meter moorings was maintained in the interior of the Santa Barbara Channel during the Main Program partially for purposes of comparison with model results. The locations and depths of the moorings are included in the report. The prognostic calculations for equivalent periods are interpolated to the current meter locations. The first set of time series comparisons consists of pairs of plots displaying the same information in slightly different formats. The second plot shows the components of current velocity and the temperature and salinity, both observations and calculations, on the same axis, east and north are positive. The second group of data products are pairs of time and frequency correlations for the observational and computational currents. Ocean currents/Velocity measurement/Mathematical models/Time series analysis/Ocean temperature/Salinity/Autocorrelation/Circulation/Oceanographic data/Santa Barbara Channel/Southern Region California/NTIS.

1081. Munroe TA, Nizinski MS. *Symphurus melasmatotheca* and *S. undecimplerus* (Cynoglossidae, Pleuronectiformes), two new eastern Pacific tonguefishes with eleven caudal-fin rays. COPEIA 1990;NO. 4:pp. 985-996
NOAA/NMFS, Syst. Lab., Natl. Mus. Nat. Hist., Washington, DC 20560, USA. Two new species of eastern Pacific tonguefishes with an unusual count of 11 caudal-fin rays are described. *Symphurus melasmatotheca* (southern Gulf of California to northern Peru) is characterized by having 11 caudal-fin rays, a well-developed pupillary operculum, 90-98 dorsal-fin rays, 74-80 anal-fin rays, 49-52 total vertebrae, four hypurals, a 1-5-3 (less frequently, 1-4-3) pattern of interdigitation of dorsal pterygiophores and neural spines, and 82-98 longitudinal scale rows. *S. melasmatotheca* also has a unique pigmentation pattern. *S. undecimplerus* (Gulf of Tehuantepec to northern Peru) is distinguished from its congeners by a combination of 11 caudal-fin rays, a well-developed pupillary operculum, a 1-5-3 (less frequently 1-4-4 or 1-5-4) pattern of interdigitation of dorsal pterygiophores and neural spines, 97-105 dorsal-fin rays, 80-87 anal-fin rays, 52-56 total vertebrae, and 95-112 longitudinal scale rows. Differences in geographic and bathymetric distributions between species are also noted. new species/taxonomy/animal morphology/fin ray counts/vertebrae counts/meristic counts/geographical distribution/*Symphurus melasmatotheca*/*Symphurus undecimplerus*/IE, East Pacific/OCEANIC ABSTRACTS.

1082. Mearns AJ, Sherwood MJ. Changes in the prevalence of fin erosion off Los Angeles and Orange counties. ; 1977. Pacific Ocean East/California Coast/Coastal waters/Diseases/Fish/Wastewaters/Outfalls/Fins/Soles/microstomus/glyptocephalus/Monitoring methods/Southern California Bight/fin erosion/bottom fish/Los Angeles County/Orange County/M/pacificus/G/zachirus/Palos Verdes shelf/Dover sole/rex sole/San Pedro Bay/fin erosion prevalence 1972-1977/OceanAbstracts.

1083. Cockerell TDA. Recollections of a naturalist, XII The California Islands. Bios 1939;10(2):99-106
A rambling account of endemism in the California Islands.
San Miguel Island, Santa Cruz Island.

1084. JENKINS KD, BROWN DA, OSHIDA PS, PERKINS EM. CYTOSOLIC METAL DISTRIBUTION AS AN INDICATOR OF TOXICITY IN SEA URCHINS FROM THE SOUTHERN CALIFORNIA BIGHT. MARINE POLLUT. BULL. 13(12) 1982: 413-421, ILLUSTR. * ECHINODERMATA ** ECHINOIDEA ***
STRONGYLOCENTROTUS PURPURATUS. BIOCHEMISTRY/CHEMICAL COMPOSITION/POLLUTANT CONTENT/GONADAL CYTOSOLIC METALS, CALIFORNIA (MARINE)/REPRODUCTION/REPRODUCTIVE SYSTEM/GONAD/CYTOSOLIC METAL CONTENT, CALIFORNIA (MARINE)/PACIFIC OCEAN/NORTHERN PACIFIC/SOUTHERN CALIFORNIA BIGHT/CYTOSOLIC METAL CONTENT, GONAD/Zoological Index.

1085. Anonymous. Santa Barbara channel state tract tests sought. Oil Gas J (Tulsa) 1982;80(8):43
petroleum exploration/Santa Barbara Channel/continental shelf/offshore geology/petroleum.

1086. Bernstein RL, Breaker LL, Whritner R. California Current eddy formation: Ship, air and satellite results. Science 1977;195(4276):353-359. Coastal currents/Eddies/California Current/California Coast/Circulation/Pacific Ocean Northeast/Remote sensing/Satellite observations/Radiometers/Hickey/physical oceanography/TEXT/Bonnell/Dailey/marine mammals/MINERALS MANAGEMENT SERVICE.

1087. Berry FH, Perkins HC. Survey of the pelagic fishes of the California Current area. U.S. Natl. Mar. Fish. Serv. Fish. Bull. 1966;65:625-682. Northern anchovy/Engraulis mordax/Pacific hake/Merluccius productus/sablefish/Anoplopoma fimbria/Dover sole/Microstomus pacificus/life history/distribution/fish/Cross/NPS/Fishes/vertebrates/zoology TEXT Allen/MINERALS MANAGEMENT SERVICE.

1088. Berry RW, Fischer PJ. Clay mineral distribution and ocean currents; southern California continental borderland. Presented at: The Geological Society of America, Cordilleran Section, 74th Annual Meeting, Tempe, AZ (USA), March 29-31, 1978. Geol. Soc. Am., Abstr. Programs 1978;10(3):96.
California/sediments/clay mineralogy/Pacific Coast/Pacific Ocean/sedimentation/oceanography/composition/areal studie/environment/clastic sediments/marine environment/clay/Los Angeles County/continental borderland/Southern California/distribution/currents/United States/sorting/Point Dume/chlorite/sheet silicate/silicates/illite/Santa Catalina Island/Coal Oil Point/Hood/ecosystem/MINERALS MANAGEMENT SERVICE.

1089. PROPOSED 1982 OUTER CONTINENTAL SHELF OIL AND GAS LEASE SALE OFFSHORE SOUTHERN CALIFORNIA. LOS ANGELES, CALIFORNIA DEPARTMENT OF THE INTERIOR, BUREAU OF LAND MANAGEMENT NOVEMBER 1981 (EPA: NOVEMBER 20, 1981) 2 VOLUMES 1981 USDA EMPLOYEES REQUEST DOCUMENTS FROM NATIONAL AGRICULTURAL LIBRARY OTHERS ORDER FROM INFORMATION RESOURCES PRESS, 1700 NORTH MOORE STREET, SUITE 70 0, ARLINGTON, VA 22209. ENV.
PURSALE OF OIL AND GAS LEASES ON 218 TRACTS CONTAINING 1.1 MILLION ACRES OF OUTER CONTINENTAL SHELF LANDS OFFSHORE OF SOUTHERN CALIFORNIA IS PROPOSED. THE TRACTS ARE BETWEEN 3 AND 84 GEOGRAPHIC MILES OFFSHORE AND IN WATER DEPTHS RANGING FROM 150 TO 4,900 FEET.

THE TRACTS LIE IN THREE SUBAREAS, NAMELY, THE SANTA BARBARA CHANNEL, INNER BANKS, AND OUTER BANKS. DEVELOPMENT OF THE LEASE TRACTS WOULD INVOLVE 19-179 EXPLORATORY WELLS, 35-199 DELINEATION WELLS, 40-339 PLATFORM WELLS, 3-12 PLATFORMS, 0-7 SUBSEA COMPLETIONS, 96 MILES OF OFFSHORE PIPELINE, AND 2 MILES OF ONSHORE PIPELINE. ESTIMATED COST OF DEVELOPING OIL AND GAS RESOURCES WITHIN THE TRACTS IS \$2.1 BILLION. POSTDEVELOPMENT OF THE RESOURCES WITHIN THE TRACTS WOULD RESULT IN THE PRODUCTION OF 230 MILLION BARRELS OF OIL AND 662 BILLION CUBIC FEET OF NATURAL GAS. OIL AND GAS PRODUCED BY THE TRACTS WOULD DECREASE THE NATION'S DEPENDENCY ON FOREIGN SOURCES OF OIL. DIRECT EMPLOYMENT LEVELS OVER THE 25-YEAR PRODUCTIVE LIFE OF THE TRACTS WOULD PEAK IN 1986 AT 400 JOBS, WHILE TOTAL DIRECT AND INDIRECT EMPLOYMENT WOULD ACCOUNT FOR NEARLY 4,526 ADDITIONAL JOBS AT THE PEAK OVERALL EMPLOYMENT YEAR OF 1992. INCOME FROM THE SALES WOULD INCREASE FEDERAL REVENUE. NEGDEVELOPMENT ACTIVITIES WOULD RESULT IN A STATISTICALLY ESTIMATED 1.1 SPILLS OF GREATER THAN 1,000 BARRELS AND 0.5 SPILLS GREATER THAN 10,000 BARRELS DURING THE LIFE OF THE LEASES. TRENCHING FOR PIPELINES AND OTHER ACTIVITIES ASSOCIATED WITH PIPELINE CONSTRUCTION AND OPERATION WOULD RESULT IN RELEASE OF 230 MILLION BARRELS OF FORMATION WATER, 220 MILLION BARRELS OF DRILL MUDS, AND 393.5 MILLION BARRELS OF CUTTINGS. ACTIVITIES AT OIL PLATFORMS AND DRILLING RIGS WOULD DEGRADE WATER QUALITY WITHIN 2,500 METERS OF THESE STRUCTURES. LARGE OIL SPILLS WOULD RESULT IN SEVERE WATER QUALITY DEGRADATION IN RESTRICTED BAYS, SUCH AS UPPER NEWPORT BAY, AND IN SEVERE DEGRADATION OF SENSITIVE INTERTIDAL AREAS. RELEASE OF SULFUR DIOXIDE, CARBON MONOXIDE, HYDROGEN SULFIDE, AND PARTICULATES WOULD RESULT IN SLIGHTLY INCREASED POLLUTANT LOADINGS IN AREAS WHERE FEDERAL AIR QUALITY STANDARDS ARE ALREADY BEING VIOLATED. DEVELOPMENT STRUCTURES AND POTENTIAL OIL SPILLS COULD DEGRADE CRITICAL FISHERY HABITAT. OIL CONTACT COULD CONSTITUTE A HAZARD FOR WHALES, PORPOISES, SEALS, DOLPHINS, AND SEABIRDS. SHIPPING TRAFFIC WOULD BECOME SOMEWHAT MORE CONGESTED, AND DEVELOPMENT ACTIVITIES COULD ENCROACH ON THE PACIFIC MISSILE TEST CENTER. PLACEMENT OF PERMANENT SOURCES OF MAGNETIC ANOMALITIES IN THE OCEAN FLOOR WOULD HAMPER THE SEARCH FOR CULTURAL RESOURCES IN SOME SHALLOW WATER AREAS. DEVELOPMENT STRUCTURES WOULD DEGRADE AESTHETICS SIGNIFICANTLY IN SOME SENSITIVE AREAS. LEGOUTER CONTINENTAL SHELF LANDS ACT OF 1953 (43 U.S.C. 1331). REFFOR THE ABSTRACT OF THE DRAFT ENVIRONMENTAL IMPACT STATEMENT SEE 81-0574D, VOLUME 5, NUMBER 8.

PACIFIC OCEAN/SANTA BARBARA CHANNEL/CONTINENTAL SHELVES/CRUDE OIL/CULTURAL RESOURCES/ENERGY SOURCES/EXPLORATION/FISHERIES/LEASING/NATURAL GAS/OFFSHORE ENERGY SOURCES/OIL PRODUCTION/OIL SPILLS/PIPELINES/WELLS/OUTER CONTINENTAL SHELF LANDS ACT OF 1953 PROGRAM AUTHORIZATION/AGRICOLA.

1090. Spies RB, Hardin DD, Toal JP. Organic enrichment or toxicity? A comparison of the effects of kelp and crude oil in sediments on the colonization and growth of benthic infauna. J. EXP. MAR. BIOL. ECOL 1988;124(3):261-282. The response of a benthic invertebrate community to two sources of sedimentary organic material was compared in a field experiment. The meiofauna and macrofauna colonizing and growing in sediment amended with varying concentrations (0, 0.1, 1 and 5%) and combinations of dry kelp debris and Isla Vista Seep petroleum were enumerated after 35 days at a subtidal site in the Santa Barbara Channel. Most groups of meiofauna responded similarly, having peak abundances at low nominal concentrations (0.1% on one or both constituents), although kelp had generally a greater stimulatory effect than did oil. The data presented here are largely consistent with a view that the response of the benthic populations to crude oil in sediments are similar to those expected from other sources of organic matter.

sediments/California/oil seepages/population
dynamics/colonization/nutrient enrichment/macrofauna/meiofauna/kelp
beds/USA/California/Invertebrata/organic matter/crude
oil/kelp/INE/USA/California/Isla Vista Seep/oil/zoobenthos/marine
invertebrates/ASFA.

1091. Hawkins JW, Hawkins DL. Petrology, geochemistry and
evolution of mid Miocene volcanic rocks of San Clemente Island, So.
Calif. Borderland. Geol. Soc. Am., Abstr. Programs. 1977;9(4):p.432
Scripps Inst. Oceanogr., Geol. Res. Div., La Jolla, Calif., United-
States The Geological Society of America, Cordilleran Section,
73rd annual meeting., Sacramento, Calif., April 5-7, 1977
Analytic; Serial; Conference publication; Abstract B; Bibliography
and Index of Geology (1969-present). California/petrology/igneous
rocks/andesite rhyolite family/andesite/Los Angeles
County/rhyolite/dacite/geochemistry/genesis/island
arcs/evolution/mantle/mineral
composition/fractionation/volcanism/middle Miocene/San Clemente
Island/Southern California/continental borderland/GEOREF.

1092. Reid JL,J, Worvall CB, Coughran. Detailed measurements
of a shallow salinity minimum in the thermocline. Journal Geophys.
Res. 1964;69 Oceanography/Physical oceanography/currents.

1093. Rozaire CE. Archaeological Investigations on San
Miguel Island, California. Los Angeles, CA: Los Angeles County
Museum of Natural History; 1978. archaeology/anthropology/Chumash.

1094. Jessen PF, Ramp SR, Clark CA (Performer: Naval
Postgraduate School, Monterey, CA). Hydrographic Data from the
Pilot Study of the Coastal Transition Zone (CTZ) Program, 15-28
June 1987. Progress rept. Oct 86-Sep 87. ; 1989. Report No.:
NPS6889004. 254p.
This data report presents hydrographic (CTD) data from a cruise off
Point arena, CA during 15-28 June 1987. The study area was between
37 deg 40'N to 39 deg 20'N and 123 deg 30'W to 125 deg 30'W. The
sampling plan criss-crossed a cold filament rooted near Point
Arena, as observed using satellite AVHRR Sea Surface Temperature
imagery. A total of 122 CTD casts to 500 m and 30 XBT drops to 750
m were made. The data are presented as individual vertical
profiles, vertical sections, and property distributions on
horizontal surfaces. The data were collected as part of the ONR
Coastal Transition Zone (CTZ) program to study cold filaments,
squirts, jets, and mesoscale eddies in the region. Keywords: Sea
water temperature, Electrical conductivity, Oceanographic data,
California current, Mesoscale eddies, Cold filaments. (EDC).
Bathythermograph data/California/Coastal
regions/Density/Distribution/Eddies Fluid mechanics/Electrical
conductivity/Filaments/Horizontal orientation/Low temperature/Ocean
currents/Ocean surface/Pilot
studies/Profiles/Radiometry/Satellite
photography/Temperature/Transitions/Vertical
orientation/Hydrography/Oceanographic data/Sea water/CTZ Coastal
Transition Zone/Cold filaments/California Current/NTIS.

1095. Hillman RE. The implications to the taxonomy of
Mytilus of histopathological observations of Mytilus edulis
collected for the mussel watch program. 1990 Annu. Meet. of the
National Shellfisheries AssociationJ. SHELLFISH RES 1989;VOL. 8,
NO. 2:p. 452
Bettelle Memorial Inst., Duxbury Oper., Duxbury, MA 02332, USA.
Recent electrophoretic studies of populations of mussels purported
to be Mytilus edulis indicated that M. edulis does not exist on the

west coast of the United States. Rather, populations of mussels in southern California were very similar to *M. galloprovincialis*, probably accidentally introduced into southern California; populations from Oregon and Alaska were similar to *M. trossulus*, indigenous to the Baltic Sea and parts of eastern Canada. In central and northern California, *M. galloprovincialis* and *M. trossulus* and their hybrids co-occur. Two types of histopathological observations of mussels collected for the Mussel Watch program indicate that at least the southern California mussels may indeed be a species of *Mytilus* other than *edulis*. The occurrence of *Steinhausia mytilovum* in mussels from Marina del Rey established a new geographic record for the microsporidian species. Based on the histopathological differences, it is reasonable to assume the possibility that the southern California mussels are actually *M. galloprovincialis*, accidentally introduced to southern California, and that *S. mytilovum* was accidentally introduced with the mussels.

taxonomy/geographical distribution/histopathology/parasites/*Mytilus galloprovincialis*/*Steinhausia mytilovum*/INE, USA/OCEANIC ABSTRACTS.

1096. Mearns AJ. Abundance of bottom fish off Orange County. ; 1977. Pacific Ocean East/California Coast/Coastal waters/Abundance/ Population variations/Catch statistics/Fish catches/Monitoring methods/Trawling/Physical oceanography/Temperature variations/ Turbidity/Ecology/Seasonal variations/Southern California Bight/bottom fish/8-yr trawl survey/1969-1977 Orange County/recruitment periods/OceanAbstracts.

1097. Cockerell TDA. The marine invertebrate fauna of the California islands. Sixth Pacific Science Congress 1940
Mainly an account of fossil molluscan fauna.
San Miguel Island.

1098. GROSSMANN EL. STABLE ISOTOPES IN LIVE BENTHIC FORAMINIFERA FROM THE SOUTHERN CALIFORNIA BORDERLAND. DISSERTATION ABSTR. INT. (B) 43(6) 1982: 1769-1770.
* PROTOZOA ** PHYLUM SARCOMASTIGOPHORA *** SUBPHYLUM SARCODINA **** SUPERCLASS RHIZOPODA ***** CLASS GRANULORETICULOSEA *****
FORAMINIFERIDA. BIOCHEMISTRY/CHEMICAL COMPOSITION/STABLE C & O ISOTOPES, PALAEOENVIRONMENTAL INDICATORS, PACIFIC/ECOLOGY/ENVIRONMENTAL INDICATORS/PALAEOTEMPERATURE SCALE & C ISOTOPE FRACTIONATION ANALYSIS, PACIFIC/PACIFIC OCEAN/SOUTHERN CALIFORNIA BORDERLAND/STABLE ISOTOPE CONTENTS, PALAEOENVIRONMENTAL INDICATORS/Zoological Index.

1099. Anonymous. Santa Barbara Channel strike confirmed. Oil Gas J. (Tulsa) 1982;80(26):43
petroleum discoveries/Santa Barbara Channel/continental shelf/offshore/geology/petroleum.

1100. Silver MW(EW. The habitat of *Salpa fusiformis* (Chordata:tunicata) in the California Current as defined by stomach content studies and the effect of salp swarms on the food supply of the plankton community. [dissertation] ; 1971. Other-US Photocopy. Ann Arbor, Mich. : University Microfilms, 1972. Thesis (Ph.D.)--University of California, San Diego, 1971. Bibliography: leaves 129-133. Monograph; Bibliography.
AGRICOLA.

1101. Barth JA, Brink KH. Shipboard acoustic Doppler profiler velocity observations near Point Conception: Spring 1983. J. GEOPHYS. RES. (C OCEANS) 1987;92(C4):3925-3943.
During April 1983, shipboard Doppler acoustic log current profiles

were collected in an effort to characterize the flow field near points Conception and Arguello, California. Subsurface velocity maps derived from these profiles have been used to describe spatial flow structures both on and off the shelf and to investigate flow variability as a function of time and of wind stress. Persistent westward flow out of the northern half of the Santa Barbara Channel and eastward flow into its southern half were observed regardless of the direction of the local wind stress. Evidence for wind forcing of current fluctuations nearshore between the points and north of Point Arguello was found.

ocean currents/current observations/wind stress/coastal currents/INE/ USA/California/Point Conception/atmospheric forcing/current velocity/INE/USA/California/Point Arguello/dynamical oceanography/ASFA.

1102. Lowenstam HA, Fitch JE. First recovery of live monoplacophorans. Geol. Soc. Am., Abstr. Programs. 1977;9(7):p.1076 Calif. Inst. Technol., Div. Geol. and Planet. Sci., Pasadena, Calif., United-States The Geological Society of America, 90th annual meeting, Seattle, Wash., Nov. 7-9, 1977 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). California/paleontology/Mollusca/Monoplacophora/Holocene/ecology/shorelines/Santa Rosa Cortes Ridge/taxonomy/morphology/evolution/SEM data/modern/GEOREF.

1103. Reid JL, Roden GI, Wyllie JG. Studies of the California Current System. CalCOFI 1958;Progress Report 1:28-56 Oceanography/Physical oceanography/currents/winds/water masses.

1104. King C. Evolution of Chumash Society: A Comparative Study of Artifacts Used for Social System Maintenance in the Santa Barbara Channel Region Before A.D. 1804. New York: Garland; 1990. anthropology/archaeology/Chumash/Channel Islands.

1105. Lang MA, Hamilton RW (Performer: University of Southern California, Los Angeles. Sea Grant Program. Funder: National Sea Grant Coll. Program, Rockville, MD. Funder: American Academy of Underwater Sciences, Costa Mesa, CA.) Proceedings of the American Academy of Underwater Sciences Dive Computer Workshop. Held in Santa Catalina Island, California on September 26-28, 1988. ; 1989. Report No.: USCSGTR0189. 225p. Sponsored by National Sea Grant Coll. Program, Rockville, MD., and American Academy of Underwater Sciences, Costa Mesa, CA. PC A10/MF A01 Grants: NA85AADSG140, NA86AADSG119.

The proceedings reports are grouped in the following sessions: Introductory session; Manufacturer's session; International dive computer experiences;; Dive computer utilization; Dive computer utilization and simulation; Dive computers, tables and no-stop diving; Computer display of some DC profiles; Individual experiences and personal perspectives; and General discussion and concluding remarks.

Decompression injuries/Barotrauma/Decompression sickness/Computer systems hardware/Computer systems programs/Diving/Computers/Meetings/Underwater physiology/Data bases/Human tolerances/Computer applications/NTIS.

1106. Shane SH, McSweeney D, Hammond PS, Mizroch SA, Donovan GP(. Using photo-identification to study pilot whale social organization (SC/A88/P20). Symp. and Workshop on Individual Recognition and the Estimation of Cetacean Population ParametersINDIVIDUAL RECOGNITION OF CETACEANS: USE OF PHOTO-IDENTIFICATION AND OTHER TECHNIQUES TO ESTIMATE POPULATION

PARAMETERS. INCORPORATING THE PROCEEDINGS OF THE SYMPOSIUM AND WORKSHOP ON INDIVIDUAL RECOGNITION AND THE ESTIMATION OF CETACEAN POPULATION PARAME 1990:pp. 259-263

West Coast Whale Res. Found., U.S., P.O. Box 1768, Santa Cruz, CA 95061, USA International Whaling Comm., Cambridge (UK).

Photo-identification of uniquely-marked individuals was the primary research tool used in studies of pilot whale (*Globicephala macrorhynchus*) social organization at Santa Catalina Island, California (1983-8) and the Big Island of Hawaii (1985-8). Pilot whales showed fairly high site fidelity, especially in Hawaii. Pod cohesiveness over time was marked in Hawaii but less evident at Catalina. Pods in both study areas were composed primarily of presumed adult females with juveniles and calves. Presumed adult males were rare, and when seen, did not associate with the same pod all the time. Pair-wise association analyses at Catalina showed some degree of social affiliation between some individuals. Thirty-four to 45% of pilot whales in the 2 study areas were identifiable which compares favorably with bottlenose dolphins (44%) but is lower than humpback whales (92%) and Risso's dolphins (67-95%). Despite some problems, photo-identification is a promising technique for studying pilot whale social organization.

social behavior/photography/identification/*Globicephala*/OCEANIC ABSTRACTS.

1107. Mearns AJ. Coastal gradients in sportfish catches. ; 1977. Pacific Ocean East/California Coast/Coastal waters/Fish catches/ Sport fishing/Wastewaters/Outfalls/Marine pollution/Overfishing/ Fishing zones/Catch statistics/Species diversity/Southern California Bight/municipal wastewater outfalls/coastal trends/commercial party boat landings 1973/fishing statistics/fish landings/OceanAbstracts.

1108. Cushman JA, I. McCulloch. A report on some arenaceous Foraminifera. Allan Hancock Pacific Expeditions 1939;6(1):1-113 Includes sandy subtidal and sand beach species from the northern Channel Islands. Sandy subtidal, sand beach, Foraminifera, Santa Barbara Island, Santa Rosa Island, San Miguel Island, Anacapa Island.

1109. THOMPSON BE. FOOD RESOURCE UTILIZATION AND PARTITIONING IN MACROBENTHIC COMMUNITIES OF THE SOUTHERN CALIFORNIA BORDERLAND. DISSERTATION ABSTR. INT. (B) 43(6) 1982: 1711. FEEDING/PARTICULATE FEEDING/DEPOSIT FEEDING/SEDIMENTARY RESOURCE UTILIZATION & PARTITIONING, BENTHON, NORTHERN PACIFIC/FEEDING BEHAVIOUR/FOOD PREFERENCES/DIGESTION & NUTRITION/NUTRITION/FOOD UTILIZATION/ECOLOGY/COMMUNITY/ECOLOGICAL NICHE/SEDIMENTARY FOOD UTILIZATION & PARTITIONING, BENTHON, NORTHERN PACIFIC/COMPETITION/INT ERSPECIFIC COMPETITION/LIFE HABIT/AQUATIC HABIT/BENTHON/SEDIMENTARY FOOD UTILIZATION & PARTITIONING, CALIFORNIA (MARINE)/PACIFIC OCEAN/NORTHERN PACIFIC/SOUTHERN CALIFORNIA BORDERLAND/SEDIMENTARY FOOD UTILIZATION & PARTITIONING, BENTHON/Zoological Index.

1110. Anonymous. Shell to resume deep pay probe off California. Oil Gas J. 1982;82(7):38 Shell California Production Inc. has unveiled plans to resume exploratory drilling in Molino Gas Field in state waters of the Santa Barbara Channel off California. Plans call for a program of three deep wells to probe Eocene Matilija gas prospects and Miocene Monterey oil as a secondary target just west of a site at which Phillips Petroleum Co. plans to develop a significant new pay discovery. Shell plans to move in the JFP Three jack up, rated to 25,000 ft in 300 ft of water, to drill the wells, the company said

in a draft supplemental environmental impact report (EIR) submitted to the California State Lands Commission. The program will resume a wild-cat drilling program Shell aborted early last year. offshore operations/oil fields/drilling/Santa Barbara Channel/Molino field/petroleum.

1111. Yeaton RI,1. An ecological analysis of chaparral and pine forest bird communities on Santa Cruz Island and mainland California. ; 1972. 117 leaves. Other-US Photocopy. Ann Arbor, Mich. : University Microfilms, 1973. Thesis (Ph.D.)--University of California, Los Angeles, 1972. Bibliography: leaves 96-101. Monograph; Bibliography. AGRICOLA.

1112. Kelly KA. An inverse model for near-surface velocity from infrared images. J. PHYS. OCEANOGR 1989;19(12):1845-1864. An inverse model to infer the near-surface velocity from the heat equation was applied to a series of six infrared satellite images from northern California. The inversion used a two-dimensional nondiffusive heat equation with a simple representation of surface heat fluxes and vertical entrainment. The along-isotherm component of the velocity was in the null space of this problem. An overdetermined problem was defined by adding weighted constraints on the energy, divergence and curl of the velocity and representative solutions were chosen from the family of solutions corresponding to a designated misfit level for the heat equation. The velocity solutions from these inversions supported the theory that the apparent cold filaments in the images were actually meanders of the California Current. ocean circulation/current velocity/surface currents/current meandering/mathematical models/INE/California Current/satellite sensing/ASFA.

1113. Ingle JCJ. Cenozoic paleoclimatic trends, history of the California Current, and Pacific Coast marine biostratigraphy. Geol. Soc. Am., Abstr. Programs. 1977;9(7):p.1032-1033 Stanford Univ., Dep. Geol., Stanford, Calif., United-States The Geological Society of America, 90th annual meeting, Seattle, Wash., Nov. 7-9, 1977 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). Pacific Coast/stratigraphy/Cenozoic/paleoclimatology/North America/biogeography/Pacific Ocean/oceanography/ocean circulation/California Current/Northeast Pacific/changes/biostratigraphy/biofacies/faunal provinces/lithostratigraphy/lithofacies/diatomite/phosphorite/mud stone/currents /GEOREF.

1114. Riffenburg RH. California undersea aqueduct reconnaissance. The Oceanography 1973:71-75 Oceanography/Physical oceanography/currents/water masses.

1115. King C. The Evolution of Chumash Society: A Comparative Study of Artifacts Used in Social System Maintenance in the Santa Barbara Channel Region Before A.D. 1804 [dissertation] [Ph.D. Dissertation]. Univ. of Calif. Davis: UC Davis; 1981. University Microfilms, Ann Arbor, Mich. archaeology/anthropology/Chumash.

1116. Smith KJ, Brown N. Oxygen consumption of pelagic juveniles and demersal adults of the deep-sea fish *Sebastes altivelis*, measured at depth. MAR. BIOL 1983;76(3):325-332. Oxygen consumption rates of the deep-sea fish *S. altivelis* were measured in situ on pelagic juveniles at mesopelagic depths (608 m) and on demersal adults at bathyal depths (1,300 m) in the Santa

Catalina Basin in March 1982. Oxygen consumption rates were 1.5 to 1.8 times higher during the night than during the day. Gut contents of the juveniles were mainly euphausiids. Weight-specific O₂ consumption rates for adults decreased with increasing body weight and were consistent in magnitude throughout the incubation period. Population O₂ consumption for demersal *S. altivelis* was 11.01 $\mu\text{l O}_2\text{ m}^{-1}\text{ h}^{-1}$.
oxygen consumption/Pacific Ocean/Santa Catalina Basin/food availability/ecophysiology/*Sebastolobus altivelis*/INE/USA/California/Santa Catalina Basin/juveniles/pelagic environment/adults/demersal environment/CSA Life Sciences Collection.

1117. Simpson JJ, Vallis GK, White WB (Performer: Scripps Institution of Oceanography, La Jolla, CA). Ocean Remote Sensing and Modeling. Semi-annual progress rept. no. 5, 15 Sep 88-15 Mar 89. ; 1989. 14p.

PC A03/MF A01 Contract: N0001486K0752.

No abstract available.

Remote detectors/Space based/Air water interactions/Ocean currents/Clouds/Pacific Ocean/Eddies Fluid mechanics/Surface temperature/Sea level/Scientific satellites/Oceanographic data/Algorithms/Data processing/Ocean models/El Nino/California Current/Ocean circulation/Undercurrents Ocean currents/Altimetry/Remote sensing/NTIS.

1118. Tershy BR, Breese D, Strong CS, Hammond PS, Mizroch SA, Donovan GP(. Abundance, seasonal distribution and population composition of balaenopterid whales in the Canal de Ballenas, Gulf of California, Mexico (SC/A88/ID22). Symp. and Workshop on Individual Recognition and the Estimation of Cetacean Population Parameters INDIVIDUAL RECOGNITION OF CETACEANS: USE OF PHOTO-IDENTIFICATION AND OTHER TECHNIQUES TO ESTIMATE POPULATION PARAMETERS. INCORPORATING THE PROCEEDINGS OF THE SYMPOSIUM AND WORKSHOP ON INDIVIDUAL RECOGNITION AND THE ESTIMATION OF CETACEAN POPULATION PARAME 1990:pp. 369-375

Sect. Neurobiol. and Behav., Seeley G. Mudd Hall, Cornell Univ., Ithaca, NY 14853, USA International Whaling Comm., Cambridge (UK). The Canal de Ballenas, in the Gulf of California, Mexico, is subtropical but has high rates of year-round productivity. It is used by 4 balaenopterid species of whales. Between May 1983 and Apr 1986 2,758 hours were spent in a small boat censusing and photo-identifying balaenopterid whales in a 20 x 45 km section of the Canal. A total of 9 individual blue whales, 148 individual fin whales, 160 individual Bryde's whales and 6 individual minke whales were identified. At the same time 9 blue, 291 fin, 307 Bryde's and 17 minke whales were screen. The number of sightings per identified individual suggest that blue and fin whales are more transient to the study area than Bryde's and minke whales. This indicates that photo-identification data can improve the interpretation of sightings data. photography/identification/stock assessment/quantitative distribution/Balaenopteridae/ISE, California Gulf/community composition/Oceanic Abstracts.

1119. Allen MJ, Voglin RM. Commercial fish catches. ; 1977.

Pacific Ocean East/California Coast/Coastal waters/Fishing industry/ Fish catches/Catch yield/Shellfish/Pelagic fauna/Pelagic zones/*engraulis*/*scomber*/*trachurus*/Anchovies/Mackerels/Sardines/Santa Barbara Channel/Standing crops/Abundance/Southern California Bight/pelagic wetfish/*E/mordax*/*S/japonicus*/*T/ symmetricus*/San Pedro Channel/Cortes Bank/OceanAbstracts.

1120. Cushman JA, I. McCulloch. Some Nonionidae in the collections of the Allan Hancock Foundation. Allan Hancock Pacific Expedition 1940;6(3):145-178 Includes sandy subtidal foraminifera from the northern Channel Islands. sandy subtidal, foraminifera, Santa Barbara Island, Santa Cruz Island.

1121. GREENBLATT PR. SMALL-SCALE HORIZONTAL DISTRIBUTIONS OF ZOOPLANKTON TAXA. MARINE BIOL., BERL. 67(1) 1982: 97-111, ILLUSTR. HABITAT/DISTRIBUTION WITHIN HABITAT/HORIZONTAL DISTRIBUTION/SMALL SCALE, PLANKTON, NORTHERN PACIFIC/PACIFIC OCEAN/NORTHERN PACIFIC/CALIFORNIA CURRENT/PLANKTON SMALL SCALE HORIZONTAL DISTRIBUTIONS/Zoological Index.

1122. Anonymous. State lease sale eyed in Santa Barbara Channel (oil exploration). Oil Gas J. (Tulsa) 1982;80(17):78 energy policy/petroleum exploration/lease/sale/Santa Barbara Channel/continental shelf/offshore geology.

1123. Blackburn M. Thaliacea of the California Current region: Relations to temperature, chlorophyll, currents, and upwelling. Calif. Coop. Fish. Invest. Rep. 1979;20:184-214. geographical distribution/upwelling/Thaliacea/zooplankton/abundance/biomass/water temperature/food availability/surface currents/Doliolletta gegenbauri/Doliolum denticulatum/Thalia democratica/ISE/California Current/zooplankton/Pieper/MINERALS MANAGEMENT SERVICE.

1124. PROPOSED 1982 OUTER CONTINENTAL SHELF OIL AND GAS LEASE SALE OFFSHORE SOUTHERN CALIFORNIA. LOS ANGELES, CALIFORNIA DEPARTMENT OF THE INTERIOR, BUREAU OF LAND MANAGEMENT JUNE 1981 (EPA: JUNE 2, 1981) 2 VOLUMES 1981 USDA EMPLOYEES REQUEST DOCUMENTS FROM NATIONAL AGRICULTURAL LIBRARY OTHERS ORDER FROM INFORMATION RESOURCES PRESS, 1700 NORTH MOORE STREET, SUITE 70 0, ARLINGTON, VA 22209. ENV. PURCHASE OF OIL AND GAS LEASES ON 218 TRACTS CONTAINING 1.1 MILLION ACRES OF OUTER CONTINENTAL SHELF LANDS OFFSHORE OF SOUTHERN CALIFORNIA IS PROPOSED. THE TRACTS ARE BETWEEN 3 AND 84 GEOGRAPHIC MILES OFFSHORE AND IN WATER DEPTHS RANGING FROM 150 TO 4,900 FEET. THE TRACTS LIE IN THREE SUBAREAS, NAMELY, THE SANTA BARBARA CHANNEL, INNER BANKS, AND OUTER BANKS. DEVELOPMENT OF THE LEASE TRACTS WOULD INVOLVE 19:N-179 EXPLORATORY WELLS, 35:N-199 DELINEATION WELLS, 40:N-339 PLATFORM WELLS, 3:N-12 PLATFORMS, 0:N-7 SUBSEA COMPLETIONS, 96 MILES OF OFFSHORE PIPELINE, AND 2 MILES OF ONSHORE PIPELINE. ESTIMATED COST OF DEVELOPING OIL AND GAS RESOURCES WITHIN THE TRACTS IS \$2.1 BILLION. POSTDEVELOPMENT OF THE RESOURCES WITHIN THE TRACTS WOULD RESULT IN THE PRODUCTION OF 230 MILLION BARRELS OF OIL AND 662 BILLION CUBIC FEET OF NATURAL GAS. OIL AND GAS PRODUCED BY THE TRACTS WOULD DECREASE THE NATION'S DEPENDENCY ON FOREIGN SOURCES OF OIL. DIRECT EMPLOYMENT LEVELS OVER THE 25-YEAR PRODUCTIVE LIFE OF THE TRACTS WOULD PEAK IN 1985 AT 372 JOBS, WHILE INDIRECT EMPLOYMENT WOULD ACCOUNT FOR NEARLY 4,000 ADDITIONAL JOBS. INCOME FROM THE SALES WOULD INCREASE FEDERAL REVENUE. POSTDEVELOPMENT ACTIVITIES WOULD RESULT IN A STATISTICALLY ESTIMATED 1.1 SPILLS OF GREATER THAN 1,000 BARRELS AND 0.5 SPILLS GREATER THAN 10,000 BARRELS DURING THE LIFE OF THE LEASES. TRENCHING FOR PIPELINES AND OTHER ACTIVITIES ASSOCIATED WITH PIPELINE CONSTRUCTION AND OPERATION WOULD RESULT IN RELEASE OF 230 MILLION BARRELS OF FORMATION WATER, 220.4 MILLION BARRELS OF DRILL MUDS, AND 393.5 MILLION BARRELS OF CUTTINGS. ACTIVITIES AT OIL PLATFORMS AND DRILLING RIGS WOULD DEGRADE WATER QUALITY WITHIN 1,000 METERS OF THESE STRUCTURES. LARGE OIL SPILLS WOULD RESULT IN

SEVERE WATER QUALITY DEGRADATION IN RESTRICTED BAYS, SUCH AS UPPER NEWPORT BAY, AND IN SEVERE DEGRADATION OF SENSITIVE INTERTIDAL AREAS. RELEASE OF SULFUR DIOXIDE, CARBON MONOXIDE, HYDROGEN SULFIDE, AND PARTICULATES WOULD RESULT IN SLIGHTLY INCREASED POLLUTANT LOADINGS IN AREAS WHERE FEDERAL AIR QUALITY STANDARDS ARE ALREADY BEING VIOLATED. DEVELOPMENT STRUCTURES AND POTENTIAL OIL SPILLS COULD DEGRADE CRITICAL FISHERY HABITAT. OIL CONTACT WOULD CONSTITUTE A HAZARD FOR WHALES, PORPOISES, SEALS, DOLPHINS, AND SEABIRDS. SHIPPING TRAFFIC WOULD BECOME SOMEWHAT MORE CONGESTED, AND DEVELOPMENT ACTIVITIES COULD ENCROACH ON THE PACIFIC MISSILE TEST CENTER. PLACEMENT OF PERMANENT SOURCES OF MAGNETIC ANOMALITIES IN THE OCEAN FLOOR WOULD HAMPER THE SEARCH FOR CULTURAL RESOURCES IN SOME SHALLOW WATER AREAS. DEVELOPMENT STRUCTURES WOULD DEGRADE AESTHETICS SIGNIFICANTLY IN SOME SENSITIVE AREAS. LEGOUTER CONTINENTAL SHELF LANDS ACT OF 1953 (43 U.S.C. 1331). PACIFIC OCEAN/SANTA BARBARA CHANNEL/CONTINENTAL SHELVES/CRUDE OIL/CULTURAL RESOURCES/ENERGY SOURCES/EXPLORATION/FISHERIES/LEASING/NATURAL GAS/OFFSHORE ENERGY SOURCES/OIL PRODUCTION/OIL SPILLS/PIPELINES/WELLS/OUTER CONTINENTAL SHELF LANDS ACT OF 1953 PROGRAM AUTHORIZATION/AGRICOLA.

1125. Stabeno PJ, Smith RL. Deep-sea currents off northern California. J. GEOPHYS. RES. (C OCEANS) 1987;92(C1):755-771. Current meter records from 14 moorings in the deep-sea basin (3000-4500 m deep) South of the Mendocino Fracture Zone are analyzed. Several records exceed 3 years in length, and one extended for 5 years. Spectral analysis of these shows that most of the kinetic energy below 3000 m is in the temporal mesoscale (periods of 31 to 120 days), while the spectral estimates in the upper 1000 m are dominated by longer time scales. Only in the deep records is there a significant southward mean flow. Neither a mean California Current nor a poleward undercurrent is apparent in the shallower data (above 1250 m). The currents in the upper 500 m nearest the continental margin are influenced by the presence of cold filaments originating near Point Arena. INE/Mendocino Escarpment/INE/USA/California/Point Arena/ocean currents/deep currents/current meter data/oceanic eddies/physical oceanography/ASFA.

1126. Reid JL,J. A comparison of drogue and GEK measurements in deep water. CalCOFI 1960;7:91-95
Oceanography/Physical oceanography/currents.

1127. King C, . Chumash Inter-Village Economic Exchange. In : Bean LJ, Blackburn TC, editors. Native Californians: A Theoretical Retrospective. Socorro, New Mexico: Ballena Press; 1976. p. 288-318.
anthropology/archaeology/Chumash.

1128. Hoffmann MR (Performer: California Inst. of Tech., Pasadena. W.M. Keck Engineering Lab. of Hydraulics and Water Resources. Funder: California State Air Resources Board, Sacramento.) Fog, Cloud, and Dew Chemistry. Final rept. ; 1989. Report No.: ARBR89390. 496p. Sponsored by California State Air Resources Board, Sacramento. PC A21/MF A01 Contract: ARBA407532. The spatial and temporal variations of fog/cloud chemistry were determined in the San Joaquin Valley, in the Los Angeles Basin and in the Santa Barbara Channel area using automated fog- and cloudwater collectors that were designed and constructed for the project. A significant correlation was observed between the average nighttime cloud- and fogwater loadings of H+ and NO3- and the maximum levels of O3-. Higher aldehydes, a series of dicarbonyls,

and a variety of sulfonic acid salts formed by reaction of S(IV) and aldehydes were quantitatively determined in the droplet phase. Accumulators/San Joaquin Valley/Los Angeles Basin/Santa Barbara Channel/Acidity/Sulfates/Aldehydes/Sulfonic acids/Concentration Composition/Aerosols/Performance/Design criteria/Atmospheric chemistry/Reaction kinetics/Chemical analysis/Inorganic nitrates/Ozone/Fog/Clouds Meteorology/Dew/Moisture content/Samplers/Atmospheric condensation/Chemical reaction mechanisms/Air pollution sampling/NTIS.

1129. Richards LJ, Saunders MW, Low LL(. Problems in yield allocation of Pacific hake (*Merluccius productus*). Symp. on Application of Stock Assessment Techniques to Gadids PROCEEDINGS OF THE SYMPOSIUM ON APPLICATION OF STOCK ASSESSMENT TECHNIQUES TO GADIDS 1990:pp. 135-144
Dep. Fish. Oceans, Pacific Biol. Stn., Nanaimo, B.C. V9R 5K6, Canada International North Pacific Fisheries Comm., Vancouver, B.C. (Canada).

The offshore stock of Pacific hake (*Merluccius productus*) ranges from southern California to Queen Charlotte Sound and supports both Canadian and United States fisheries. Utilization of the Pacific hake resource has been increasing, and projections for 1989 indicate that the quota will be fully subscribed for the first time. The stock is assessed jointly by Canadian and U.S. scientists with one quota determined coastwide. At present, the quota is allocated between national zones in proportion to the relative biomass of the stock in each zone. This method biases the allocation in favour of the U.S. fishery over the long term, due to changes in the age structure of the stock with latitude. Other problems with the current allocation scheme arise from uncertainties in the northward extent and year-to-year variation of the hake migration into the Canadian zone. stock assessment/yield predictions/shared stocks/allocation systems/ *Merluccius productus*/INE, Canada/INE, USA/gadoid fisheries/fishery management/OCEANIC ABSTRACTS.

1130. Word JQ, Mearns AJ. Bottom invertebrate populations below 200 meters. ; 1977.
Pacific Ocean East/California Coast/Coastal waters/Invertebrata/Sea urchins/*Brisaster*/*Brissopsis*/*Allocentrotus*/Abundance/Species diversity/Wastewaters/Outfalls/Echinodermata/Biomass/Spatial distribution/Population composition/Trawling/Sampling methods/Deep sea/Marine pollution/Benthic organisms/Bioindicators/Southern California Bight/infaunal organism/*Palos Verdes*/B/*latifrons*/B/*pacificus*/A/*fragilis*/OceanAbstracts.

1131. Cushman JA, I. McCulloch. Some Virguliniinae in the collections of the Allan Hancock Foundation. Allan Hancock Pacific Expeditions 1942;6(4):179-230 Includes sandy subtidal Foraminifera from the northern Channel Islands. Sandy subtidal invertebrates Foraminifera, Anacapa Island, San Miguel Island, Santa Barbara Island, Santa Cruz Island,.

1132. CHELTON DB, BERNAL PA, MCGOWAN JA. LARGE-SCALE INTERANNUAL PHYSICAL AND BIOLOGICAL INTERACTION IN THE CALIFORNIA CURRENT. JOURNAL MAR. RES. 40(4) 1982: 1095-1125, ILLUSTR.
ENVIRONMENTAL FACTORS/PHYSICAL ENVIRONMENT/TEMPERATURE/PLANKTON ABUNDANCE, RELATIONSHIPS, NORTHERN PACIFIC/WATER/CURRENTS, EFFECTS ON PLANKTON ABUNDANCE, NORTHERN PACIFIC/ECOLOGY/ECOLOGICAL ENERGETICS/B IOMASS/PLANKTON ABUNDANCE, TEMPERATURE & WATER CURRENT RELATIONS, NORTHERN PACIFIC/PACIFIC OCEAN/NORTHERN PACIFIC/CALIFORNIA CURRENT/ PLANKTON BIOMASS, TEMPERATURE & WATER CURRENT RELATIONSHIPS/Zoological Index.

1133. Anonymous. Texaco makes 'significant' strike in the Santa Barbara Channel. Energy Miner. Resour. (Silver Spring) 1982;10(26):251 petroleum discoveries/Santa Barbara Channel/geology/petroleum.

1134. Powell JA. Five insects believed to be newly established or recolonized on Santa Cruz Island, California (Dermaptera, Lepidoptera). Bull South Calif Acad Sci. Los Angeles, The Academy. Dec 1980. 1980;79(3):p.97-108 Other-US Bibliography p. 107-108. Article. California/Islands/AGRICOLA.

1135. Poulain PM, Niiler PP. Statistical analysis of the surface circulation in the California Current System using satellite-tracked drifters. J. PHYS. OCEANOGR 1989;19(10):1588-1603.

A kinematic description of the surface circulation in the southern California Current System is presented using the statistics of the 7-11 month long trajectories of 29 satellite-tracked mixed layer drifters. The drifters were released north of 30 degree N and traveled southward at an average speed of 3-4 cm/s along Baja California through an inhomogeneous field of mesoscale eddies of 15 cm/s rms variability. Lagrangian and Eulerian statistics of the variations about this mean southward drift are computed. Particle-pair statistics are used to study the relative dispersion of particles. The relative diffusivities depend on the initial separation and on the duration of drift. ocean circulation/ocean currents/current observations/Eulerian current measurement/Lagrangian current measurement/INE/California Current/drift data buoys/statistical analysis/physical oceanography/ASFA.

1136. Johnson JR. An Ethnohistoric Study of the Island Chumash [dissertation] [MA Thesis]. Santa Barbara: Univ. of Calif., Santa Barbara; 1982. anthropology/archaeology/Chumash.

1137. Edwards BD. Animal sediment relationships in a slope environment; southern California continental borderland. Geol. Soc. Am., Abstr. Programs. 1977;9(4):p.415 Univ. South. Calif., Dep. Geol. Sci., Los Angeles, Calif., United-States The Geological Society of America, Cordilleran Section, 73rd annual meeting, Sacramento, Calif., April 5-7, 1977 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). sediments/clastic sediments/textures/sedimentation/environment/marine environment/California/environmental geology/ecology/lithofacies/sorting/grain size/ridges/sand/silt/clay/fauna/oceanography/Borderland/continental slope/Santa Rosa Cortez Ridge/GEOREF.

1138. Reid JL, J. Oceanography of the northeastern Pacific Ocean during the last ten years. CalCOFI 1960;Report 7 Oceanography/Physical oceanography/water masses.

1139. Venkatesan MI, Kaplan IR (Performer: California Univ., Los Angeles. Inst. of Geophysics and Planetary Physics. Funder: Department of Energy, Washington, DC.) Program of Mineralization and Cycling in Marine Systems: Organic Geochemistry of Particulate and Sediments (CaBS): Progress Report Ending May 1987 of the Project. ; 1987. Report No.: DOEER603383. 20p. Portions of this document are illegible in microfiche products. PC A03/MF A01 Contract: FG0585ER60338.

The objective of this study is to generate a dynamic model of the processes involved in the cycling of organic carbon in the sediments and the waters of the southern California Bight by the chemical and biological characterization of sedimenting particles intercepted in the water column at various depths as well as from recent sediments. At UCLA, the quantitative data of the various organic compounds in the sediments (cores) and particles from the interceptor traps deployed from the water column are gathered to determine the processes occurring in the water column and sedimentary regimes. (ERA citation 13:031378). California/Carbon Cycle/Geochemistry/Organic Compounds/Organic Matter/Progress Report/Spatial Distribution/Coastal Waters/Sediments/ERDA/580500/Water chemistry/NTIS.

1140. Card JC. Busiest port in the USA: Port complex of Los Angeles/Long Beach. SEAWAYS 1990:p. 15
Commanding Officer, USCG MSO/Group LA-LB, 165 N. Pico Ave., Los Angeles/Long Beach, CA 90802, USA.
The port complex of Los Angeles/Long Beach is the busiest in the United States, with over 7,000 vessel arrivals a year. The majority of these, over 5,500, are foreign-flag vessels. It is the US Coast Guard's responsibility to ensure port and vessel safety and protection of the marine environment. One of the ways to ensure this is by periodically boarding vessels to verify compliance with US and Solas requirements. The majority of the Coast Guard regulations for foreign vessels are contained in Title 33 of the Code of Federal Regulations. Vessels can expect the Coast Guard to come aboard twice a year to check for compliance with these regulations. The Coast Guard boarding team will look at licences, ship certificates and the dangerous cargo manifest, if applicable. port operations/surveillance and enforcement/harbor regulations/ship ping/cargo handling/marine transportation/hazardous materials/INE, USA, California, Los Angeles/Long Beach port complex/USCG/Oceanic Abstracts.

1141. Allen MJ, Mearns AJ. Bottom fish populations below 200 meters. ; 1977.
Pacific Ocean East/California Coast/Coastal waters/Population composition/Bioindicators/Demersal zones/Demersal fauna/Abundance/Species diversity/Biomass/Sampling methods/Fins/Diseases/Microstomus/Trawling/Spatial distribution/Wastewaters/Outfalls/Deep sea/Marine pollution/Southern California Bight/bottom fish/fin erosion disease/health/M/ pacificus/Dover sole/low-O2 water/trawling samples/OceanAbstracts.

1142. Cushman JA, I. McCulloch. The species of *Bulimina* and related genera in the collections of the Allan Hancock Foundation. Allan Hancock Pacific Expedition 1948;6(5):231-294
Includes sandy subtidal Foraminifera from the northern Channel Islands. Invertebrates, Sandy Subtidal, Foraminifera, Santa Barbara Island, Santa Cruz Island, San Miguel Island, Anacapa Island.

1143. BRIGGS KT, LEWIS DB, TYLER WB, HUNT GL, J. BROWN
PELICANS IN SOUTHERN CALIFORNIA: HABITAT USE AND ENVIRONMENTAL FLUCTUATIONS. CONDOR 1981; 83((1)):1-15 * AVES ** PELECANIFORMES *** PELECANIDAE **** PELECANUS OCCIDENTALIS. ECOLOGY/POPULATION STUDY/POPULATION DYNAMICS/POPULATION SIZE/CALIFORNIA (MARINE)/POPULATION DENSITY/HABITAT/HABITAT EXPLOITATION/HABITAT PREFERENCE/PACIFIC OCEAN/NORTHERN PACIFIC/SOUTHERN CALIFORNIA BIGHT/POPULATION SIZE, DISTRIBUTION & HABITAT PREFERENCES/Zoological Index.

1144. Langston RL. The Rhopalocera of Santa Cruz Island,

California. J Res Lepid. Santa Barbara, Calif., Lepidoptera Research Foundation. Spring 1979 (pub. 1981). 1979;18(1):p.24-35
Other-US Presented at the Multidisciplinary Symposium on the California Islands, Santa Barbara, Calif., 28 Feb. 1978.
California/AGRICOLA.

1145. Cary SC, Vetter RD, Felbeck H. Habitat characterization and nutritional strategies of the endosymbiont-bearing bivalve *Lucinoma aequizonata*. MAR. ECOL. (PROG. SER.) 1989;55(1):31-45.

A population of the lucinid bivalve *Lucinoma aequizonata*, with sulfur-oxidizing endosymbiotic bacteria in the gills, is restricted to a narrow depth range (500 plus or minus 10 m) on the slope of the Santa Barbara Basin, California, USA. In this zone, the seawater just above the substratum is sub-oxic ($O_{2} < 20 \mu M$). When the bivalves are incubated in the presence of hydrogen sulfide, thiosulfate is concentrated in the blood and apparently utilized by the bacteria for metabolic energy and the production of intracellular elemental sulfur. Laboratory growth experiments demonstrated that sulfide concentrations greater than 10 μM were detrimental to the host, even though the bacteria continued to accumulate elemental sulfur.

symbionts/sulphur compounds/Bivalvia/*Lucinoma aequizonata*/vertical distribution/blood/burrowing organisms/sediment chemistry/anoxic conditions/INE/USA/California/Santa Barbara/habitat/bacteria/ASFA.

1146. Johnson JR. Chumash Social Organization: An Ethnohistoric Perspective [dissertation] [Ph.D. Dissertation]. Santa Barbara, CA: Univ. of Calif., Santa Barbara; 1988.
Anthropology/archaeology/Chumash.

1147. Anderhalt R, LeFever RD, Reed WE. Texture versus depth, and mainland versus offshore relationships, southern California borderland. Geol. Soc. Am., Abstr. Programs. 1977;9(4):p.379
Univ. Calif., Dep. Geol., Los Angeles, Calif., United-States The Geological Society of America, Cordilleran Section, 73rd annual meeting, Sacramento, Calif., April 5-7, 1977 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).
sediments/textures/environmental analysis/sedimentation/environment/marine environment/California/oceanography/grain size/sorting/variations/bathymetry/provenance/continental borderland/continental margin/GEOREF.

1148. Reid JL, J. On the geostrophic flow at the surface of the Pacific Ocean during the last ten years. Tellus 1961(13):4
Oceanography/Physical oceanography/currents/waves/water masses.

1149. (Performer: Woods Hole Oceanographic Institution, MA). Coastal Zone Program. Technical rept. ; 1988. 7p.
Pub. in EOS Transactions, American Geophysical Union, v69 n27 p698-699, 704, 707, 5 Jul 88. PC A02/MF A01 Contract: N0001484C0134.
The Coastal Transition Zone (CTZ) Program, is designed to investigate the cold tongues ('filaments') often observed in satellite sea surface temperature images of the waters off the west coast of North America. Similar features have also been observed along other coasts, including those near Portugal and southwestern Africa. The causes, dynamics, and reasons for the growth and decay of cold filaments are unknown, as is the reason that they seem to appear most often in certain locations along a coastline and not in

others. Questions to be considered are: What is the nature and structure of the cold 'filaments' seen in the satellite images of sea surface temperatures. What causes these features to form, and What are the characteristics of the cold filaments. Keywords: California current, Upwelling. Reprints. (edc). West Africa/Satellite photography/California/Decay/Dynamics/Filaments/Infrared images/Low temperature/North America/Ocean currents/Ocean surface/Portugal/Reprints/Surface temperature/Transitions/Upwelling/West Direction/Coastal regions/Sea water/Cold filaments Oceanography/Pacific Coast North America/NTIS.

1150. Naval Sea Support Center, Pacific. SEA TECHNOL 1990;VOL. 31, NO. 12:pp. 49-53
This article gives a brief history and description of the management and function of the US Naval Sea Support Center, Pacific. The mission (NAVSEACENPAC) is to represent the Commander, Naval Sea Systems Command (NAVSEA), in designated geographical areas, in regard to technical services to the fleet associated with the installation, operation, and maintenance of shipboard equipments and systems. Work is performed by in-house and contract personnel trained in engineering, technical, and logistics disciplines. NAVSEACENPAC serves the U.S. Navy Pacific Fleet with responsibilities extending from the Mississippi River to the Indian Ocean. In addition to the San Diego headquarters at Air Force Plant 19 (San Diego), offices are also located at the Naval Station (San Diego) and Submarine Base (Point Loma). Fleet Support Offices (FSOs) have been established at Mare Island, California; Long Beach, California; and Pearl Harbor, Hawaii. naval bases/military operations/shipboard equipment/installation/maintenance/management/INE, USA, California/Naval Sea Support Cent., Pacific/Oceanic Abstracts.

1151. Mearns AJ, Hanan DA, Harris L. Recovery of kelp forest off Palos Verdes. ; 1977.
Pacific Ocean East/California Coast/Kelp/Brown algae/macrocystis/Wastewaters/egregia/Environmental impact/Southern California Bight/kelp forest/Palos Verdes Peninsula/M/ pyrifer/kelp restoration projects/E/laevigata/kelp culture/kelp transplants/OceanAbstracts.

1152. Cushman JA, I. McCulloch. Some Lagenidae in the collections of the Allan Hancock Foundation. Allan Hancock Pacific Expeditions 1950;6(6):295-376 Includes sandy subtidal Foraminifera From the Northern Channel Islands. Sandy subtidal, sand beach, Foraminifera, Santa Barbara Island, Santa Rosa Island, San Miguel Island, Anacapa Island.

1153. Anonymous. Submerged pyramids cap seepage. World Dredg. Mar. Constr. 1983;19(1):28-29
Two huge steel pyramids have been moored beneath the Santa Barbara Channel in an unprecedented effort to cap the natural gas and oil seeps that have polluted that coastal area for centuries. The two structures, each 100 feet square and 50 feet high, and weighing 350 tons, were placed side by side on the ocean floor at a depth of 220 feet, covering a major seep of nearly half an acre. Together, they will collect as much as 500,000 cubic feet of natural gas and 50 barrels of crude oil that escape daily from the cratered bottom. pollution control/oil pollution/marine pollution/oil seepages/oil wells/materials recovery/offshore operations/Santa Barbara Channel/water quality/petroleum/pollution/resource management.

1154. Fuhrman JA, Ammerman JW, Azam F. Bacterioplankton in the coastal euphotic zone: distribution, activity and possible relationships with phytoplankton in the euphotic zone of the Southern California Bight. Mar Biol. Berlin, Springer International. 1980. 1980;60(2/3):p.201-207 Foreign 32 ref. Article.
California/Littoral Zone/AGRICOLA.

1155. Hartney KB. The foraging ecology of two sympatric gobiid fishes: Importance of behavior in prey type selection. ENVIRON. BIOL. FISH 1989;26(2):105-118.

The foraging ecology of two temperate marine gobies (Pisces: Gobiidae) was studied in rocky subtidal habitats off Santa Catalina Island, California. The bluebanded goby, *Lythrypnus dalli*, foraged from exposed ledges and fed on planktonic and benthic prey, although planktonic prey were more important in diets by number and weight. The more cryptic zebra goby, *Lythrypnus zebra*, remained hidden under rocks and in crevices feeding on benthic prey almost exclusively. The active selection of particular prey taxa from the two prey sources (water column and substratum), mediated by species-specific differences in foraging behavior, resulted in interspecific differences in type, number, size and weight of prey consumed. Interspecific differences in foraging ecology reflect the selection of prey most readily available to these fishes that occupy specific and fixed microhabitats within rocky reefs. *Lythrypnus dalli*/*Lythrypnus zebra*/feeding behaviour/diets/sympatric populations/INE/USA/California/Santa Catalina Island/rocky shores/food organisms/zooplankton/zoobenthos/microhabitats/prey selection/ASFA.

1156. Timbrook J, Johnson JR, Earle DD. Vegetation burning by the Chumash. Journ. of Calif. and Great Basin Anthropology 1982;4:163-186 anthropology/archaeology/Chumash/fire/vegetation.

1157. Heusser L. Pollen in Santa Barbara Basin, California; a 12,000 yr record. Geol. Soc. Am., Bull. 1978;89(5):p.673-678 Box 608, Tuxedo, N.Y., United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present).
California/stratigraphy/Quaternary/palynomorphs/miospores/paleoecology/paleoclimatology/Ventura County/Santa Barbara Basin/vegetation/pollen analysis/pollen diagrams/rhythmites/communities/Santa Clara River/Ventura River/sediments/cycles/upper Quaternary/GEOREF.

1158. Reid JL, J. Measurements of the California Counter current at a depth of 250 meters. Journal Mar. Res. 1962;20:134-137 Oceanography/Physical oceanography/currents.

1159. McCreary JP, Kindu PK (Performer: Nova Univ. Oceanographic Center, Dania, FL). Modelling of the Circulation of the Western Indian Ocean. Final rept. 1 Nov 84-31 Dec 88. ; 1988. 5p.
PC A02/MF A01 Contract: N0001485K0019.
Several different projects have been completed during the course of the terminating grant. Both analytical and numerical models have been developed, and applied to the following 5 projects: (1) Summer cooling of the Arabian Sea; (2) Upwelling in the Gulf of Tehuantepec; (3) Dynamics of the Somali Current; (4) Dynamics of the Leeuwin Current; (5) Dynamics of the California Current System. Results of these studies compare very well with observations. (fr).
Arabian Sea/California/Coastal regions/Cooling/Hydrodynamics/Gulfs/Indian

Ocean/Somalia/Summer/Upwelling/West Direction/North Pacific
Ocean/Mexico/Mathematical models/Ocean currents/Leeuwin
Current/California Current/Somali Current/Tehuantepec Gulf/NTIS.

1160. Rintoul B. California/Alaska: All's quiet on the
western front. OCEAN IND 1990;VOL. 25, NO. 6:pp. 37-41
Bakersfield, CA, USA.

Facing problems exemplified by Chevron's frustrations in trying to
remove the Pt. Arguello political roadblock after investing \$2
billion in facilities in place since 1987, operators may be close
to tossing in the towel in California for any E&P projects that are
not already producing. Alaska's Chukchi Sea is generating
exploratory interest, as Shell returns for a second summer of
drilling. Texaco has plans there also for next year. Arco is the
biggest name in Beaufort drilling with its limited probings on
Fireweed and Camden Bay prospects. And the proven Seal Island area
off Kuparuk River Delta appears next in line for development in the
Beaufort Sea.

INE, USA, California/INE, USA, Alaska/PNW, Beaufort Sea/oil and gas
industry/oil and gas exploration/offshore operations/oil and gas
fields/government policy/economic analysis/Oceanic Abstracts.

1161. Word JQ, Mearns AJ, Allen MJ. Better control stations:
The 60-meter survey. ; 1977.

Pacific Ocean East/California Coast/Coastal waters/Wastewaters/
Marine pollution/Monitoring methods/Environmental impact/Pollutant
analysis/Sediments/Tissues/Trawls/Species diversity/Sampling
methods/Surveys/Fish/Invertebrata/Benthic organisms/Water column/
Abundance/Southern California Bight/municipal wastewater
discharges/control conditions/control stations/60-meter
survey/trawl samples/ sediment-chemistry samples/grab
samples/OceanAbstracts.

1162. Emery KO. The sea off Southern California. New York:
J. Wiley and Sons; 1960.

Sediments of the island shelves discussed in detail esp. for
Anacapa and Santa Barbara Islands. Discusses important factors
governing infaunal distributions and records natural petroleum
seepage on the shelf off San Miguel Island and adjacent to Anacapa
Island.

Sandy subtidal, invertebrates, Anacapa Island, Santa Barbara
Island, San Miguel Island, Ecology.

1163. SHAPIRO AM, PALM CA, WCISLO KL. THE ECOLOGY AND
BIOGEOGRAPHY OF THE BUTTERFLIES OF THE TRINITY ALPS AND MOUNT EDDY,
NORTHERN CALIFORNIA. JOURNAL RES. LEPID. 18(2) 1979(1981): 69-152.
FEEDING/HERBIVOROUS FEEDING/FOOD PLANTS/ALPINE & SUBALPINE FAUNA,
NORTH CALIFORNIA/ENVIRONMENTAL FACTORS/PHYSICAL
ENVIRONMENT/ALTITUDE/DISTRIBUTION DIFFERENCES, ALPINE FAUNAS,
CALIFORNIA/HABITAT/TERRESTRIAL HABITAT/MOUNTAIN HABITAT/ALPINE &
SUBALPINE FAUNAS COMPARED, CALIFORNIA AREAS & OREGON/DISTRIBUTION
WITHIN HABITAT/VERTICAL DISTRIBUTION/ALTITUDE DIFFERENCES,
TRINITY/EDDY & NORTH SIERRA FAUNAS, CALIFORNIA/SEASONAL
DISTRIBUTION WITHIN HABITAT/ALPINE FAUNA,
CALIFORNIA/ZOOGEOGRAPHY/PALAEOZOOGEOGRAPHY/CALIFORNIA & OREGON/HIGH
MONTANE FAUNAS DISTRIBUTION ROUTES SINCE PLEISTOCENE/NEARCTIC
REGION/ UNITED STATES OF AMERICA/CALIFORNIA/TRINITY ALPS & MOUNT
EDDY, YOSEMITE PARK & YUBA AREAS/ECOLOGY, BIOGEOGRAPHY, ANNOTATED
LISTS & NOTES ON WILLIAMS 1909 LIST/OREGON/CRATER LAKE NATIONAL
PARK/HIGH MONTANE FAUNA COMPARED WITH CALIFORNIA, TRINITY ALPS/EDDY
MOUNT/RHOPALOCERA/Zoological Index.

1164. Anonymous. NAGT-FWS Santa Catalina Island field trip.

: Natl. Assoc. Geol. Teachers; 1984. 16.

Note: Natl. Assoc. Geol. Teachers, Far West Sect., field trip
March 18, 1984; individual papers are cited separately.
guidebook Santa Catalina Island/Los Angeles County/areal geology.

1165. McGowan JA, Miller CB. Larval fish and zooplankton
community structure in California. Rep Calif Coop Ocean Fish
Invest. Sacramento, The Cooperative. July 1980. 1980;21:p.29-36
Other-US 9 ref. Article.
California/AGRICOLA.

1166. Matta JL, Chapman DJ. The seasonal photophysiology of
Colpomenia peregrina across a vertical distributional gradient. J.
PHYCOL 1988;24(suppl.):8. The seasonal photosynthetic performance
and daily carbon balance has been examined over a 2-year period for
populations of the brown saccate macroalga Colpomenia peregrina in
Santa Catalina Island, California. Results from 135 photosynthesis-
irradiance (P-I) experiments using an oxygen polarographic
electrode indicate that significant differences are evident in the
submersed net daily carbon gain of C. peregrina at three tidal
elevations. The flux of molecular oxygen (non-dissolved) has been
used to study the extent to which C. peregrina remains
photosynthetically active during emersion. A three-way analysis of
variance (ANOVA) indicated that the tolerance of C. peregrina to
light, temperature and desiccation is significant modified by
interactions between these factors. The winter decline found in the
submersed daily carbon gain of C. peregrina is hypothesized to be
one of the controlling factors responsible for the declines in
standing stock of this alga during that season found along the
shorelines of southern California.
vertical distribution/primary production/irradiance/Colpomenia
peregrina/multivariate analysis/INE/USA/California/Santa Catalina
Island/tolerance/ecological distribution/light effects/ASFA.

1167. Hudson T, Blackburn TC. The Material Culture of the
Chumash Interaction Sphere. Vol I: Food Procurement and
Transportation. Anthropological Papers No. 25. Los Altos Calif.:
Ballena Press; 1982.
anthropology/archaeology/Chumash.

1168. Kling SA. Relation of radiolarian distributions to
subsurface hydrogeology in the North Pacific. Deep Sea Res.
1976;23(11):p.1043-1058 Scripps Inst. Oceanogr., La Jolla, Calif.,
United-States Analytic; Serial B; Bibliography and Index of
Geology (1969-present).
Pacific Ocean/paleontology/Radiolaria/distribution/zoning/North
Pacific/Subarctic Water Mass/Intermediate Water/Central Water
Mass/California
Current/Castanidium/Haeckeliana/Castanissa/Castanea/Castanella/GE
OREF.

1169. Reid JL, J. Distribution of dissolved oxygen in the
summer thermocline. J. Mar. Res. 1962;20:138-148
Oceanography/Physical
oceanography/currents/temperature/oxygen/water masses.

1170. Larsen S, King N, Agnew D, Hager B (Performer:
California Inst. of Tech., Pasadena. Funder: National Aeronautics
and Space Administration, Washington, DC.) Strain Accumulation in
the Santa Barbara Channel, 1971-1987. ; 1988. Report No.:
NAS126183402, NASACR183402. 15p.
PC A03/MF A01 Contract: NAG5842.
Geophysical evidence suggests a significant amount of north-south

convergence occurs across the Santa Barbara Channel. Tectonic studies indicate a discrepancy between observed fault slip in California and the North American-Pacific plate motion. Newer plate motion models (NUVEL-1) yield a lower rate of convergence. Global Positioning System (GPS) data collected in the Santa Barbara Channel in 1987, when combined with 1971 trilateration measurements, should be sufficient to resolve the present-day convergence rate. In early 1987, from January 3 to 7, GPS data were collected at 14 sites in California and at 5 additional stations throughout North America. The data can be used to estimate the rate of crustal deformation (convergence) occurring across the Santa Barbara Channel. The GPS baselines were computed with the Bernese 2nd generation software. A comparison was made between baseline lengths obtained with the Bernese and MIT softwares. Baseline changes from 1971 to January, 1987 (GPS-Bernese) across the Santa Barbara Channel were computed. A uniform strain model was calculated from the baseline changes. The present-day rate of convergence across the Santa Barbara Channel was determined to be 8 to 10 mm/yr. This conclusion is obtained from changes in the baseline length measured with a 1971 trilateration survey and a January, 1987, GPS survey. The rapid convergence rate, in addition to the history of large seismic events, suggests this region is a prime target for future geodetic and geophysical studies. California/Earthquakes/Global positioning system/Computer programs/Convergence/Mathematical models/Plates (Tectonics/Seismology/NTIS.

1171. Scheiber HN. California marine research and the founding of modern fisheries oceanography: CalCOFI's early years, 1947-1964. REP. CCOFI 1990;VOL. 31:pp. 63-83
Sch. Law (Boalt Hall), Univ. California, Berkeley, CA 94720, USA.
This historical perspective on CalCOFI in its early years (1947 to 1964) focuses on two important aspects. The first concerns how the scope and design of CalCOFI research on the California Current, and on the Pacific Ocean more generally, were originally formulated—that is, how the marine scientists and fisheries management specialists, industry leadership, and state and federal policy officials defined their research strategies and future needs in 1947-49. The state of American ocean research when the project was first designed will also be discussed. The second aspect concerns the dramatic development of the range and modes of scientific inquiry in the early years of CalCOFI research.
historical account/fishery oceanography/marine ecology/USA, California/CalCOFI/Oceanic Abstracts.

1172. Word JQ. Taxonomic standardization developments. ; 1977. Pacific Ocean East/California Coast/Coastal waters/Species diversity/Taxonomy/Spatial distribution/Abundance/Benthic organisms/ Invertebrata/Southern California Bight/Taxonomic Standardization Program/OceanAbstracts.

1173. Fraser CM. General account of the scientific work of the Velero III in the Eastern Pacific, 1931-1941. Part III. Allan Hancock Pacific Expeditions 1943;1(3):259-431
Includes station data from the Northern Channel Islands.

1174. BRINTON E, TOWNSEND AW. A COMPARISON OF EUPHAUSIID ABUNDANCES FROM BONGO AND 1-M CALCOFI NETS. REPORT CALIF. COOP. OCEANIC FISH. INVEST. 22 1981:111-125
* CRUSTACEA ** MALACOSTRACA *** EUCARIDA **** ORDER EUPHAUSIACEA.
ECOLOGY/POPULATION STUDY/POPULATION STRUCTURE/POPULATION SEX RATIO/
NET CATCHES, CALIFORNIA CURRENT/POPULATION DYNAMICS/SEASONAL
ABUNDANCE/NET CATCHES, COMPARATIVE STUDY, CALIFORNIA

CURRENT/HABITAT/ DISTRIBUTION WITHIN HABITAT/ABUNDANCE, DAY & NIGHT
CATCHES, CALIFORNIA CURRENT/PACIFIC OCEAN/NORTHERN
PACIFIC/CALIFORNIA CURRENT/ABUNDANCE , NET CATCHES, COMPARATIVE
STUDY/Zoological Index.

1175. Anonymous. ARCO to revamp offshore California field
development. Oil Gas J. 1985;83(17):46, 49
ARCO Oil & Gas Co.'s fault block extension to South Elwood oil
field could change the configuration of the company's planned Coal
Oil Point giant field development in California's Santa Barbara
Channel state waters. ARCO has withdrawn temporarily its permit
application for a pair of drilling/production platform complexes to
develop Coal Oil Point. The move stems from its test of an apparent
west extension to South Elwood field. ARCO plans more drilling near
the well and has chosen locations for two more Monterey wildcats on
state tracts in the area. oil industry/gas
industry/drilling/coastal zone/Santa Barbara Channel/Coal Oil
Point/South Elwood oil field/geology/petroleum/energy resources.

1176. Horn MH. Diversity and ecological roles of
noncommercial fishes in California marine habitats. Rep Calif Coop
Ocean Fish Invest. Sacramento, The Cooperative. July 1980.
1980;21:p.37-47
Other-US Bibliography p. 46-47. Article.
California/AGRICOLA.

1177. Friedman CS, McDowell T, Groff JM, Hollibaugh JT,
Manzer D, Hedrick RP. Presence of *Bonamia ostreae* among populations
of the European flat oyster, *Ostrea edulis* Linne, in California,
USA. J. SHELLFISH RES 1989;8(1):133-137. European Flat oysters,
Ostrea edulis , reared in Tomales Bay and the Santa Barbara
Channel, California were examined to determine the possible causes
of elevated mortality among these stocks. The protozoan parasite,
Bonamia ostreae was found to be the most significant parasite in
these oysters. A rickettsiales-like and a gregarine-like parasite
were seen within gill tissues of a flat oyster and one bay mussel,
respectively. *B. ostreae* elicited an intense inflammatory reaction
in affected flat oysters and is believed to be the cause of the
elevated mortality observed in these stocks.
mortality causes/parasitic diseases/*Bonamia ostreae*/*Ostrea*
edulis/INE/ USA/California/oyster culture/ASFA.

1178. Hudson T, Blackburn TC. The Material Culture of the
Chumash Interaction Sphere. Vol V: Manufacturing Processes,
Metrology, and Trade. Anthropological Papers No. 31. Menlo Park,
CA: Ballena Press; 1987. anthropology/archaeology/Chumash.

1179. Gorsline DS. A review of the marine geology of the
Southern California offshore region. Lavenberg RJ, Earle SA.
Recommendations for baseline research in Southern California
relative to offshore resource development; proceedings. ; 1975. p.
p.63-81.
Univ. South Calif., Los Ang., Calif., United-States South. Calif.
Acad. Sci., Los Angeles, Calif. Recommendations for baseline
research in Southern California relative to offshore resource
development, Los Angeles, Calif., Dec. 5-7, 1974 Analytic; Book;
Conference publication B; Bibliography and Index of Geology (1969-
present).
California/oceanography/marine
geology/sedimentation/transport/marine transport/Southern
California/continental shelf/Santa Barbara Basin/Santa Monica
Basin/San Pedro Basin/San Diego Trough/Colnett
Basin/sediments/bathymetry/submarine canyons/bottom

features/Pacific Ocean/GEOREF.

1180. Pirie DM, Steller DD. California coastal processes study - Landsat II. landsat Investigation 22200 1977 Oceanography/Physical oceanography/water masses.

1181. Small LF, Huh CA (Performer: Oregon State Univ., Corvallis. Coll. of Oceanography. Funder: Department of Energy, Washington, DC.) Role of Zooplankton in the Cycling and Remineralization of Chemical Materials in the Southern California Bight: California Basin Study: DOE (Department of Energy) West Coast Basin Program: Progress Report 4, (June 1987-June 1988). ; 1988. Report No.: DOEER603404. 54p. Portions of this document are illegible in microfiche products. PC A04/MF A01 Contract: FG0585ER60340. The overall objective of our research, within the structure of the DOE CaBS (California Basin Study) program, is to understand the transport pathways and mass balances of selected metabolically active and inactive chemical species in the Santa Monica/San Pedro Basins. One focus of our study is to examine the role of zooplankton and micronekton in the cycling and remineralization of chemical materials in the Southern California Bight, with particular reference to C, N and certain radionuclides and trace metals. A second focus is to examine these same radionuclides and trace metals in other reservoirs besides the zooplankton (i.e., in seawater, sediment trap material and bottom sediments). Knowledge of the rates, routes and reservoirs of these nuclides and metals should lead to a cogent model for these elements in Santa Monica/San Pedro Basins. Our zooplankton C and N data, in conjunction with primary production, microbiological and sediment flux data from colleagues in the program, should also lead ultimately to a model of C and N cycling in the basins. 33 refs., 13 figs., 7 tabs. (ERA citation 14:003579). Baseline Ecology/Biomass/Buildup/Carbon Cycle/Coastal Waters/Crustaceans/Feces/Lead 210/Metals/Mineral Cycling/Mineralogy/Nitrogen Cycle/Nutrients/Progress Report/Radioisotopes/Sediments/Spatial Distribution/Thorium 228/Thorium 234/California/Environmental Transport/Zooplankton/Mineralization/ERDA/520500/Water pollution/NTIS.

1182. Mearns AJ. Underwater color photography. ; 1977. Pacific Ocean East/California Coast/Coastal waters/Underwater observations/Underwater instruments/Cameras/Color photography/Species diversity/Fish/Caulolatilus/Citharichthys/Eptatetrus/Sebastes/Anoplopoma/Southern California Bight/underwater color photography/C/princeps/C/sordidus/S/rosenblatti/A/fimbria/San Pedro Bay/Santa Monica Canyon/Redondo Canyon/Dago Bank/OceanAbstracts.

1183. Fraser CM. Hydroids of the Allan Hancock Pacific Expeditions since March, 1938. Allan Hancock Pacific Expeditions 1948;1(3):259-431 Lists and describes several hydroids from subtidal areas around the northern Channel Islands.

1184. BRINTON E. EUPHAUSIID DISTRIBUTIONS IN THE CALIFORNIA CURRENT DURING THE WARM WINTER-SPRING OF 1977-78, IN THE CONTEXT OF A 1949-1966 TIME SERIES. REPORT CALIF. COOP. OCEANIC FISH. INVEST. 22 1981:135-154
* CRUSTACEA ** MALACOSTRACA *** EUCARIDA **** ORDER EUPHAUSIACEA. ENVIRONMENTAL FACTORS/PHYSICAL ENVIRONMENT/WARM CURRENT EFFECTS ON ABUNDANCE & DISTRIBUTION, CALIFORNIA CURRENT/ECOLOGY/POPULATION STUDY/POPULATION DYNAMICS/SEASONAL ABUNDANCE/WARM CURRENT EFFECTS

1977-78, CALIFORNIA CURRENT/HABITAT/DISTRIBUTION WITHIN
HABITAT/PACIFIC OCEAN/NORTHERN PACIFIC/CALIFORNIA
CURRENT/ABUNDANCE & DISTRIBUTION 1977-78, WARM CURRENT
EFFECTS/Zoological Index.

1185. Anonymous. Union confirms find in marine sanctuary off California. Oil Gas J. 1985;83(7):50
Union Oil Co. of California has confirmed a 15 year old oil and gas field discovery in a Santa Barbara Channel marine sanctuary off California. Unocal is evaluating test results and mulling possible development plans for the field underlying Block 203 in the eastern channel. The strike may be an extension to Hueneme field, currently producing from Platform Gina 3 miles to the northeast, outside the sanctuary. Unocal's efforts to further confirm its Block 203 discovery were embroiled in a battle with the California Coastal Commission (CCC), which had sought to block drilling in or near the Channel Islands Marine Sanctuary. Congress established the sanctuary after the 1969 channel oil spill and after Unocal drilled the first four wells and a redrill to delineate the field. oil and gas fields/sanctuaries/environmental protection/oil and gas industry/Channel Islands National Marine Sanctuary/California Coastal Commission/Santa Barbara Channel/petroleum/resource protection.

1186. Ainley DG. Birds as marine organisms could provide an understanding of fish stock dynamics: a review. Rep Calif Coop Ocean Fish Invest. Sacramento, The Cooperative. July 1980. 1980;21:p.48-53
Other-US Literature review. Bibliography p. 52-53. Article. AGRICOLA.

1187. Bebout GE, Barton MD. Fluid flow and metasomatism in a subduction zone hydrothermal system: Catalina Schist terrane, California. GEOLOGY 1989;17(11):976-980.
On Santa Catalina Island, southern California, blueschist to amphibolite facies metasedimentary, metamafic, and meta-ultramafic rocks show veining and alteration that reflect fluid flow and mass transfer at 25-45 km depths in an Early Cretaceous subduction zone. Synkinematic and postkinematic veins record fluid transport and metasomatism during prograde metamorphism and uplift. Vein and host-rock mineralogy and whole-rock compositions demonstrate large-scale chemical redistribution, especially of Si and alkali elements. The record of subduction-zone mass transfer in the Catalina Schist is compatible with the record inferred for greater depths from geochemical and petrologic studies of arc magnetism. metamorphic rocks/metasomatism/subduction zones/island arcs/USA/California/Santa Catalina I./Catalina Schist/petrology/ASFA.

1188. Hudson T, Timbrook J, Rempe M. Tomol: Chumash Watercraft as Described in the Ethnographic Notes of John P. Harrington. Anthropological Papers No. 9. Socorro, New Mexico: Ballena Press; 1978.
anthropology/archaeology/Chumash/Channel Islands.

1189. Hillard B. A bi seasonal analysis of surface temperature patterns along the California Bight. [dissertation] ; 1976.
San Diego State Univ., United-States; Bachelor's Monographic; Thesis B; Bibliography and Index of Geology (1969-present). Pacific Ocean/oceanography/ocean circulation/North Pacific/California Bight/California Current/Davidson Current/mixing/California/GEOREF.

1190. Pirie DM, Murphy MJ. California nearshore surface currents. California nearshore processes study, final report 1975;2-3:195-216
Oceanography/Physical oceanography/currents.

1191. van VD. Aerobatic rolls by ravens on Santa Cruz Island, California. AUK 1984;101(3):620-621.
Common Ravens (*Corvus corax*) are skillful fliers known for their aerobatic maneuvers, particularly rolls. Santa Cruz Island, one of the eight Channel Islands off the shore of southern California, supports a large population of ravens that exhibit a high frequency of rolling. The significance of rolling, and raven aerobatics in general, is uncertain; such behavior has been attributed to courtship play, or both. Angell (1978) noted that rolls often coincided with vocal communication, and Dawson (1923) reported that aerobatics seemed more frequent when ravens were in groups. The purpose of this study was to describe rolling by ravens on Santa Cruz Island, to test some hypotheses about the significance of rolling, and to compare frequency of occurrence of this behavior among island and mainland ravens.
Corvus corax/flight activity/USA/California/Santa Cruz Island/aerobatic rolls/CSA Life Sciences Collection.

1192. Bonnell ML, Le Boeuf BJ, Pierson MO, Dettman DH, Farrens GD. Marine mammal and seabird surveys of the Southern California Bight area. Synthesis of findings. Summary rept. (final) 1975-78. 1981;II:434.
SEALS/MAMMALS/BIRDS/AQUATIC/ANIMALS/ECOLOGY/SOUTHERN CALIFORNIA BIGHT/MAMMAL/BONNELL/ENVIRONMENTAL
IMPACTS/ABUNDANCE/POPULATIONS/DISTRIBUTION PROPERTY/OFFSHORE DRILLING/CRUDE OIL/NATURAL GAS/TABLES DATA/CONTINENTAL SHELVES/NORTH PACIFIC OCEAN/CETACETA/Baird/birds/MINERALS MANAGEMENT SERVICE.

1193. Venkatesan MI, Kaplan IR (Performer: California Univ., Los Angeles. Inst. of Geophysics and Planetary Physics. Funder: Department of Energy, Washington, DC.) Program of Mineralization and Cycling in Marine Systems: Organic Geochemistry of Particulates and Sediments (CaBS): Progress Report, November 15, 1987--November 14, 1988. ; 1988. Report No.: DOEER603385. 14p. Portions of this document are illegible in microfiche products. PC A03/MF A01 Contract: FG0585ER60338.
The biogeochemical processes and the dynamics involved in the cycling and transport of organic carbon can be elucidated only by determining distributions of specific organic compounds associated with the particles. At UCLA, the quantitative data of the various organic compounds in the sediment cores and trap particulates from various depths of water column are gathered in order to construct a dynamic model of the biogeochemical cycling and processes occurring in the water and sedimentary columns. The sources of organic carbon in southern California Bight derive from both terrestrial and marine regimes. The varied organic carbon sources can be reasonably delineated within limits by the organic geochemical approach of determining various characteristic biomarkers, as well as a variety of pollution indicators. The distributions of organic biomarker compounds are characteristic of marine algae, terrestrial vascular plants, bacteria, etc. Presence of specific biomarkers also indicate the occurrence of specific species (e.g., dinosterol specific of dinoflagellates). There are some pollution indicators which one can look for in the marine environment to trace their origin to terrestrial inputs, i.e., polycyclic aromatic hydrocarbons from petroleum and combustion, coprostanol from sewage, etc. We study the distribution of many of

these compounds and from a correlation of their relative abundance, an attempt is made to delineate marine vs terrestrial influx to the organic carbon in the study area. 18 refs., 1 fig., 4 tabs. (ERA citation 14:013706). Alcohols/California/Geochemistry/Organic Compounds/Particulates/Polycyclic Aromatic Hydrocarbons/Progress Report/Sewage/Coastal Waters/Sediments/Carbon Cycle/Water Pollution/ERDA/580500/NTIS.

1194. Ferraro SP, Cole FA. Taxonomic level and sample size sufficient for assessing pollution impacts on the Southern California Bight macrobenthos. MAR. ECOL. (PROG. SER. 1990;VOL. 67, NO. 3:pp. 251-262

U.S. EPA, Pacific Ecosyst. Branch, Mark O. Hatfield Mar. Sci. Cent., Newport, OR 97365, USA.

Macrobenthic data from samples taken in 1980, 1983 and 1985 along a pollution gradient in the Southern California Bight (USA) were analyzed at 5 taxonomic levels (species, genus, family, order, phylum) to determine the taxon and sample size sufficient for assessing pollution impacts on 5 measures of community structure. Four replicate 0.1 m super(2) van Veen grabs per station were needed to ensure community-wide, unbiased estimates of Shannon's, 1-Simpson's and McIntosh's Index. Family-level identification appeared to be a good choice for assessing pollution impacts at the study site as it ensured a high probability (1-beta greater than or equal to 0.80) of detecting intermediate or larger impacts on most (impact effects design) or all (location effects design) of 5 measures of community structure when $n_{sub(i)}$ and $n_{sub(i)}$ greater than or equal to 4. zoobenthos/pollution effects/approximation/community composition/statistical analysis/indicator species/biological sampling/ISE, Southern California Bight/Oceanic Abstracts.

1195. Hendricks TJ. Satellite imagery studies. ; 1977. Pacific Ocean East/California Coast/Coastal waters/Satellite data/Remote sensors/Circulation processes/Seasonal variations/Physical oceanography/Temperature variations/Surface waters/Upwelling/California Current/Countercurrents/Bottom topography/Eddies/Vertical motion/Southern California Bight/IR imagery/season circulation patterns/ thermal imagery/gyres/NOAA weather satellites/OceanAbstracts.

1196. Fusaro C. Growth rate of the sand crab, Emerita analoga (Hippidae) in two different environments. Fishery Bulletin 1978;76(2):369-375 Comparisons of growth rates from population of sand crabs inhabiting the northwest corner of Santa Cruz Island with a population inhabiting Goleta Bay. . Invertebrates, Sandy intertidal, Santa Cruz Island.

1197. BRULAND KW, SILVER MW. SINKING RATES OF FECAL PELLETS FROM GELATINOUS ZOOPLANKTON (SALPS, PTEROPODS, DOLIOLIDS). MARINE BIOL., BERL. 63(3) 1981: 295-300, ILLUSTR.
* MOLLUSCA ** GASTROPODA *** OPISTHOBRANCHIA **** ORDER THECOSOMATA ***** PERACLIDACEA ***** COROLLA SPECTABILIS.
DIGESTION & NUTRITION/DIGESTION/FAECES/PELLET SINKING RATES/PACIFIC OCEAN/NORTHERN PACIFIC/CALIFORNIA CURRENT/FAECAL PELLET SINKING RATES/Zoological Index.

1198. Antonelis Jr. GA, Fiscus CH, DeLong RL. Spring and summer prey of California sea lions Zalophus californianus at San Miguel Island, California, USA 1978-1979. U.S. Natl. Mar. Fish. Serv. Fish. Bull. 1985;82(1):67-76 Address: NORTHWEST AND ALASKA FISHERIES CENT. NATL. MARINE MAMMAL LAB., NATL. MARINE FISHERIES SERV., NOAA, 7600 SAND POINT WAY N.E., SEATTLE, WASH. 98115. During

the late spring and summer of 1978 and 1979, 224 scats were collected from rookeries of the California sea lion, *Z. californianus*, at San Miguel Island for the purpose of identifying prey species. A total of 2629 otoliths and 2061 cephalopod beaks were recovered. The frequency of occurrence for the 4 most commonly identified prey species was 48.7% Pacific whiting, *Merluccius productus*; 46.7% market squid, *Loligo opalescens*; 35.9% rockfish, *Sebastes* spp.; and 20.0% northern anchovy, *Engraulis mordax*. Seasonal variability in the frequency of occurrence of these 4 prey species from late spring to summer indicates that California sea lions feed opportunistically on seasonally abundant schooling fishes and squids. Five species of fish (California smoothtongue, *Bathylagus stibius*; northern lampfish, *Stenobranchius leucopsarus*; chub mackerel, *Scomber japonicus*; medusafish, *Icichthys lockingtoni*; sablefish, *Anoplopoma fimbria*) and 1 cephalopod (2 spotted octopus, *Octopus bimaculatus*) were identified as previously unreported prey of the California sea lion. feeding biology/predation/prey species/California sea lion/*Zalophus californianus*/Pacific whiting/*Merluccius productus*/market squid/*Loligo opalescens*/rockfish/*Sebastes*/northern anchovy/*Engraulis mordax*/San Miguel Island/marine biology/mammalogy.

1199. Bonnell ML, Le Boeuf BJ, Pierson MO, Dettman DH, Farrens GD. Summary of marine mammal and seabird surveys of the Southern California Bight Area, 1975-1978. Investigators' Reports. Part I. Pinnipeds of the Southern California Bight. Final rept. 1981;III:557.

AQUATIC ANIMALS/CRUDE OIL/ECOLOGY/WATER POLLUTION/SOUTHERN CALIFORNIA BIGHT/BONNELL/SEALS MAMMALS/DISTRIBUTION PROPERTY/ABUNDANCE/SEASONAL VARIATIONS/OFFSHORE DRILLING/ANIMAL MIGRATIONS/ENVIRONMENTAL IMPACTS/NATURAL GAS/TEXT/Dailey/marine mammals/MINERALS MANAGEMENT SERVICE.

1200. Bonnell ML, Le Boeuf BJ, Pierson MO, Dettman DH, Farrens GD, Heath CB. Pinnipeds of the Southern California Bight. Summary Report, 1975-1978, Part I. Principal Investigator's Reports, Marine Mammal and Seabird Survey of the Southern California Bight Area. 1981;III:535. text/mammals/MINERALS MANAGEMENT SERVICE.

1201. Anderson DW, Gress F, Mais KF, Kelly PR. Brown pelicans in Southern California Bight as anchovy *Engraulis mordax* stock indicators and their relationships to commercial fishing. Rep Calif Coop Ocean Fish Invest. Sacramento, The Cooperative. July 1980. 1980;21:p.54-61 Other-US Bibliography p. 60-61. Article. California/AGRICOLA.

1202. Dugdale RC, Wilkerson FP. New production in the upwelling center at Point Conception, California: Temporal and spatial patterns. DEEP-SEA RES. (A OCEANOGR. RES. PAP.) 1989;36(7A):985-1007. A station (G-1) at the cold center between Points Conception and Arguello was occupied almost daily, a section measuring biological variables was made regularly along a line (the C-line) extending south from Point Arguello, and a series of drifter-following experiments were made on the R.V. Velero IV. Water upwelled at G-1 follows either a cyclonic or anticyclonic flow pattern and in both cases usually crosses the C-line to enter the Santa Barbara channel. The ability to take up nitrate increased with time and along with the circulation pattern, this "shift-up" determined the pattern of new production. Weak upwelling was associated with the

cyclonic path, longer travel time to the C-line, and higher new production rate at the south end of the C-line. High wind stress and strong upwelling was associated with the anticyclonic mode, short travel time, and low production rates at the north end of the C-line.

upwelling/current observations/primary production/secondary production/wind stress/anticyclonic motion/cyclonic motion/INE/USA/California/ Point Conception/coastal upwelling/USA/California/Point Conception/ASFA.

1203. Hudson T, Blackburn TC, Curletti R, Timbrook J. The Eye of the Flute: Chumash Traditional History and Ritual as Told by Fernando Librado Kitsepawit to John P. Harrington. Santa Barbara, CA: Santa Barbara Museum of Natural History; 1977. anthropology/Chumash.

1204. Folk RL. A morphometric analysis of terrace gravels, California. Sediment. Geol. 1977;19(3):p.233-234 Univ. Tex., Dep. Geol., Tex. 78712, United-States Analytic; Serial Discussion; for reference to paper by Glover, B. K., 'A morphometric analysis of terrace gravels in Santa Ynez Basin, Santa Barbara County, California,' see Sediment. Geol., Vol. 13, p. 109, 1975. B; Bibliography and Index of Geology (1969-present). Santa Barbara County/California/sedimentary petrology/sediments/clastic sediments/gravel/Santa Ynez Basin/terraces/shape/sphericity/roundness/flatness/index/GEOREF.

1205. Pirie DM, Murphy MJ, Edmisten JR. California nearshore surface currents. Proceedings NASA Earth Resources Survey Symposium 1974 Oceanography/Physical oceanography/currents.

1206. Schmitt R, Holbrook S. Ontogeny of prey selection by black surfperch *Embiotoca jacksoni* (Pisces: Embiotocidae): The roles of fish morphology, foraging behavior, and patch selection. MAR. ECOL. (PROG. SER.) 1984;18(3):225-239. Proximate mechanisms leading to similarities and differences in diet of juvenile and adult black surfperch *Embiotoca jacksoni* in populations at Santa Catalina Island (USA) were explored. These fish are microcarnivorous, harvesting invertebrate prey primarily from benthic turf and foliose algae. Ontogenetic differences in prey size ultimately reflect age-specific differences in size of fish. Young juveniles are apparently gape limited and use a visual picking mode of foraging. This strongly influences the array of algal substrates from which prey can be effectively harvested. Turf substrates are used extensively by older fish that employ winnowing behavior to separate prey from debris. The marked differences in body size and foraging behavior have only a relatively small influences on the gross taxonomic makeup of the diet of black surfperch. foraging behavior/diets/prey selection/feeding behavior/*Embiotoca jacksoni*/body size/INE/USA/California/Santa Catalina I./CSA Life Sciences Collection.

1207. Webb FH, Hager BH, Agnew DC (Performer: California Inst. of Tech., Pasadena. Funder: National Aeronautics and Space Administration, Washington, DC.) Comparison of GPS (Global Positioning System) Surveys with Historical Triangulation Surveys in the Southern California Borderland. ; 1988. Report No.: NAS126183405, NASACR183405. 13p. Contract: NAG5842.

Global plate models predict about 56 mm/yr of motion between the North American and Pacific plates along the plate boundary in southern California, while geodetic and Holocene geological data suggest only 34 mm/yr on the San Andreas fault. Deformation in the

Great Basin does not explain this discrepancy, and it has been suggested that faulting in the offshore of southern California could account for some of the discrepancy. Evidence of deformation in the offshore region of southern California is most abundant in the Santa Barbara Channel. Geological investigations of folding and faulting in this region, as well as earthquake investigations, indicate north-south shortening across the channel on the order of 10 to 20 mm/yr. The most rapid rates occur to the east of the channel in the Ventura Basin. South of the Santa Barbara Channel, though, evidence for deformation is limited to seismicity studies which are sparse. Seismic events are abundant in this area, but their implication for the amount of deformation in the offshore is unclear. GPS measurements made between June 1986 and May 1988 have been used to obtain vector positions for several stations at which historical first order triangulation observations were performed between the late 1800's and the mid 1900's between the coast of southern California and the nearby offshore islands. By comparing the spheroidal angles obtained from the GPS positions with the the previously observed triangulation data, shear strain rates can be calculated for the region using Frank's method. These results seem to suggest that shear strain deformation occurs in the offshore of southern California as a result of north to north-west shortening. That deformation is most active in the Santa Barbara Channel region and least active between Catalina and San Nicholas islands. Just how much of the missing plate motion can be accounted for by this deformation is not known at this time and will have to await further analysis. Deformation/Plates Tectonics/San Andreas fault/Seismology/California/Geodetic surveys/Global positioning system/Triangulation/NTIS.

1208. Estes JA. Indices used to assess status of sea otter populations: A reply. J. WILDL. MANAGE 1990;VOL. 54, NO. 2:pp. 270-272

U.S. Fish and Wildl. Serv., Inst. Mar. Sci., Univ. California, Santa Cruz, CA 95064, USA.

The California sea otter (*Enhydra lutris*) population, after increasing for more than half a century, stabilized and probably declined from the mid-1970's to the mid-1980's. Estes et al. (1986) suggested that the stabilization and decline were not due to food limitation. Garshelis et al. (1990) challenged this suggestion, although in doing so they misrepresented arguments made by Estes et al. (1986), provided no evidence for alternative hypotheses, and offered no constructive recommendations for a better means of population assessment. While acknowledging some of the points made by Garshelis et al. (1990), I believe the collective evidence presented by Estes et al. (1986) provided a reasonable basis for rejecting the food-limitation hypothesis, and point out that recent increases in the California sea otter population following a legislated reduction in net entanglement mortality is strong evidence against the food-limitation hypothesis.

methodology/*Enhydra lutris*/population structure/stock assessment/resource management/literature reviews/INE, USA, California/Oceanic Abstracts.

1209. Heesen TC, Young DR. Precision of chlorinated hydrocarbon measurements. ; 1977.

Pacific Ocean East/California Coast/Coastal waters/Hydrocarbons/Chlorine compounds/Pollutant analysis/Toxins/Marine pollution/Sediments/Tissues/Metal uptake/Sampling methods/Measuring methods/Wastewaters/Grab samplers/Soles/PCB compounds/Southern California Bight/chlorinated hydrocarbons/fish tissue/storm runoff/aerial fallout/DDT/Palos Verdes Peninsula/Santa Monica Bay/ municipal waste waters/chlorinated benzene/OceanAbstracts.

1210. Garth JS. Brachyura of the Pacific Coast of America. Allan Hancock Pacific Expeditions 1958;21(1):1-499
Includes several sandy subtidal crabs from the Channel Islands. Sandy Subtidal, invertebrates, San Miguel Island, Santa Rosa Island, Santa Cruz Island, Santa Barbara Island, Anacapa Island.

1211. DAY RW, OSMAN RW. PREDATION BY PATIRIA MINIATA (ASTEROIDEA) ON BRYOZOANS: PREY DIVERSITY MAY DEPEND ON THE MECHANISM OF SUCCESSION. OECOLOGIA 51(3) 1981: 300-309, ILLUSTR.
* BRYOZOA ** STENOLAEMATA *** TUBULIPORA.
FEEDING/CARNIVOROUS FEEDING/PREDATION/PREDATORS/PATIRIA MINIATA (ECHINODERMATA)/PREDATION EFFECT ON DIVERSITY DURING SUCCESSION, CALIFORNIA (MARINE)/ECOLOGY/COMMUNITY/COMMUNITY STRUCTURE/SPECIES DIVERSITY/SUCCESSION, ECHINODERM PREDATION ON TUBULIPORA/INFLUENCE, CALIFORNIA (MARINE)/HABITAT/SUCCESSION IN HABITATS/DIVERSITY, ECHINODERM PREDATION ON TUBULIPORA/PACIFIC OCEAN/NORTHERN PACIFIC/SOUTHERN CALIFORNIA BIGHT/ECHINODERM PREDATORS, EFFECT ON DIVERSITY DURING SUCCESSION/Zoological Index.

1212. Antonelis Jr. GA, Leatherwood S, Odell DK. Population growth and censuses of the northern elephant seal *Mirounga angustirostris* on the California Channel Islands, USA 1958-1978. U.S. Natl. Mar. Fish. Serv. Fish. Bull. 1981;79(3):562-567
Address: NATIONAL MARINE MAMMAL LABORATORY, NATIONAL MARINE FISHERIES SERVICE, NOAA, 7600 SAND POINT WAY NE., SEATTLE, WASH. 98115.
breeding biology/population growth/censuses/Phocidae/northern elephant seal/*Mirounga angustirostris*/California Channel Islands/marine biology/mammalogy.

1213. Booth JS. Early diagenesis in southern California continental borderland sediments. Diss. Abstr. Int. 1974;35(1):319B-320B. egeanhouse/geochemistry/chemical oceanography/sedimentation/diagenesis/cores/pore water/continental borderland/MINERALS MANAGEMENT SERVICE.

1214. Hunt GLJ, Butler JL. Reproductive ecology of western gulls and xantus' murrelets foraged on larval fish, particularly larval northern anchovies (*Engraulis mordax*) with respect to food resources in the Southern California Bight. Rep Calif Coop Ocean Fish Invest. Sacramento, The Cooperative. July 1980. 1980;21:p.62-67
Other-US 17 ref. Article.
California/AGRICOLA.

1215. Walker HJJ, Watson W, Barnett AM. Seasonal occurrence of larval fishes in the nearshore Southern California Bight off San Onofre, California. ESTUAR. COAST. SHELF SCI 1987;25(1):91-109. Larval fishes were sampled from the nearshore region of the Southern California Bight off San Onofre to determine temporal assemblages and species associations. Two major assemblages of larvae were found: members of the winter-spring (December-May) assemblage were most abundant from January to May; members of the summer-fall (June-November) assemblage were most abundant from July to September. Demersal spawners tended to have spawning seasons of longer duration than pelagic spawners; winter-spring spawners generally had longer spawning seasons than summer-fall spawners. The annual ocean temperature cycle near San Onofre was a good indicator of the seasonal occurrence of fish larvae in this area. spawning seasons/temperature effects/upwelling/geographical distribution/INE/USA/California/fish larvae/ASFA.

1216. Graham RL. A paleomagnetic study of the Santa Barbara Basin. *Eos (Am. Geophys. Union, Trans.)*. 1976;57(12):p.909
Oreg. State Univ., Corvallis, Oreg., United-States American Geophysical Union; 1976 fall annual meeting, San Franc., Calif., Dec. 6-10, 1976 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).
Pacific Ocean/stratigraphy/Quaternary/paleomagnetism/East Pacific/Santa Barbara Basin/magnetic field/inclination/declination/variations/GEOREF.

1217. Preisendorfer RW. Application of radiative transfer theory to light measurements in the sea. *Symp. Radiant Energy in the Sea, Intl. union Geodesy. and Geophys.* 1960;10:11-30
Oceanography/Physical oceanography/water masses.

1218. Dixon R (Performer: Pacific Missile Test Center, Point Mugu, CA). Tidal and Lunar Data for Point Mugu, San Nicholas Island, and the Barking Sands Area during 1989. Annual rept. ; 1988. Report No.: PMTCTP000048. 44p. Basic lunar and tidal data for Point Mugu, San Nicolas Island and the Barking Sands Area during 1989 are provided. The data presented are (1) Tidal data, (2) times of moonrise and moonset, (3) times of lunar phases, and (4) times of sunrise and sunset. (FR).
Time/Phase/Sunrise/Sunset/California/Santa Barbara Islands/Hawaii/Naval shore facilities/Ephemerides/Tables Data/Moon/Ocean tides/Point Mugu/San Nicholas Island/Barking Sands Hawaii/Moonrise/Moonset/NTIS.

1219. Cailliet GM, Ebeling AW. The vertical distribution and feeding habits of two common midwater fishes (*Leuroglossus stilbius* and *Stenobranchius leucopsarus*) off Santa Barbara. *REP. CCOFI* 1990;VOL. 31:pp. 106-123
Moss Landing Mar. Lab., P.O. Box 450, Moss Landing, CA 95039, USA. *Leuroglossus stilbius* (Bathylagidae) was abundant in the nearshore Santa Barbara Basin (SBB), but less so in the more offshore Santa Cruz Basin (SCB). *Stenobranchius leucopsarus* (Myctophidae) was abundant in both basins. *L. stilbius* is adapted morphologically to feed by suction and to eat smaller, less active organisms. *S. leucopsarus* is better adapted to feed by grasping, and to eat larger, faster, and more elusive prey. In the SBB, *L. stilbius* fed, mostly at night in surface waters, on larvaceans and salps all year, reflecting the seasonally consistent abundance of these prey items. In the SCB, it fed less intensely, mostly at night in surface waters, and its diet varied with the seasonal abundance of its gelatinous prey. *S. leucopsarus* fed mainly on crustaceans, and it did not exhibit a distinct chronology. It ate similar prey all year in both basins, but euphausiids dominated the diet when they were most abundant. Thus *L. stilbius* is well adapted to inshore, eutrophic midwater habitats.
vertical distribution/feeding behavior/abundance/circadian rhythms/*Leuroglossus stilbius*/*Stenobranchius leucopsarus*/INE, USA, California, Santa Barbara/Oceanic Abstracts.

1220. Hershelman GP, Jan TK, Schafer HA. Pollutants in sediments off Palos Verdes. ; 1977.
Pacific Ocean East/California Coast/Coastal waters/Pollutant analysis/PCB compounds/Sediments/Contaminants/Metals/Grab samplers/Measuring methods/Outfalls/Silver/Cadmium/Chromium/Copper/Nickel/Lead/Zinc/Mercury/Wastewaters/Marine pollution/Sediment cores/Distribution/Southern California Bight/surface sediments/trace metals/DDT/ submarine discharges/OceanAbstracts.

1221. Garth JS. *Brachyura of the Pacific Coast of America*. Oxyrhynca. Tables and Plates. Allan Hancock Pacific Expeditions 1958;21(2):501-854 Includes several sandy subtidal crabs from the Channel Islands. Sandy Subtidal, invertebrates, San Miguel Island, Santa Rosa Island, Santa Cruz Island, Santa Barbara Island, Anacapa Island.

1222. BERNAL PA. A REVIEW OF THE LOW-FREQUENCY RESPONSES OF THE PELAGIC ECOSYSTEM IN THE CALIFORNIA CURRENT. REPORT CALIF. COOP. OCEANIC FISH. INVEST. 22 1981:49-62
ECOLOGY/ECOLOGICAL ENERGETICS/BIOMASS/ZOOPLANKTON FLUCTUATIONS, PELAGIC ECOSYSTEM EFFECTS, CALIFORNIA CURRENT/POPULATION STUDY/POPULATION DYNAMICS/CYCLES OF ABUNDANCE/PLANKTON BIOMASS & PELAGIC ECOSYSTEM EFFECTS CYCLES, CALIFORNIA CURRENT/LIFE HABIT/AQUATIC HABIT/PLANKTON/BIOMASS FLUCTUATIONS, PELAGIC ECOSYSTEM EFFECTS, CALIFORNIA CURRENT/PACIFIC OCEAN/NORTHERN PACIFIC/CALIFORNIA CURRENT/ZOOPLANKTON FLUCTUATIONS 1949-1969, PELAGIC ECOSYSTEM EFFECTS/Zoological Index.

1223. Antonelis Jr. GA, Lowry MS, Fiscus CH. Assessing northern elephant seal feeding habits by stomach lavage. Mar. Mamm. Sci. 1987;3(4):308-322 Address: NATL. MARINE MAMMAL LAB., NORTHWEST ALASKA FISHERIES CENT., NATL. MARINE FISHERIES SERV., NATL. OCEANIC ATMOSPHERIC ADMINISTRATION, 7600 SAND POINT WAY N.E., BUILD. 4, SEATTLE, WASH. 98115.

Stomach lavaging was used to study the feeding habits of northern elephant seals (*Mirounga angustirostris*) found on San Miguel Island, California, [USA] during the spring of 1984. Fifty-nine elephant seals were chemically immobilized with an intramuscular injection of ketamine hydrochloride. Once immobilized, an animal's stomach was intubated, filled with 3-4 liters of water to create a slurry of the undigested food items, and evacuated into a collection device. The stomachs of 57 (96.6%) of the animals lavaged contained identifiable parts of prey. Twenty-nine different food items were identified, 12 of which have not been previously reported as prey of the northern elephant seal: two teleost fish, *Coryphaenoides acrolepis* (Pacific rattail) and another unidentified macrourid; two crustaceans, *Pasiphaea pacifica* (glass shrimp) and *Euphausia* sp.; six squid, *Abraliopsis felis*, *Gonatus berryi*, *Histioteuthis dofleini*, *Cranchia scabra*, *Taonius pavo*, and *Galiteuthis* sp. and two octopi, *Octopus dofleini* and *Octopus rubescens*. The following prey species were found in at least 20% of stomachs lavaged: *Octopoteuthis deletron* (squid), *Merluccius productus* (Pacific whiting), *Gonatopsis borealis* (squid), *Pleuroncodes planipes* (pelagic red crab), *H. dofleini* and *H. heteropsis*. The diversity of habitats in which many of these prey are commonly found indicates that the northern elephant seals from San Miguel Island are capable of foraging in a variety of marine environments (epipelagic, mesopelagic, bathypelagic, neritic and benthic) and many only be limited by the depth to which they can dive.

stomach lavaging/feeding biology/feeding habits/foraging biology/diets/food/organisms/northern elephant seals/*Mirounga angustirostris*/San Miguel Island/marine biology/mammalogy.

1224. Tont SA, Delistraty DA. The effects of climate on terrestrial and marine populations in California Current system. Rep Calif Coop Ocean Fish Invest. Sacramento, The Cooperative. July 1980. 1980;21:p.85-89
Other-US Literature review. Bibliography p. 88-89. Article. California/AGRICOLA.

1225. Crawford RJM. Food and population variability in five

regions supporting large stocks of anchovy, sardine and horse mackerel. THE BENGUELA AND COMPARABLE FRONTAL SYSTEMS.; S. AFR. J. MAR. SCI./S.-AFR. TYDSKR. SEEWET. 1987;(5):735-757.

The Benguela, California, Humboldt and Canary currents and the coastal waters of Japan support large stocks of Sardinops spp., Sardina sp., Engraulis spp., Trachurus spp. and Scomber japonicus, with Merluccius spp. also abundant in each of the systems except off Japan. Many of the more numerous fish, birds and mammals are opportunistic feeders. Species often have overlapping diets, and when a particular food item is plentiful it may be consumed by a wide variety of organisms at higher trophic levels. Opportunistic feeding by species at lower trophic levels suggests that they could be advantaged by an increased food supply, and it may not be unreasonable to interpret species replacements in catches as reflecting shifts in the dominance of species. Overall catches from the systems have usually been more stable than the catches of individual species, which have shown wide fluctuations. The likelihood of a particular organism becoming the main replacing species will probably be influenced by the degree to which it is utilized during and after the collapse of the originally dominant resource. food preferences/upwelling/diets/pelagic fisheries/Teleostei/World Oceans/PSW/Benguela Current/INE/California Current/ISE/California Current/ASE/Canary Current/ISE/Humboldt Current/PSW/Humboldt Current/INE/Japan/population dynamics/ASFA.

1226. Whaley KR. Intersection of the Oak Ridge and Santa Susana fault zones, southeastern Ventura County, California. Geol. Soc. Am., Abstr. Programs. 1975;7(3):p.387
Ohio Univ., Dep. Geol., Athens, Ohio, United-States The Geological Society of America, Cordilleran Section, 71st annual meeting, Los Angeles, Calif., March 25-27, 1975 Analytic; Serial; Conference publication B; Bibliography and Index of Geology (1969-present).
Ventura County/tectonics/structure/faults/reverse faults/fault zones/extent/Cenozoic/California/Oak Ridge fault zone/Santa Susana fault zone/United States/Pliocene/Pleistocene/structural geology/Santa Barbara Channel/Torrey County/GEOREF.

1227. Putnam JA, Munk WH, Taylor MA. The prediction of longshore currents. Trans. Amer. Geophys. Union 1949;30:337-345
Oceanography/Physical oceanography/currents/waves.

1228. Van VD. Diurnal activity and habitat use by feral pigs on Santa Cruz Island, California. CALIF. FISH GAME 1984;70(3):140-144.
Feral pigs, Sus scrofa on Santa Cruz Island were active mornings and evenings during fall and spring and were active at midday during winter. Canyon bottoms were frequented in fall and early winter, with a shift to ridgetops during late winter and spring. Pigs occurred most often in chaparral and oak woodland in fall, then moved to chaparral-grassland and grassland from midwinter through spring. Activity availability, and to availability of escape cover. habitat utilization/diets/Sus scrofa/USA/California/Santa Cruz Island/activity patterns/diurnal variations/feral populations/CSA Life Sciences Collection.

1229. Hickey B (Performer: Washington Univ., Seattle. School of Oceanography. Funder: Department of Energy, Washington, DC.) DOE (Department of Energy) West Coast Environmental Studies: Circulation and Particle Fluxes in the Southern California Bight. Report of Progress, May 15, 1985-November 15, 1988. ; 1988. Report No.: DOEER603336. 337p.
Portions of this document are illegible in microfiche products. PC

A15/MF A01 Contract: FG0585ER60333.

The overall objective of the DOE West Coast Basin study (CaBS) is to understand the dispersion of potential contaminants from inshore waters, where they may primarily be generated, across the shelf out to deeper waters; in particular, the role of particulate fluxes, determination of general pathways of material removal, residence times, and water column/sediment exchanges. The CaBS program differs significantly from the other DOE marine programs. In most East Coast regions, anthropogenic material is either swept away from the coastal zone by the high energy physical environment or, if it is sedimented out of the water column, is reworked by organisms to such an extent that accurate estimates of particulate fluxes cannot be obtained. The deep basins off the California coast, on the other hand, provide relatively efficient traps for anthropogenic material introduced into the coastal zone. Moreover, since the basins are anoxic, or nearly so, reworking of sediments by marine organisms is minimized, so that accurate estimates of sediment accumulation rates and recycling processes can be obtained. Specific questions to be addressed include (1) to what extent can the coastal basins safely absorb potentially harmful energy-related anthropogenic materials. and (2) to what extent do anthropogenic materials introduced into the basins find a pathway back to man. The long-term goals of the Hickey component of CaBS are to investigate (1) circulation in the Southern California Bight, including both patterns and forcing mechanisms, and (2) particle dynamics in this region; in particular, the relative importance of horizontal advection, wave/current resuspension processes, and intermediate-depth nepheloid layers, in redistributing particles, on time scales of minutes to seasons. 9 refs., 40 figs. (ERA citation 14:009629).

California/Coastal Regions/Compiled Data/Oceanography/Pacific Ocean/Progress Report/Sampling/Currents/Sediments/Continental Shelf/ERDA/580500/Water pollution/NTIS.

1230. Thomas WH, Gibson CH. Quantified small-scale turbulence inhibits a red tide dinoflagellate, *Gonyaulax polyedra* Stein. DEEP-SEA RES. (A OCEANOGR. RES. PAP. 1990;VOL. 37, NO. 10A:pp. 1583-1593

Scripps Inst. Oceanogr., Univ. California at San Diego, La Jolla, CA 92093, USA. The development of marine dinoflagellate red tides off southern California requires optimal temperature and light regimes, a source of nutrients that may be supplied by wind-induced upwelling and upmixing, and vertical migration by cells to this source. Red tides occur after the winds decrease and the water becomes highly stratified with a shallow mixed layer. This implies low turbulence levels may be an additional requirement for red tide development. Because dinoflagellates with sizes about $35 \mu\text{m}$ are much smaller than the inertial-viscous, or Kolmogorov scales $L_{\text{sub}(K)}$ identical with $(\nu \text{ super}(3) / \epsilon) \text{ super}(1/4) = (\nu / \gamma) \text{ super}(1/2)$ of oceanic turbulence, the important flow parameters are the viscous dissipation rate per unit mass ϵ ($\text{cm super}(2)/\text{s super}(3)$ or ergs/g/s), the rate-of-strain γ identical with $(\epsilon / \nu) \text{ super}(1/2)$ (rad/s), and the stress τ identical with $\mu \gamma$ ($\text{dyne/cm super}(2)$), where ν is the kinematic viscosity and μ is the dynamic viscosity. In the present work we cultured the red tide dinoflagellate, *Gonyaulax polyedra* Stein, under conditions of known ϵ , γ and τ . inhibitors/turbulence/algal blooms/red tides/temperature effects/light effects/*Gonyaulax polyedra*/INE, USA, California/physical oceanography/Oceanic Abstracts.

1231. Hendricks TJ. Coastal currents. ; 1977. Marine pollution/California Coast/Pacific Ocean East/Coastal

waters/ Currents/Sub-thermocline/Wastewaters/Water transport/Dispersion/ Current meters/Water movement/Outfalls/Effluents/Current data/Wind/Tidal variations/Flow rates/Measuring methods/Suspended sediments/Southern California Bight/flushing rates/municipal wastewater discharges/subthermocline current speeds/Point Loma/near-bottom currents/tidal oscillations/midwater currents/OceanAbstracts.

1232. Grady JB. Submarine geology of Santa Barbara Island and vicinity [dissertation]. Los Angeles: University of Southern California; 1960. Reviewed in Emery 1960. Sandy Subtidal Invertebrates, Santa Barbara Island.

1233. TONT SA, DELISTRATY DA. THE EFFECTS OF CLIMATE ON TERRESTRIAL AND MARINE POPULATIONS. REPORT CALIF. COOP. OCEANIC FISH. INVEST. 21 1980: 85-89. ENVIRONMENTAL FACTORS/PHYSICAL ENVIRONMENT/CLIMATE & WEATHER/BIOLOGICAL SYSTEMS EFFECT, CALIFORNIA CURRENT/ECOLOGY/ECOLOGICAL ENERGETICS/ COMMUNITY ENERGETICS/CLIMATIC IMPACT ON BIOLOGICAL SYSTEMS, CALIFORNIA CURRENT/COMMUNITY/PACIFIC OCEAN/NORTHERN PACIFIC/CALIFORNIA CURRENT/CLIMATIC EFFECTS ON TERRESTRIAL & MARINE POPULATIONS/Zoological Index.

1234. Antonelis Jr. GA, Leatherwood S, Odell D. Population growth and censuses of the northern elephant seal, *Mirounga angustirostris*, on the California Channel Islands, 1958-78. Fishery Bulletin (Seattle) 1981;79(3):562-567 Address: National Marine Fisheries Service, Seattle, WA. Prepared in cooperation with Hubbs-Sea World Research Inst., San Diego, CA., and Miami Univ., FL. Rosenstiel School of Marine and Atmospheric Science. The northern elephant seal, *Mirounga angustirostris*, has received considerable attention because of its dramatic recovery from near extinction in the late 19th century. One can trace a rapid increase in size of the California Channel Island subpopulation over the last nearly three decades. Using estimated pup production figures from this and other published censuses for the years 1958-78, rates of growth for each island are assessed within the subpopulation and for the subpopulation as a whole. Census/Population growth/marine mammals/northern elephant seal/*Mirounga angustirostris*/California Channel Islands/marine biology/mammalogy.

1235. Bowman TE, Johnson MW. Distributional atlas of calanoid copepods in the California current region, 1949 and 1950. Calif. Coop. Ocean. Fish. Invest. Atlas No. 19 1973;:239. invertebrates/Pieper/Dawson/plankton/MINERALS MANAGEMENT SERVICE.

1236. Bracewell LW, Selleck RE, Carter R. Contribution of waste water discharges to ocean surface particulates. J. Water Pollut. Control Fed. 1980;52(8):2230-2245. Waste water/marine pollution/surface layers/INE/Southern California Bight/Hood/ecosystem/water analysis/pollution effects/pollution legislation/waste water treatment/analytical/techniques/coliforms/wastewater treatment/water/seawater/pollution/disposal/wastewater/Anthropogenic/Anderson/Hickey/physical oceanography/Geesey/microbiology/MINERALS MANAGEMENT SERVICE.

1237. Wells H. A distance coefficient as a hybridization index: an example using *Mimulus longiflorus* and *Mimulus fleminigii* (Scrophulariaceae) from Santa Cruz Island, California. Taxon. Utrecht, International Bureau for Plant Taxonomy and Nomenclature. 1980;29(1):p.53-65

Foreign Bibliography p. 62-65. Article.
California/Islands/AGRICOLA.

1238. Simpson JJ. Transport processes affecting the survival of pelagic fish stocks in the California Current. 10th ANNUAL LARVAL FISH CONFERENCE. PROCEEDINGS OF A CONFERENCE HELD IN MIAMI, FLORIDA, USA, MAY 18-23, 1986.; AM. FISH. SOC. SYMP. SER 1987;2:39-60.

Starvation and predation affect the survival of fish eggs and larvae to the juvenile stage within a given year class. Water movement affects survival because it can carry eggs and larvae into areas poor in food, rich in predators, or both. Within the California Current, small-scale wind-induced near-surface mixing, mesoscale vertical transport (upwelling-downwelling), mesoscale vortex entrainment, and large-scale mean flow are the dominant water transport mechanisms that affect the space-time distribution of eggs and larvae of a given species in relation to the space-time distributions of food and predators for that species. The scales of variability associated with each of these transport processes are presented and specific examples of the effects of these processes on various species in the California Current are shown based on in situ data, remotely sensed data, and dynamical and numerical models.

fish eggs/fish larvae/survival/population dynamics/transport processes/INE/California Current/predation/starvation/ASFA.

1239. Ziegler DL. The Santa Barbara Channel; to be or not to be. Weaver DW, Hornaday GR, Tipton A. Paleogene symposium and selected technical papers; conference on future energy horizons of the Pacific Coast. ; 1975. p. p. 594-612. Standard Oil Co. Calif., United-States Pac. Sect., Am. Assoc. Pet. Geol. 50th annual meeting of the Pacific sections, AAPG, SEPM, SEG Future energy horizons of the Pacific Coast; Paleogene symposium, Long Beach, Calif., April 23-26, 1975 Analytic; Book; Conference publication B; Bibliography and Index of Geology (1969-present).

Santa Barbara County/petroleum/United States/California/Santa Barbara Channel/resources/exploration/production/structure/lithostratigraphy/environmental geology/pollution/geologic hazards/oil spills/economic geology/offshore/GEOREF.

1240. Radovitch J. Relationships of some marine organisms of the northeast Pacific to water temperatures, particularly during 1957 through 1959. Calif. Fish and Game, Fish. Bull. 1961;112:62 Oceanography/Physical oceanography/water masses.

1241. Alldredge A, Robison B, Fleminger A, Torres J, King J, Hamner W. Direct sampling and in situ observation of a persistent copepod aggregation in the mesopelagic zone of the Santa Barbara Basin. MAR. BIOL 1984;80(1):75-81. Observations from a one-person submersible (Wasp) in fall, 1982, revealed a persistent aggregation of non-migrating, Stage V copepodites of *Calanus pacificus californicus* Brodsky in a band 20 plus or minus 3 m thick at a depth of 450 m, about 100 m above the bottom of the Santa Barbara Basin, California. Copepod abundances, calculated from nearest-neighbor distances measured directly from the submersible, yielded maximum densities of 26×10^6 copepodites m^{-3} . Quiescent behavior, low laminarinase activity, low protein content, high lipid content and evidence of low excretion rate all suggest that these copepodites were in a state of diapause. Diapausing *C. pacificus californicus* at other locations along the eastern Pacific coast were also captured in discrete depth plankton tows.

population density/diapause/Calanus pacificus californicus/Pacific Ocean/ Santa Barbara Basin/aggregation/CSA Life Sciences Collection.

1242. Hickey B (Performer: Washington Univ., Seattle. School of Oceanography. Funder: Department of Energy, Washington, DC.) California Basin Study (CaBS): Circulation and Particle Fluxes in the Southern California Bight: Annual Progress Report, 15 November 1987-14 November 1988. ; 1988. Report No.: DOEER603335. 53p. Portions of this document are illegible in microfiche products. PC A04/MF A01 Contract: FG0585ER60333.

During this period we have executed three CTD/oxygen/transmission surveys, during 1-7 Feb (SHELF 1), 5-12 April (SHELF 2), and 1-9 Oct (SHELF 3). Data were obtained at 78, 70, and 109 stations, respectively. Calibration of these data sets has been completed and processing has been initiated. The SHELF 2 and SHELF 3 cruises also included shipboard acoustic Doppler current surveys. Cruise reports for the three cruises are appended. During February we successfully deployed several moorings in an array designed to monitor the important seasonal transition between winter and spring (TRANSITION). In April, additional moorings were added to the array to provide a detailed description of circulation over the Santa Monica shelf (SHELF). Rationale for and details of these experiments are described below. All moorings except one and a half were successfully fishermen earlier in the season and were returned to us intact. One mooring in the October cruise failed to release and was recovered via a submersible the next day. The malfunction was due to the fact that the release mechanism of the mooring, which had been deployed for nine months in 30 m of water, was jammed with rock scallop exclamation 9 refs., 10 figs., 8 tabs. (ERA citation 14:009628).

California/Continental Shelf/Oceanography/Oxygen/Pacific Ocean/Progress Report/Samplers/Sampling/Sediments/Site Surveys/Currents/Coastal Regions/ERDA/580500/California Basin/NTIS.

1243. Urrutia LP, Drummond H. Brood reduction and parental infanticide in Heermann's gull. AUK 1990;VOL. 107, NO. 4:pp. 772-774

Cent. Ecol., Univ. Nac. Auton. Mexico, A.P. 70-275, 04510 Mexico D.F., Mexico. We have evidence from a single season for an active parental role in chick deaths in Heermann's Gull (*Larus heermanni*), a poorly known species that breeds exclusively on islands in and near Mexico's Sea of Cortez. Our study to detect possible brood reduction showed that parents not only created competitive asymmetry between their chicks, but also sometimes precipitated the death of the last egg/chick by neglect or aggression. Observations were made on Isla Rasa (28 degree 49'N, 112 degree 59'W), a small (0.55 km super(2)), arid island located in a zone of high marine productivity.

parental behavior/infanticide/*Larus heermanni*/ISE, California Gulf/mortality/juveniles/Oceanic Abstracts.

1244. Hendricks TJ. In situ measurements of initial dilution. ; 1977. Marine pollution/California Coast/Pacific Ocean East/Coastal waters/ Outfalls/Measuring methods/Currents/Effluents/Chemistry/Water column/Vertical distribution/Horizontal distribution/Wastewaters/In situ measurements/Turbidity/Stratification/Simulation/Sampling methods/Diffusion/Southern California Bight/initial dilution/buoyant plume behavior/ surfacing wastefields/water column profiles/optical brighteners/ Rhodamine dye/concentration profiles/OceanAbstracts.

1245. Dugan JE. Geographic and temporal variation in the life history, growth and reproductive biology of the sand crab, *Emerita analoga* (Stimpson) [dissertation]. Santa Barbara, CA: University of California at Santa Barbara; 1990. 329 pages. UCSB Library, University Microfilms
Includes comparisons of population biology of sand crabs on the Channel Islands and the mainland.
Sandy intertidal invertebrates, population biology, Santa Cruz Island, San Miguel Island, Santa rosa Island, Santa Catalina Island.

1246. MILLER DJ. THE SEA OTTER IN CALIFORNIA. REPORT CALIF. COOP. OCEANIC FISH. INVEST. 21 1980: 79-81.
* MAMMALIA ** CARNIVORA *** FISSIPEDA **** MUSTELIDAE ***** ENHYDRA LUTRIS. FEEDING/FEEDING BEHAVIOUR/FORAGING/DISPERSAL, MIGRANT & ESTABLISHED POPULATIONS, CALIFORNIA CURRENT/ECOLOGY/POPULATION STUDY/CALIFORNIA CURRENT/PACIFIC OCEAN/NORTHERN PACIFIC/POPULATION STUDY, FEEDING DISPERSAL MIGRANT & ESTABLISHED POPULATIONS/Zoological Index.

1247. Apt K, D'Antonio C, Crisp J, Gauvain J. Intertidal macrophytes of Santa Cruz Island, California. Santa Barbara, CA: The Herbarium, Department of Biological Sciences, University of California; 1988.
funded by U.C. Natural Land/Water Reserves Committee.
We surveyed 10 intertidal sites around Santa Cruz Island to provide a detailed, thorough collection of intertidal macrophytes for the island and the University of CA herbariums. We looked for biogeographic patterns in the species composition and provided a cursory comparison with northern and southern mainland marine macrophyte distributions.
intertidal macroflora/intertidal zone/algae/Santa Cruz Island/marine biology/botany/phycology.

1248. Brandsma D, Lund SP, Henyey TL. Paleomagnetism of late Quaternary marine sediments from Santa Catalina Basin, California continental borderland. J. Geophys. Res., B, Solid Earth and Planets 1989;94(1):547-564.
California/sedimentation/paleomagnetism/Pacific Ocean/geochronology/oceanography/stratigraphy/Quaternary/sedimentation rates/continental margin/marine sedimentation/secular variations/Pacific Coast/Western U.S./United States/Southern California/Santa Catalina Basin/upper Quaternary/marine sediments/accuracy/high-resolution methods/North American Pacific/marginal basins/continental borderland/SURFICIAL GEOLOGY/QUATERNARY/GEOLOGY/GEOCHRONOLOGY/07/MARINE GEOLOGY/OCEANOGRAPHY/MINERALS MANAGEMENT SERVICE.

1249. PROPOSED 1979 OUTER CONTINENTAL SHELF OIL AND GAS LEASE SALE, OCS SALE NO. 48, OFFSHORE SOUTHERN CALIFORNIA. LOS ANGELES, CALIFORNIA DEPARTMENT OF THE INTERIOR, BUREAU OF LAND MANAGEMENT JANUARY 1979 (EPA: JANUARY 31, 1979) 5 VOLUMES 1979 LEASING OF OUTER CONTINENTAL SHELF TRACTS (SALE NO. 48) FOR GAS AND OIL PRODUCTION OFFSHORE SOUTHERN CALIFORNIA. USDA EMPLOYEES REQUEST DOCUMENTS FROM NATIONAL AGRICULTURAL LIBRARY OTHERS ORDER FROM INFORMATION RESOURCES PRESS, 1700 NORTH MOORE STREET, SUITE 70 ARLINGTON, VA 22209. ENV.
PURLEASING OF 217 TRACTS (1.1 MILLION ACRES) ON THE OUTER CONTINENTAL SHELF (OCS) OFFSHORE OF SOUTHERN CALIFORNIA FOR EXPLORATION, DEVELOPMENT, AND PRODUCTION OF OIL AND GAS RESOURCES IS PROPOSED. THE TRACTS ARE LOCATED IN THE VICINITY OF THE SANTA BARBARA CHANNEL (544,693 ACRES), SANTA ROSA (34,560 ACRES), SANTA BARBARA ISLAND (23,980 ACRES), SAN PEDRO BAY (116,020 ACRES),

TANNER-CORTES (275,825 ACRES), AND DANA POINT-SAN DIEGO (146,740 ACRES). WATER DEPTHS ARE 25:N-750 METERS. CONSTRUCTION OF OFFSHORE FACILITIES WOULD INCLUDE 31 PLATFORMS, 86 EXPLORATORY WELLS, 701 PRODUCTION WELLS, 71 DELINEATION WELLS, 641 MILES OF OFFSHORE PIPELINE, 3 SINGLE BUOY MOORS, AND 3 OFFSHORE STORAGE AND TREATING PLANTS. THE SALE IS TENTATIVELY SCHEDULED FOR JUNE 1979. POSAPPROXIMATELY 715 MILLION BARRELS OF RECOVERABLE OIL AND 860 BILLION CUBIC FEET OF RECOVERABLE GAS COULD BE PRODUCED FROM THE PROPOSED LEASE AREA. THE SALE ALSO COULD GENERATE UP TO 14,629 JOBS, \$241 MILLION IN PERSONAL INCOME, AND \$519 MILLION IN GROSS REGIONAL PRODUCT BY 1986, WHICH IS THE PEAK YEAR OF THE TWENTY-YEAR PERIOD (1980:N-2000) DURING WHICH 90 PERCENT OF THE RESOURCES WOULD BE DEPLETED. NEGCOMBINED IMPACTS FROM THE PROPOSED SALE COULD INJURE, DESTROY, OR DISPLACE POPULATIONS OF THREATENED OR ENDANGERED WILDLIFE SPECIES FOUND IN THE AREA; GRAY WHALES, IN PARTICULAR, WOULD BE ESPECIALLY VULNERABLE DURING MIGRATION. POSSIBLE OIL SPILLS WOULD DESTROY MARINE MAMMALS, SEABIRDS, SEALS, SEA LIONS, HYDROCORAL COMMUNITIES, KELP BEDS, AND SALT MARSH VEGETATION AND WOULD CONTRIBUTE INDIRECTLY TO SOIL EROSION. OIL SPILLS ALSO COULD DAMAGE INTERTIDAL ORGANISMS IN THE NORTHERN CHANNEL ISLANDS AREA AND CONTAMINATE STATE-DEFINED AREAS OF SPECIAL BIOLOGICAL SIGNIFICANCE. PIPELINE CONSTRUCTION ACTIVITIES WOULD CAUSE SUSTAINED TURBIDITY, DEGRADE OCEAN WATER QUALITY, AND DISRUPT THE HABITAT OF THE BROWN PELICAN, THE LIGHT-FOOTED CLAPPER RAIL, AND THE BELDINGS SAVANNAH SPARROW. DEVELOPMENT ACTIVITIES COULD DISTURB BREEDING GROUNDS FOR PINNIPEDS AND SEABIRDS. EMISSIONS WOULD ADD TO AIR POLLUTION LEVELS THAT CURRENTLY EXCEED FEDERAL STANDARDS. THE LOSS OF 201 ACRES OF FISHING SPACE WOULD HARM THE COMMERCIAL FISHING INDUSTRY OF SOUTHERN, CENTRAL, AND BAJA CALIFORNIA. PETROLEUM DEVELOPMENT ACTIVITIES WOULD DISRUPT SHIPPING AND NAVIGATION IN FOUR SHIPPING LANES, AND OFFSHORE STRUCTURES WOULD LOWER SCENIC VALUES IN THE AREA. ALTMODIFICATION OF AREAS TO BE LEASED; ALTERNATIVE DEVELOPMENT SCENARIOS; DELAY OF SALE; ALTERNATIVE LOCAL GOVERNMENT STIPULATIONS. LEGLEASING OF THE OCS TRACTS IS IN ACCORDANCE WITH SECTION 8 OF THE OUTER CONTINENTAL SHELF LANDS ACT OF 1953 (43 U.S.C. 1331). PAMMATRIX (PROXIMITY) ANALYSIS OF IMPACTS. CRNO SUBSTANTIVE CHANGES WERE FOUND BETWEEN THE DRAFT STATEMENT (ITSEE RO78-1270D, VOLUME 2, NUMBER 12) AND THIS FINAL STATEMEN. CALIFORNIA/PACIFIC OCEAN/AQUATIC SYSTEMS IMPACTS/CONTINENTAL SHELVES/CRUDE OIL/EMPLOYMENT IMPACTS/ENDANGERED SPECIES ANIMALS/FISHERIES IMPACTS/GAS EXPLORATION/LEASING/MATRIX ANALYSES OF IMPACTS/NATURAL GAS/OFFSHORE ENERGY SOURCES/OIL EXPLORATION/PACIFIC OCEAN/PIPELINES/WETLANDS IMPACTS/WHALES/WILDLIFE IMPACTS/OUTER CONTINENTAL SHELF LANDS ACT OF 1953 PROJECT AUTHORIZATION/AGRICOLA.

1250. Fiscal year 1986 program report: Arizona Water Resources Research Center. 1987;

The research projects supported by the 1986 program addressed the following critical water issues in Arizona; water quality, agricultural water management. Project 02 examined the conditions affecting biodegradation of phenol and chlorophenol in the subsurface. Project 07 comprised a risk analysis of potential ground-water contamination from agricultural, industrial (mining), and municipal sources in the Upper Santa Cruz Basin. The utility of chloride-bromide ratios in ground water as indication of water origin was determined during Project 09. Project 04 developed improved irrigation management criteria for turfgrass. Project 05 assessed the economics of alternative irrigation techniques. (Grant DI-14-08-0001-G-1211. See also report for FY 1985, PB87-122057. Sponsored by Geological Survey, Reston, VA (USA). Water Resources Div.). research institutions/research programs/annual reports/USA/Arizona/ Tucson/Water Resour. Res. Cent./ASFA.

1251. Erickson JW. Petrology of some middle and late Eocene sandstones from the southern California borderland. Weaver DW, Hornaday GR, Tipton A. Paleogene symposium and selected technical papers; conference on future energy horizons of the Pacific Coast. ; 1975. p. p.191-209.

Exxon Co., Los Angeles, Calif., United-States Pac. Sect., Am. Assoc. Pet. Geol. 50th annual meeting of the Pacific sections, AAPG, SEPM, SEG Future energy horizons of the Pacific Coast; Paleogene symposium, Long Beach, Calif., April 23-26, 1975 Analytic; Book; Conference publication B; Bibliography and Index of Geology (1969-present).

Santa Barbara County/San Diego County/South Point Formation/Jolla Vieja Formation/Torrey Sandstone/Scripps Formation/Stadium Conglomerate/sedimentary rocks/clastic rocks/terrigenous/sandstone/mineral composition/petrography/textures/grain size/rounding/sorting/provenance/environmental analysis/Eocene/California/south/coastal/United States/middle Eocene/Ulatisian/Narizian/upper Eocene/sedimentary petrology/San Diego/Santa Barbara/Santa Rosa Island/San Miguel Island/Santa Cruz Island/GEOREF.

1252. Reid JL, J. Pacific Ocean. McGraw-Hill Encyclopedia of Science and Technology;9:438-488

Oceanography/Physical oceanography/currents/winds/water masses/waves.

1253. Small LF, Huh CA (Performer: Oregon State Univ., Corvallis. Coll. of Oceanography. Funder: Department of Energy, Washington, DC.) California Basin Study (CaBS): The Role of Zooplankton and Micronekton in the Cycling and Remineralization of Chemical Materials in the Southern California Bight: Progress Report 6, May 1985-November 1988. ; 1988. Report No.: DOEER603406. 41p. Portions of this document are illegible in microfiche products. PC A03/MF A01 Contract: FG0585ER60340.

The overall objective of Phase-I of our research, within the structure of the DOE CaBS (California Basin Study) program, has been to understand the transport pathways and mass balances of selected metabolically active and inactive chemical species in the Santa Monica/San Pedro (SM/SP) Basins. During Phase-I, Drs. L.F. Small and C.-A. Huh were part of the same proposal, and so this progress report reflects our joint effort over the first three years of the CaBS program. One focus of our study has been to examine the role of zooplankton in the cycling and remineralization of chemical materials in the Southern California Bight, with particular reference to C, N and certain radionuclides and trace metals. A second focus has been to examine these same radionuclides and trace metals in other important reservoirs (i.e., in seawater, sediment trap material and bottom sediments). Knowledge of the rates and routes of transfer of these nuclides and metals through these reservoirs should lead to a cogent model for these elements in SM/SP Basins. Our zooplankton C and N data, in conjunction with primary production, microbiological and sediment trap data from colleagues in the program, has led to a model of C and N cycling in the upper water column. Our sediment core data (chronologies and chemical profiles), together with sediment trap and benthic flux data, has resulted in the construction of an organic carbon mass balance in the SM/SP Basins. Both efforts are first attempts (see Appendices), but we have been heartened by the reasonableness of these first attempts after just three years of data. 29 refs., 13 figs., 5 tabs. (ERA citation 14:009630). Baseline Ecology/Biomass/Coastal Waters/Crustaceans/Feces/Nutrients/Progress

Report/Sediments/Spatial
Distribution/Zooplankton/California/Environmental Transport/Carbon
Cycle/Metals/Mineral Cycling/Nitrogen
Cycle/ERDA/580500/ERDA/520500/Radioisotopes/NTIS.

1254. dePaola A, Hopkins LH, Peeler JT, Wentz B, McPhearson
RM. Incidence of *Vibrio parahaemolyticus* in U.S. coastal waters and
oysters. APPL. ENVIRON. MICROBIOL 1990;VOL. 56, NO. 8:pp. 2299-2302
Fish. Res. Branch, U.S. Food and Drug Adm., Dauphin Island, AL
36528, USA. Oyster and seawater samples were collected seasonally
from May 1984 through April 1985 from shellfish-growing areas in
Washington, California, Texas, Louisiana, Alabama, Florida, South
Carolina, Virginia, and Rhode Island which had been designated as
approved or prohibited by the National Shellfish Sanitation
Program. Fecal coliforms counts, aerobic plate counts, and *Vibrio*
parahaemolyticus densities were determined for the samples. Mean *V.*
parahaemolyticus density was more than 100 times greater in oysters
than in water, whereas density of fecal coliforms was approximately
10 times higher in oysters. Seasonal and geographical distributions
of *V. parahaemolyticus* were related to water temperature, with
highest densities in samples collected in the spring and the summer
along the Gulf coast. The synthetic DNA probe for thermostable
direct hemolysin hybridized with 2 of 50 isolates, 1 of which was
positive by the Kanagawa test. microbial contamination/coastal
waters/viral diseases/oyster culture/marine pollution/pollution
effects/*Vibrio parahaemolyticus*/ *Crassostrea virginica*/*Crassostrea*
gigas/USA Coasts/OCEANIC ABSTRACTS.

1255. Heesen TC, Young DR. Halogenated hydrocarbons in
wastewaters: Knowns and unknowns. ; 1977.
Pacific Ocean East/Hydrocarbons/Halogens/Pollutant analysis/
California Coast/Wastewaters/Coastal waters/Marine
pollution/Toxins/Chlorine compounds/Waste effluents/Gas
chromatography/Sampling methods/Outfalls/Sludges/PCB
compounds/Southern California Bight/municipal
wastewaters/chlorinated hydrocarbons/DDT/chlorinated benzenes/mass
emission rates 1976/ halogenated hydrocarbons/OceanAbstracts.

1256. Hartman O. Polychaetous Annelids Part I. Aphroditidae
to Pisionidae. Allan Hancock Pacific Expeditions 1939;7(1):1-156
Sandy Subtidal Invertebrates, Annelida, Anacapa, Santa Rosa, San
Miguel.

1257. ANTONELIS GA, JR, FISCUS CH. THE PINNIPEDS OF THE
CALIFORNIA CURRENT. REPORT CALIF. COOP. OCEANIC FISH. INVEST. 21
1980:68-78

* MAMMALIA ** CARNIVORA *** PINNIPEDIA **** OTARIIDAE *****
ARCTOCEPHALUS TOWNSENDI, CALLORHINUS URSINUS, EUMETOPIAS JUBATUS,
ZALOPHUS CALIFORNIANUS **** PHOCIDAE ***** MIROUNGA ANGUSTIROSTRIS,
PHOCA VITULINA RICHARDI. FEEDING/CARNIVOROUS
FEEDING/PREDATION/PREY/SPECIES LIST (PISCES), CALIFORNIA
CURRENT/ECOLOGY/COMMUNITY/COMMUNITY STRUCTURE/RELATIVE
ABUNDANCE/DISTRIBUTION & SEASONAL MOVEMENTS, CALIFORNIA
CURRENT/BEHAV IOUR/MIGRATION/SEASONAL MOVEMENTS, CALIFORNIA
CURRENT/PACIFIC OCEAN/ NORTHERN PACIFIC/CALIFORNIA
CURRENT/DISTRIBUTION, SEASONAL MOVEMENTS & FEEDING
HABITS/Zoological Index.

1258. Marine mammal and seabird survey of the Southern
California Bight area. Washington : Dept. of the Interior, Bureau
of Land Management; Springfield, Va. : for sale by the National
Technical Information Service, 1978 1978 United States. National
Technical Information Service. PB; 295933, etc. Other-US

Prepared for Bureau of Land Management. Includes bibliographies.
Monograph; Bibliography.
Marine mammals/California/Sea birds/AGRICOLA.

1259. Roden GI, Fredericks WJ. North Pacific Ocean.
Tradewind region east of Hawaii, R/V Thomas G. Thompson : 25
September - 1 November 1972, STD data report. CONTRIBUT. WASH. UNIV.
SCH. OCEANOGR 1987;
During September and October 1972, scientists aboard the R/V Thomas
G. Thompson studied the thermohaline and density structures in the
tradewind region east of the Hawaiian Islands. An additional
hydrographic section was made from the working area to San Diego,
Ca. A total of 300 stations were taken. The primary objectives of
the field study in the tradewind region east of Hawaii were: 1) to
investigate the mesoscale thermohaline and density structure in
2700 km high resolution sections across the tradewind region; 2) to
determined the subtropical and doldrum fronts occurring at the
boundaries of this region; 3) to study the mesoscale dynamic height
and baroclinic flow perturbations in the tradewind region; and 4)
to assess the mesoscale and baroclinic flow structures across the
California current between the subtropical gyre and the coast.
research vessels/thermohaline circulation/trade winds/dynamic
height anomaly/baroclinic motion/INE/cruise stations/CTD
observations/INE/ California Current/R/V Thomas G. Thompson/ASFA.

1260. Erickson JW. Sedimentology of the South Point
Formation (Eocene), Santa Rosa Island, California. Weaver DW,
Hornaday GR, Tipton A. Paleogene symposium and selected technical
papers; conference on future energy horizons of the Pacific Coast.
; 1975. p. p.169-190.
Exxon Co., Los Angeles, Calif., United-States Pac. Sect., Am.
Assoc. Pet. Geol. 50th annual meeting of the Pacific sections,
AAPG, SEPM, SEG Future energy horizons of the Pacific Coast;
Paleogene symposium, Long Beach, Calif., April 23-26, 1975
Analytic; Book; Conference publication B; Bibliography and Index
of Geology (1969-present).
Santa Barbara County/South Point Formation/sedimentary
rocks/clastic
rocks/terrigenous/sandstone/siltstone/mudstone/mineral
composition/lithostratigraphy/correlation/lithofacies/environmental
analysis/Eocene/California/Santa Rosa
Island/sedimentation/environment/marine environment/submarine
fans/sedimentary structures/flute casts/flame
structures/imbrication/cross bedding/grooves/United
States/Ulatisian/Narizian/sedimentary petrology/GEOREF.

1261. Reid JL,J. Observations of internal tides in October
1950. Trans. Amer. Geophys. Union 1956;37(3):278-286
Oceanography/Physical oceanography/currents/winds/water masses.

1262. Venkatesan MI, Kaplan IR (Performer: California Univ.,
Los Angeles. Inst. of Geophysics and Planetary Physics.
Funder: Department of Energy, Washington, DC.) Program of
Mineralization and Cycling in Marine Systems: Organic Geochemistry
of Particulates and Sediments (CaBS): Comprehensive Report,
November 1985-November 1988. ; 1988. Report No.: DOEER603386. 58p.
Portions of this document are illegible in microfiche products. PC
A04/MF A01 Contract: FG0585ER60338.
The major objective of the present on-going project was to
understand the processes involved in the cycling of organic carbon
in the southern California Bight. This involves the evaluation of
the relative flux of planktonic carbon to the seafloor versus the
import of terrestrial carbon components and the determination of

the rate of decompositions of sedimenting organic matter in the waste column. These goals were achieved by the chemical characterization of sedimenting particles (from traps) as well as in the near surface sediments. At UCLA we have been focusing on the chemical characterization of selected classes of organic carbon compounds derived from different sources to understand the vertical flux and the chemical composition of the particulate organic matter which are controlled by complex transport, transformations, degradation and remineralization. 25 refs., 22 figs., 12 tabs. (ERA citation 14:011960). California/Carbon Cycle/Geochemistry/Organic Compounds/Organic Matter/Polycyclic Aromatic Hydrocarbons/Progress Report/Spatial Distribution/Coastal Waters/Sediments/ERDA/580500/NTIS.

1263. Casas E, Lowenstein TK. Diagenesis of saline pan halite: Comparison of petrographic features of Modern, Quaternary and Permian halites. J. SEDIMENT. PETROL 1989;VOL. 59, NO. 5:pp. 724-739

Dep. Geol. Sci. and Environ. Stud., State Univ. New York, Binghamton, NY 13901, USA.

Petrographic studies of modern saline pan halites (Saline Valley, CA; Salina Omotepec, Baja California, Mexico) and Quaternary shallow-buried (0-200 m) halites (Saline Valley, CA; Bristol Dry Lake, CA; Searles Lake, CA; Qarhan saline pan, Qaidam Basin, China; Lake Uyuni, Bolivia) show that the diagenetic modification of halite begins contemporaneously with deposition, is most intense within the upper few meters of burial, and is essentially complete within the first 45 m of burial. Complete cementation of saline pan halites at shallow burial depths has important implications for the origin of saline formation waters in sedimentary basins. Parent evaporite brines may not be stored in the pores of halite rocks and later expelled during burial compaction if the rocks are cemented early, and tightly crystallized halite rocks may also impede the downward migration of dense syndepositional brines.

sedimentology/petrology/diagenesis/evaporites/halite/cementation/Quaternary/Permian/brines/USA, California/Mexico, Baja California, Salina Omotepec/Bolivia, Uyuni L./China, People's Rep., Qaidam Basin/Oceanic Abstracts.

1264. Young DR, Jan TK, Moore MD. Metals in power plant cooling water discharges. ; 1977.

Pacific Ocean East/Metals/Electric power plants/Thermal discharges/Thermal pollution/Toxins/Coastal waters/California Coast/Flow rates/Wastewaters/Waste effluents/Pollutant analysis/Marine pollution/Cadmium/Chromium/Copper/Nickel/Lead/Zinc/Sampling methods/Southern California Bight/cooling water discharges/trace metals/influent/OceanAbstracts.

1265. Hartman O. Polychaetous Annelids Part II.

Chrysopetalidae to Goniadidae. Allan Hancock Pacific Expeditions 1940;7(3):173-287 Includes worms from the Velero III stations. Sandy Subtidal Invertebrates, Annelids, Anacapa Island, Santa Rosa Island, San Miguel Island.

1266. YOUNG DR, MEARNES AJ, JAN TK, HEESEN TC, MOORE MD, EGANHOUSE RP, HERSHELMAN GP, GOSSETT RW. TROPHIC STRUCTURE AND POLLUTANT CONCENTRATIONS IN MARINE ECOSYSTEMS OF SOUTHERN CALIFORNIA. REPORT CALIF. COOP. OCEANIC FISH. INVEST. 21 1980: 197-206, ILLUSTR.

ECOLOGY/ECOLOGICAL ENERGETICS/TROPHIC STRUCTURE/POLLUTANT CONCENTRATIONS RELATIONSHIPS, MARINE ECOSYSTEMS, CALIFORNIA/PACIFIC OCEAN/NORTHERN PACIFIC/CALIFORNIA CURRENT/TROPHIC STRUCTURE &

POLLUTANT CONCENTRATIONS IN MARINE ECOSYSTEMS/Zoological Index.

1267. Arnold JE. Chumash economic specialization: an analysis of the Quarries and Bladelet production villages of the Channel Islands, California [dissertation]. Santa Barbara, California, USA: University of California; 1983. 278.
A variety of archaeological indicators can be used to explore the evidence for economic specialization in prehistoric societies. The most important among these are applied to an analysis of the massive chipped stone bladelet-drill production industry practiced by the Chumash of the Santa Barbara Channel Islands, California, during the later Middle and Late Periods (ca. AD 950-1782). Explicit consideration is given to the evidence for a high volume of specialized artifact production, the evidence for standardization in methods of production, the evidence for industry-related site activity areas, and the evidence for the exercise of aboriginal control over critical resources, particularly over quarry resources. A review of major studies on North American quarries serves as a preamble to a suggested analytical framework for the examination of quarry sites. The Chumash of the Channel Islands exploited a circumscribed zone of quarries on northeastern Santa Cruz Island and eventually transformed an incipient specialization involving moderate bladelet-drill production into a centralized, large-scale industry supplying drills to a set of special shell bead money-making villages elsewhere on the islands. The transformation of this industry was concurrent with changes in Chumash economic and political complexity leading to a money economy. and a simple chiefdom organization. At least one village which was established during this transformation (ca. AD 1300) was from the time of its founding an exclusive manufacturing center for bladelets. This site bears the evidence for the highest density of blade/bladelet production known for aboriginal North America. Several simple but powerful tests on the data firmly support the proposition that the Chumash bladelet production industry was a legitimate specialization. Parallels to this economic specialization are provided by ethnographic evidence on Chumash canoe-making and bead-making and specializations in other societies. Chumash Indians/economic specialization/bladelet-drill/artifacts/ quarries/Homo sapiens/Santa Barbara Channel Islands/Santa Cruz Island/ anthropology/archaeology.

1268. Breaker LC, Conrad JC, Traganza ED. Satellite observation of a cyclonic upwelling system and giant plume in the California current. IDOE International Symposium on Coastal Upwelling, Los Angeles, CA (USA) 1981;:228-241. chemical oceanography/MINERALS MANAGEMENT SERVICE.

1269. Ferguson HL. The feral goats of San Clemente Island threat to native flora. Fremontia. Berkeley, Calif., California Native Plant Society. Oct 1979. 1979;7(3):p.3-8
Other-US Article.
California/San Clemente Island/AGRICOLA.

1270. Roden GI, Fredericks WJ. North Pacific Ocean. Northeast Pacific transition zone, R/V Thomas G. Thompson : 1 November - 6 December 1969, STD data report. CONTRIB. WASH. UNIV. SCH. OCEANOGR 1987;
During Nov and Dec 1969 scientists aboard the R/V Thomas G. Thompson studied the thermohaline and density structures in the transition zones between the California current, the tradewind circulation, the outflow from the Gulf of California, and the north equatorial current. Most of the investigation were concentrated off

Baja California, the Revilla Gigedos Island region, and across the mouth of the Gulf of California. Of the 254 STD stations planned, 249 were completed. research vessels/thermohaline circulation/CTD observations/ISE/ California Current/ISE/North Equatorial Current/ISE/California Gulf/baroclinic motion/R/V Thomas G. Thompson/ASFA.

1271. Howell DG, McLean H. Basin analysis of lower middle Miocene strata, Santa Rosa and Santa Cruz islands, California. Am. Assoc. Pet. Geol., Bull. 1977;61(5):p.796-797
U. S. Geol. Surv., Menlo Park, Calif., United-States AAPG-SEPM annual meeting, Washington, D.C., June 12-16, 1977 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). California/sedimentary petrology/sedimentary rocks/breccia/Miocene/Santa Rosa Island/Santa Cruz Island/United States/stratigraphy/paleoenvironment/sedimentation/middle Miocene/clastic rocks/terrigenous/lithofacies/environmental analysis/paleocurrents/basins/lithostratigraphy/tectonics/structure/faults/modes/GEOREF.

1272. Nierenberg WA, Gautier C, Simpson JJ, Somerville RC, Vallis GK (Performer: Scripps Institution of Oceanography, La Jolla, CA). Scripps Ocean Modeling and Remote Sensing (SOMARS). Semi-annual progress rept. 15 Mar-15 Sep 88. ; 1988. 40p. PC A03/MF A01 Contract: N0001486K0752.
Topics in this brief reports include: Kalman filtering of oceanographic data; Remote sensing of sea surface temperature; Altimetry and Surface heat fluxes; Ocean models of the marine mixed layer; Radar altimetry; Mathematical model of California current eddies. Keywords: SOMARS (Scripps Ocean Modeling and Remote Sensing). (edc).
California/Eddies Fluid mechanics/Oceanographic data/Heat flux/Height finding/Kalman filtering/Mixed layer Marine/Mathematical models/Ocean currents/Ocean surface/Radio altimeters/Remote detectors/Sea water/Surface temperature/Ocean models/SOMARS Scripps Ocean Modeling and Remote Sensing/Remote sensing/NTIS.

1273. Huang J, Turcotte DL. Evidence for chaotic fault interactions in the seismicity of the San Andreas Fault and Nankai Trough. NATURE 1990;VOL. 348, NO. 6298:pp. 234-236
Dep. Geol. Sci., Cornell Univ., Ithaca, NY 14853, USA.
Interactions between fault segments are one of the main sources of complexity in the seismicity of active tectonic regions. Such interactions are likely to influence the spatial and temporal patterns of earthquakes. Here we examine the dynamical behaviour introduced by fault interactions using a simple spring-loaded, slider-block model with velocity-weakening friction. The model consists of two slider blocks coupled to each other and to a constant-velocity driver by elastic springs. For an asymmetric system in which the frictional forces on the two blocks are not equal, the solutions exhibit chaotic behaviour. The system's behaviour over a range of parameter values seems to be generally analogous to that of weakly coupled segments of an active fault. We see similarities between our model simulations and observed patterns of seismicity on the south central San Andreas fault in California and in the Nankai trough along the coast of southwestern Japan.
USA, California, San Andreas Fault/Japan, Nankai Trough/earthquakes/ seismic activity/fault zones/friction/simulation/interactions/Oceanic Abstracts.

1274. Schafer HA. Characteristics of municipal wastewater discharges, 1976. ; 1977.
Pacific Ocean East/Waste effluents/Hydrocarbons/Coastal waters/
Pollutant analysis/Chlorine compounds/California Coast/Sludges/Flow
rates/PCB compounds/Outfalls/Metals/Suspended matter/Marine
pollution/Wastewaters/Domestic wastes/municipal wastewater
discharges/Southern California Bight/chlorinated hydrocarbons/trace
metals/mass emission rates/1976/general
constituents/DDT/OceanAbstracts.

1275. Hartman O. Polychaetous Annelids Part IV.
Pectinariidae. Allan Hancock Pacific Expeditions 1941;7(5):325-345
Sandy Subtidal Invertebrates, Annelids, Anacapa Island, Santa Rosa
Island, San Miguel Island.

1276. Ashley M, Wills C. Analysis of mitochondrial DNA
polymorphisms among Channel Island deer mice. Evolution
1987;41(4):854-863
Address: DEP. ANTHROPOL., COLUMBIA UNIV., NEW YORK, N.Y. 10027.
Mitochondrial DNA (mtDNA) from 131 deer mice, *Peromyscus*
maniculatus, collected on the eight California Channel Islands
[USA] and from seven southern California mainland locations, was
isolated and analyzed for restriction endonuclease fragment
polymorphisms. A total of 26 mtDNA genotypes were distinguishable
among the deer mice sampled. All of the island samples had mtDNA
restriction-fragment patterns not found among the mainland samples.
Distributions of specific restriction-fragment patterns provide
evidence for at least four separate colonization events to the
Channel Islands. The estimated percentage of sequence divergence
between all mtDNA's in this study was less than 1%, suggesting
that colonization of the islands occurred fairly recently, probably
within the last 500,000 years. Levels of mtDNA heterogeneity were
much lower within island populations than within mainland
populations.
mitochondrial DNA/colonization/restriction/endonuclease
fragment/deer mice/*Peromyscus maniculatus*/California Channel
Islands/California mainland/terrestrial
biology/mammalogy/evolution.

1277. Evenhuis NL. First record of Bombyliidae from Santa
Barbara Island, California (Diptera). Pan Pac Entomol. San
Francisco, Pacific Coast Entomological Society. Oct 1979.
1979;55(4):p.250
Other-US Article.
California/Santa Barbara Island/Entomology/Bombyliidae/AGRICOLA.

1278. Bauer JE, Montagna PA, Spies RB, Prieto MC, Hardin D.
Microbial biogeochemistry and heterotrophy in sediments of a marine
hydrocarbon seep. LIMNOL. OCEANOGR 1988;33(6, pt. 2):1493-1513.
Vertical profiles of sediment and pore-water constituents and rates
of microbially mediated geochemical processes were determined in
surficial sediments (0-7-cm depth) of three stations in and around
Isla Vista hydrocarbon seep off Santa Barbara, California.
Measurements were made of pore-water alkalinity (total and
carbonate), pH, Eh, dissolved oxygen, sulfate, and sulfide, total
sedimentary organic carbon (TOC) and nitrogen, ATP, sulfate
reduction and dark bicarbonate uptake and incorporation, and oxygen
flux across the sediment-water interface in benthic chambers.
heterotrophy/biogeochemistry/microorganisms/marine
environment/sediments/hydrocarbon-degrading
bacteria/USA/California/oil seepages/bacteria/INE/Santa Barbara
Channel/Isla Vista Island/vertical profiles/ASFA.

1279. Blake GH. Distribution and temporal migration of bank top foraminifera assemblages, outer southern California borderland. Am. Assoc. Pet. Geol., Bull. 1977;61(5):p.768-769
Univ. South. Calif., Los Ang., Calif., United-States AAPG-SEPM annual meeting, Washington, D.C., June 12-16, 1977 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).
California/paleontology/foraminifera/Holocene/modern/south/offshore/ecology/benthonic taxa/assemblages/biocenoses/thanatocenoses/distribution/continental borderland/communities/substrate/United States/marine environment/sedimentation/rates/currents/GEOREF.

1280. Haemig P. Island Scrub Jay predation on cliff nests of house finches. WILSON BULL 100(1, p. 140; 1988).
The Island Scrub Jay (*Aphelocoma coerulescens insularis*) is found only on Santa Cruz Island, 30 km from the coast of southern California (34 degree 00'N, 119 degree 42'W). Not as well studied as the jays of the adjacent mainland, many aspects of its biology remain unknown. In this note, the author documents predation by Island Scrub Jays on the nests of House Finches (*Carpodacus mexicanus*). Although such predation is well known among other Corvids, no specific reports of it have been published before for the Island Scrub Jay.
Aphelocoma coerulescens insularis/*Carpodacus mexicanus*/eggs/predation/USA/California/Santa Cruz I./CSA Life Sciences Collection.

1281. Johnson CD. Numerical Ocean Prediction in the California Coastal Region Using a High-Resolution Primitive Equation Model. [dissertation]; 1988. 52p.
Performer: Naval Postgraduate School, Monterey, CA
A high resolution, multi-level, primitive equation (PE) model of the California coastal region is initialized with a temperature field analyzed from real data collected during the OPTOMA11 cruises of June and July, 1984, for the purpose of forecasting the movement of thermal features in the region. The results are compared to the observations and to the forecast experiments of Rienecker et al. (1987), since they initialized their quasi-geostrophic (QG) model with the same OPTOMA11 temperature data. Key prediction features include an anticyclone and cyclone pair, and an offshore 'Jet' that was formed between the pair with velocities on the order of 60 cm/sec in the upper ocean region (<225m). The temperature front associated with this 'jet' is traced at the 85m level, in a time series from day 0 to day 14, as is the perturbation pressure field. Translational velocities of this frontal feature are on the order of 5-10 cm/sec in a southward direction, which is consistent with those observed. Some quantitative differences between the PE model prediction and the QG model are found. Based on these cast by a multi-level, high resolution PE model, given synoptic data for initialization. However, many more studies are needed to understand the dynamics and robustness of the present model predictions.
Anticyclones/Boundaries/California/Coastal regions/Cyclones/Dynamics/East Direction/Equations/Forecasting/Fronts Oceanography/Geostrophic currents/High resolution/Jet flow/Mathematical models/Mathematical prediction/Motion/Numerical analysis/Ocean models/Oceanographic data/Oceans/Perturbations/Predictions/Pressure/Sea water/Temperature/Thermal properties/Theses/Time series analysis/Water flow/Ocean currents/Primitive equations/California Current System/Eastern boundary currents/High resolution primitive equation model/NTIS.

1282. Setran AC, Behrens DW. New ecological information on *Scytalina cerdale* (Pisces: Scytalinidae) from a central California rocky intertidal zone. ENVIRON. BIOL. FISH 1990;VOL. 29, NO. 2:pp. 107-117

Pacific Gas and Electric Res. and Dev., 3400 Crow Canyon Rd., San Ramon, CA 94583, USA.

New information regarding the ecology of *Scytalina cerdale* was obtained over a four year period as a consequence of a long-term marine ecological study at the Diablo Canyon Power Plant (DCPP), San Luis Obispo County, California. Twenty intertidal fish surveys were conducted at approximately quarterly intervals, between March 1979 and June 1983, at three separate rocky shore locations (stations). During each survey, a total of 108 square meters (36 M super(2) per station) was searched for fish during periods of low tide. A total of 280 *S. cerdale* were collected, identified, measured, and released back into the same 4 m super(2) area, from the same intertidal station (Diablo Cove), throughout the study period. This limited intertidal occurrence most likely reflects *S. cerdale* microhabitat requirements; a combination of intertidal elevation (mean = +0.3 MLLW), substratum specificity (loose gravel, 5-10 mm size range, overlying a base of sand and shell fragments), and degree of wave exposure (semi-protected). intertidal environment/*Scytalina cerdale*/INE, USA, California/rocky shores/microhabitats/autecology/Oceanic Abstracts.

1283. Anonymous. Coastal Water Research Project: Annual report for the year ended 30 June 1977. SOUTHERN CALIFORNIA COASTAL WATER RESEARCH PROJECT. ANNUAL REPORT. ; 1977.

Research projects investigating the ecology of the open coastal waters off southern California (the Southern California Bight) cover the following topics: possible pollutants contributed to these waters by various sources with emphasis on municipal wastewaters; how the discharged material is distributed by coastal currents; animal and plant populations; levels of pollutants in animals; the levels at which metals and chlorinated hydrocarbon pollutants become toxic to marine life; evidence of actual effects on marine animals; and taxonomic standardization. The coefficients of variation of the organics laboratory range from 10% to 20% for all but the lowest concentrations of organic constituents in seawater. MS.

Pacific Ocean East/Coastal waters/California Coast/Population variations/Population composition/Pollutant analysis/Marine pollution/Currents/Behavior/Water transport/Metal uptake/Histopathology/Hydrocarbons/Wastewaters/Inshore oceanographic surveys/Bioindicators/Marine organisms/Toxins/Outfalls/annual report/1977/municipal wastewaters/Southern California Bight/OceanAbstracts.

1284. Hartman O. Polychaetous Annelids Part V. Eunicea.

Allan Hancock Pacific Expeditions 1944;10(1):1-237

Sandy Subtidal Invertebrates, Annelids, Anacapa Island, Santa Rosa Island, San Miguel Island.

1285. SUMIDA BY, MOSER HG. FOOD AND FEEDING OF PACIFIC HAKE LARVAE, MERLUCCIUS PRODUCTUS, OFF SOUTHERN CALIFORNIA AND NORTHERN BAJA CALIFORNIA. REPORT CALIF. COOP. OCEANIC FISH. INVEST. 21 1980: 161-166, ILLUSTR. * PISCES ** SUPERCLASS GNATHOSTOMATA *** CLASS TELEOSTOMI **** DIVISION TELEOSTEI ***** SUPERORDER PARACANTHOPTERYGII ***** GADIFORMES ***** SUBORDER GADOIDEI ***** MERLUCCIIDAE ***** MERLUCCIUS PRODUCTUS. FEEDING/CARNIVOROUS FEEDING/PREDATION/PREY/COPEPODA (CRUSTACEA) & OTHER INVERTEBRATES/LARVAL DIET, CALIFORNIA CURRENT/DIGESTION & NUTRITION/NUTRITION/DIET/PREY COMPOSITION, LARVAE, CALIFORNIA

CURRENT/PACIFIC OCEAN/NORTHERN PACIFIC/CALIFORNIA CURRENT/LARVAL
FOOD & FEEDING/Zoological Index.

1286. Ashley MV. Genetic variation in mitochondrial DNA among subspecies of California USA Channel Island deer mice *Peromyscus maniculatus*. *Genetics* 1984;107(3 PART 2):S4
Address: UNIV. CALIF. SAN DIEGO, LA JOLLA CONFERENCE PAPER: 1984 JOINT MEETING OF THE GENETICS SOCIETY OF AMERICA AND THE GENETICS SOCIETY OF CANADA, VANCOUVER, B.C., CANADA, AUG. 12-15, 1984.
population relations/DNA/evolution/mitochondrial DNA/deer mouse/*Peromyscus maniculatus*/California Channel Islands/terrestrial biology/mammalogy/genetics.

1287. Brewer GD, Lavenberg RJ, McGowan GE. Abundance and vertical distribution of fish eggs and larvae in the Southern California Bight, June and October 1978. *Rapp. P.V. Reun. Cons. Int. Explor. Mer.* 1981;178:165-168.
fish/Pieper/Dawson/zooplankton/TEXT/MINERALS MANAGEMENT SERVICE.

1288. Coblenz BE. Some range relationships of feral goats on Santa Catalina Island, California [Forage production, utilization]. *J Range Manage*, Nov 1977. 1977;30(6):p.415-419
Other-US Article.
California/Santa Catalina Island/AGRICOLA.

1289. Vance RR. Ecological succession and the climax community on a marine subtidal rock wall. *MAR. ECOL. (PROG. SER.)* 1988;48(2):125-136. Persistence and development of an epibiotic community occupying a temperate, marine, subtidal rock wall was studied for 4.5 yr. Composition and abundance of the biota of unmanipulated control quadrats remained remarkably constant. Fleishy red algae fluctuated seasonally, and other taxa fluctuated aperiodically, but abundances of all taxa remained within rather narrow limits. To determine the repeatability of succession, quadrats were cleared of all residents in summer and in winter in each of 2 yr.
epibionts/ecological succession/community composition/predation/growth/biomass/habitat improvement (biological)/seasonal variations/INE/ California Current/Santa Catalina I./ASFA.

1290. Fischer PJ. Late Neogene Quaternary tectonics and depositional environments of the Santa Barbara Basin, California. Fritsche AE, Ter Best H, Jr., Wornardt WW. *The Neogene symposium; selected technical papers on paleontology, sedimentology, petrology, tectonics and geologic history of the Pacific Coast of North America.* ; 1976. p.33-52.
Calif. State Univ., Northridge, Calif., United-States Soc. Econ. Paleontol. Mineral. 51st annual meeting of the Pacific Section of SEPM; Tomorrow's oil from today's provinces, San Francisco, Calif., April 21-24, 1976 Analytic; Book; Conference publication B; Bibliography and Index of Geology (1969-present).
California/oceanography/sedimentation/continental shelf/tectonics/Tertiary/Quaternary/Santa Barbara Basin/environment/basins/shelf environment/submarine canyons/submarine fans/troughs/transport/regression/transgression/controls/structural controls/United States/evolution/faults/folds/vertical tectonics/uplifts/subsidence/sedimentary cover/systems/block faults/effects/upper Tertiary/Neogene/GEOREF.

1291. Briggs KT, Chu EW, Lewis DB, Tyler WB, Pitman RL, G.L. Hunt Jr. Distribution, numbers, and seasonal status of seabirds of

the Southern California Bight. Marine Mammal and Seabird Survey of the Southern California Bight Area, Summary Report 1975-1978, Book 3 1981;III:1-212.

birds/MINERALS MANAGEMENT SERVICE.

1292. Tielking TA. Wind Forcing of Eddies and Jets in the California Current System. Master's thesis. [dissertation] ; 1988. 118p. Performer: Naval Postgraduate School, Monterey, CA
A high-resolution, multi-level, primitive equation ocean model is used to examine the response to wind forcing of an idealized flatbottomed oceanic regime along an eastern ocean boundary. A band of steady winds, either with or without a curl, is used as forcing on both an f-plane and a beta-plane. In addition, a stability analysis is made to determine if the necessary and sufficient conditions for instability processes to occur are satisfied. It is seen that when the wind driven coastal jet and undercurrent are unstable (which occurs in the cases of wind with no curl), eddies and jets are generated. In the case of wind with curl, since the Davidson Current develops rather than the coastal jet and undercurrent, no eddies develop. A comparison of model results with available observations shows that both the time-averaged and instantaneous model simulations of the coastal jet, undercurrent and eddies are consistent with available observational data. Study results support the hypothesis that wind forcing can be an important eddy generation mechanism for the California Current System. (edc). Comparison/Eddies Fluid mechanics/Equations/Ocean models/Stability/Jet flow/Boundaries/East Direction/Hypotheses/Simulation/Response/Stresses/Coastal regions/Theses/Air water interactions/Ocean currents/Wind/Mathematical models/Primitive equations/Wind forcing/Instability/Undercurrents Ocean currents/Wind stress curl/Davidson Current/California Current/NTIS.

1293. Emslie SD, Henderson RP, Ainley DG. Annual variation of primary molt with age and sex in Cassin's auklet. AUK 1990;VOL. 107, NO. 4:pp. 689-695 Point Reyes Bird Obs., 4990 Shoreline Highw., Stinson Beach, CA 94970, USA. In Cassin's Auklet (*Ptychoramphus aleuticus*) on Southeast Farallon Island, California, 1979-1984, we found significant annual and seasonal variation in timing and rate of primary molt in adult males, adult females, and subadults (1-2 years old). Except in 1979, adult males began to molt at least 10 days before adult females, and males molted at a slower rate. Subadult birds initiated molt later and molted faster, but showed less annual variation than adults. Timing of breeding and breeding success varied annually but were not correlated directly with molt. In years of extended breeding, molt rates were slower apparently in response to the energetic demands caused by the overlap of breeding and molt. molting/biological age/annual variations/*Ptychoramphus aleuticus*/sex characters/INE, USA, California, Farallon I/Oceanic Abstracts.

1294. Squire JL,J. Surface currents as determined by drift card releases over the continental shelf off central and southern California. NATIONAL MARINE FISHERIES SERVICE. TECHNICAL REPORT NMFS SSRF. ; 1977 Dec. NMFS, Southwest Fisheries Center, La Jolla Lab., La Jolla, CA 92038. From Mar. 1964 through Feb. 1966, 8,320 plastic drift cards were released at selected points from an aircraft to measure surface current drift over 2 areas: from the coast to 148 nm off central California between Point Arena and Point Sur; and from the coast to about 90 nm off southern California between Point Arguello and Punta Salsipuedes, Baja California, Mexico. The recovery rate was 3.5% in the central area and 5.7% in the southern area. An average 79.4% of the recoveries

were found within 2 wk following release. The distribution of the directions from which drift cards were returned increased the evidence for the presence of an eddy off the coast between San Francisco and Monterey Bay during May through July, and of the large gyre and associated southern California countercurrent S of Point Conception during Apr. through Aug. and to a lesser extent in Oct. and Dec. Surface waters/Currents/Continental shelves/Drift currents/Eddies/ California Coast/Mexico West Coast/Baja California Coast/drift card releases/OceanAbstracts.

1295. Hartman O. Polychaetous Annelids Part VI. Paraonidae, Megelonidae, Iongosomidae, Ctenodrilidae and Sabellariidae. Allan Hancock Pacific Expeditions 1944;10(3):311-389
Sandy Subtidal Invertebrates, Annelids, Anacapa Island, Santa Rosa Island, San Miguel Island.

1296. MEARNS AJ, ALLEN MJ, MOORE MD, SHERWOOD MJ.
DISTRIBUTION, ABUNDANCE, AND RECRUITMENT OF SOFT-BOTTOM ROCKFISHES (SCORPAENIDAE: SEBASTES) ON THE SOUTHERN CALIFORNIA MAINLAND SHELF. REPORT CALIF. COOP. OCEANIC FISH. INVEST. 21 1980: 180-190, ILLUSTR.

* PISCES ** SUPERCLASS GNATHOSTOMATA *** CLASS TELEOSTOMI ****
DIVISION TELEOSTEI ***** SUPERORDER ACANTHOPTERYGII *****
SCORPAENIFORMES ***** SUBORDER SCORPAENOIDEI *****
SCORPAENIDAE ***** SEBASTES.
ENVIRONMENTAL FACTORS/PHYSICAL ENVIRONMENT/OCEANIC CONDITIONS,
RECRUITMENT RELATIONSHIPS/ECOLOGY/POPULATION STUDY/POPULATION
STRUCTURE/RECRUITMENT, CALIFORNIA CURRENT/POPULATION
DYNAMICS/DISTRIBUTION, ABUNDANCE & RECRUITMENT, CALIFORNIA
CURRENT/HABITAT/DISTRIBUTION WITHIN HABITAT/VERTICAL
DISTRIBUTION/DEPTH DISTRIBUTION PATTERNS, CALIFORNIA
CURRENT/BEHAVIOUR/SOCIAL BEHAVIOUR/GROUP BEHAVIOUR/SCHOOLING/
RECRUITMENT VARIATIONS, OCEANIC RELATIONSHIPS/PACIFIC OCEAN/
NORTHERN PACIFIC/CALIFORNIA CURRENT/DISTRIBUTION, ABUNDANCE
& RECRUITMENT/Zoological Index.

1297. Ashley MV. Mitochondrial DNA divergence in the genus *Peromyscus*. Genetics 1985;110(3 PART 2):S88
Presented at: 54TH ANNUAL MEETING OF THE GENETICS SOCIETY OF AMERICA, BOSTON, MASS., USA, AUG. 11-15, 1985 Address: UNIV. California, SAN DIEGO, LA JOLLA. phylogenetic relationships/*Peromyscus maniculatus*/deer mouse/California Channel Islands/terrestrial biology/genetics/evolution/mammalogy.

1298. Briggs KT, Tyler WB, Lewis DB, Dettman KF. Summary of marine mammal and seabird surveys of the Southern California Bight area (1975/78). Seabirds. Vol. III. Part 3. Book 2. Prep. for U.S. Dep. Interior, Minerals Management Service, Pacific OCS Region, Los Angeles, CA. Prep. by Univ. Calif., Santa Cruz. 1981;III:237.
MINERALS MANAGEMENT SERVICE.

1299. Moran R. Resurrection of *Dudleya traskiae* [from tiny Santa Barbara Island]. Fremontia, Jan 1978 1978;5(4):p.37-38
Other-US Article.
California/AGRICOLA.

1300. Finney BP, Huh CA. History of metal pollution in the Southern California Bight: An update. ENVIRON. SCI. TECHNOL 1989;23(3):294-303. Box cores collected in 1985 and 1986 along an offshore transect in the Santa Monica Basin, CA, were analyzed for organic carbon, calcium carbonate, U-series radionuclides, and a suite of major and minor elements. Downcore profiles of metals and

organics carbon reflect anthropogenic influence and diagenetic processes. The deep basin cores show pronounced subsurface maxima in Pb, Zn, Cr, and organic carbon during the time interval 1960-1970. Increases from the base of the core to this time horizon are consistent with increasing anthropogenic inputs to the Santa Monica Basin. The near-surface decreases in heavy-metal accumulation reflect recent improvements in waste water treatment. Sediment compositions cannot be fully explained by simple mixtures of sewage particles and natural sediment because of factors such as diagenesis of sewage during transport and sedimentation, additional metal sources, and variations in surface water productivity. heavy metals/California/sediment pollution/pollution surveys/organic carbon/diagenesis/sewage/historical account/sediments/trace elements/INE/Southern California Bight/INE/USA/California/Santa Monica Basin/coves/basins/ASFA.

1301. Crowe BM, Howell DG, McLean H. Miocene volcanic and volcanoclastic rocks of Santa Cruz Island; evidence for offset along the Santa Cruz Island Fault. Fritsche AE, Ter Best H, Jr., Wornardt WW. The Neogene symposium; selected technical papers on paleontology, sedimentology, petrology, tectonics and geologic history of the Pacific Coast of North America. ; 1976. p. p.18. U. S. Geol. Surv., Menlo Park, Calif., United-States Soc. Econ. Paleontol. Mineral. 51st annual meeting of the Pacific Section of SEPM; Tomorrow's oil from today's provinces, San Francisco, Calif., April 21-24, 1976 Analytic; Book; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). Santa Barbara County/San Onofre Breccia/Monterey Formation/Blanca Formation/California/structural geology/faults/Miocene/Santa Cruz Island/Santa Cruz Island Fault/displacements/strike slip faults/effects/sedimentary rocks/igneous rocks/lithostratigraphy/age/clastic rocks/terrigenous/conglomerate/sandstone/diagenesis/volcanic/basalt/andesite/dacite/breccia/absolute age/dates/volcanic rocks/K/Ar/United States/lower Miocene/GEOREF.

1302. Spero H. Ultrastructural examination of chamber morphogenesis and biomineralization in the planktonic foraminifer *Orbulina universa*. MAR. BIOL 1988;99(1):9-20. Pre-sphere, trochospiral *Orbulina universa* (d'Orbigny) were hand-collected between June and September, 1982 to 1984, from surface waters of the Pacific Ocean ca. 2 km off Santa Catalina Island, California, USA. The formation of a spherical chamber by this planktonic foraminifer was studied with light and electron microscopy. Chamber morphogenesis is preceded by the secretion of a cytoplasmic layer rich in mitochondria. The layer expands away from the pre-existing foraminiferal shell surface in a spherical pattern. Full cytoplasm expansion is followed by the secretion of an organic matrix (OM) approximately 200 μ m above the original shell surface. Cytoplasm, mitochondria and/or vesicles may play a role in OM secretion. Calcification and chamber thickening, new spine growth and pore development are documented and continue for a period of 1-7 d. *Orbulina universa*/chambers/mineralization/morphogenesis/ultrastructure/CSA Life Sciences Collection.

1303. Ford RG (Performer: Ecological Consulting, San Diego, CA. Funder: Minerals Management Service, Los Angeles, CA. Pacific OCS Region.) Risk Analysis Model for Marine Mammals and Seabirds: A Southern California Bight Scenario. Final rept. ; 1985. Report No.: MMS850104. 264p. Sponsored by Minerals Management Service, Los Angeles, CA. Pacific OCS Region. PC A12/MF A01 Contract: DI1412000130224.

The objective of the study was to model the risks to selected species of marine mammal and seabird populations in the Southern California Bight from oil spills during OCS oil and gas development and operations. Risk analysis is a procedure designed to investigate the possible negative effects of projects and activities. The conventional approach to analyzing oil and gas reserves is through the use of the MMS Oil Spill Risk Analysis Model (OSRAM). OSRAM was developed to aid in estimating the environmental hazards of developing oil resources in OCS lease areas. Two other computer models were used in these analyses. They are: (2) the short term oil response model, STORM and (3) the oil spill population response model, OSPREY. In the report, a methodology for describing the range of consequences which oil spills might have on Southern California Bight seabird and marine mammal populations and the likelihood of those effects were developed. Two general categories of spill consequences were examined: (1) the immediate mortality to a population caused by a spill from a given source, and (2) the long term marine mammal and seabird populations effects of the projected Southern California Bight OCS development.

Habitability/Risk/Cetacea/Aquatic animals/Population Statistics/California/Birds/Animal ecology/Mammals/Mathematical models/Ecosystems/Pinnipedia/Southern California Bight/Oil spills/NTIS.

1304. Amsler CD, Neushul M. Diel periodicity of spore release from the kelp *Nereocystis luetkeana* (Mertens) Postels et Ruprecht. J. EXP. MAR. BIOL. ECOL 1990;VOL. 134, NO. 2:pp. 117-127 Mar. Sci. Inst., Univ. California, Santa Barbara, CA 93106, USA. Sorus abscission and associated spore release were monitored in the laboratory from *Nereocystis luetkeana* plants collected at three sites in central California, U.S.A. Nearly 80% of the sori were released in the interval between 2 h before sunrise and 4 h after sunrise. This dawn abscission pattern was observed on each day and from plants collected at all sites. Short-term observations in nature confirmed the pattern. Sori from individual plants were usually abscised at intervals of 2-4 days. Sori often began releasing spores before abscission and, in nature, probably continue to release spores as they are falling through the water column. > 50% of the spores released from abscised sori in the laboratory were released in the 1st h after abscission at a mean rate two to four orders of magnitude higher than previously reported for related macroalgae; nearly 95% had been released within 4 h.

diurnal variations/spores/kelps/dispersion/phenology/reproductive cycle/*Nereocystis luetkeana*/INE, USA, California/spore release/Oceanic Abstracts.

1305. Halpern D, Smith RL, Reed RK. On the California Undercurrent over the continental slope off Oregon. JOURNAL OF GEOPHYSICAL RESEARCH 1978 Mar 20;83(C3):1366-1372 NOAA, Environmental Research Labs., Pacific Marine Environmental Lab., Seattle, WA 98105.

In July 1975, moored current measurements and a spatially dense approximately isochronal hydrographic survey were made off Oregon. The patterns of geopotential topography, the longshore and onshore-offshore variations in temperature and salinity, and the current measurements indicated a poleward flow of warmer, more saline water at intermediate depths over the continental slope throughout a longshore distance of about 600 km. The agreement between linear approximations of the north-south velocity shears determined from baroclinic geostrophic currents and from 3-d vector-averaged current measurements was within 3%. The current measurements at

intermediate depths indicated a wavelike oscillation, lateral meander, or eddy with a time scale of about 7-10 d, and the surface pattern of the geopotential topography (referred to 1000 dbar) contained eddies or a wavelike feature with a wavelength of about 200 km. Comparison of the time variations of currents recorded simultaneously over the slope and shelf indicated that the subsurface poleward flows observed there were connected. AM. Continental slopes/Oregon Coast/US West Coast/Undercurrents/Currents/Hydrographic surveys/Temperature variations/Salinity variations/Eddies/geopotential topography/California Undercurrent/OceanAbstracts.

1306. HUNTER JR, MACEWICZ BJ. SEXUAL MATURITY, BATCH FECUNDITY, SPAWNING FREQUENCY, AND TEMPORAL PATTERN OF SPAWNING FOR THE NORTHERN ANCHOVY, ENGRAULIS MORDAX, DURING THE 1979 SPAWNING SEASON. REPORT CALIF. COOP. OCEANIC FISH. INVEST. 21 1980: 139-149, ILLUSTR.

* PISCES ** SUPERCLASS GNATHOSTOMATA *** CLASS TELEOSTOMI ****
DIVISION TELEOSTEI ***** SUPERORDER CLUPEOMORPHA *****
CLUPEIFORMES ***** SUBORDER CLUPEOIDEI ***** ENGRAULIDAE
***** ENGRAULIS MORDAX.

REPRODUCTION/REPRODUCTIVE CONDITION/SEXUAL MATURATION/BODY SIZE, FEMALES, CALIFORNIA CURRENT/FECUNDITY/SPAWNING BATCH, CALIFORNIA CURRENT/REPRODUCTIVE BEHAVIOUR/SPAWNING/FREQUENCY & TEMPORAL PATTERN, 1979 SEASON, CALIFORNIA CURRENT/HABITAT/DISTRIBUTION WITHIN HABITAT/TEMPORAL DISTRIBUTION/NORTHERN PACIFIC/BEHAVIOUR/ACTIVITY PATTERNS/SPAWNING, 1979 SEASON, CALIFORNIA CURRENT/PACIFIC OCEAN/CALIFORNIA CURRENT/SPAWNING DURING 1979 SEASON/Zoological Index.

1307. Ashley MV. Analysis of mitochondrial-DNA polymorphisms among Channel Island Deer mice, *Peromyscus maniculatus* [dissertation]. San Diego, California, USA: University of California; 1986. 133.

The populations of deer mice, *Peromyscus maniculatus*, which occupy the eight California Channel Islands are at an early stage of evolutionary divergence. Restriction endonuclease fragment polymorphisms of the rapidly evolving mitochondrial DNA (mtDNA) were used to examine the evolutionary history of the deer mice on the Channel Islands and nearby southern California mainland. A total of 131 deer mice were collected from the Channel Islands and seven mainland locations. MtDNA was isolated from each individual and surveyed with nine restriction endonucleases. The restriction endonuclease analysis revealed a total of 26 distinguishable mtDNA genotypes. Distributions of specific restriction fragment patterns suggest that at least four separate colonization events have brought deer mice to the Channel Islands, and some islands appear to be occupied by descendants of two different colonization episodes. Estimated percent sequence divergence between all mtDNAs in this study were very low, invariably less than 1%. This suggests that colonization of the Channel Islands by deer mice occurred fairly recently, probably in the last 500,000 years. Levels of mtDNA heterogeneity was much higher within mainland populations than within island populations. Founder effects, reduced effective population sizes, and stochastic lineage extinctions could be forces eroding mtDNA heterogeneity in insular deer mouse populations. Correlations between matrices for morphological divergence, allozyme distance, mtDNA divergence, and geographic distance were examined. The two genetic measures, based on allozyme frequencies and mtDNA analysis, were significantly correlated with each other but not with morphological divergence. Allozyme distance was significantly

correlated with geographic distance between islands.^ Island and mainland populations of another species of cricetid rodent, *Reithrodontomys megalotis*, were also examined for mtDNA restriction fragment polymorphisms. Samples of *R. megalotis* from Santa Catalina Island and the southern California mainland had identical mtDNA restriction fragment patterns when digested with nine restriction endonucleases. This suggests that colonization of Santa Catalina by *R. megalotis* may have occurred more recently than colonization by *P. maniculatus*. An alternative explanation is that mtDNA of *R. megalotis* is less polymorphic than that of other rodents. mitochondrial DNA (mtDNA)/founder effects/ *Peromyscus maniculatus*/deer mice/*Reithrodontomys megalotis*/California Channel Islands/Southern California mainland/terrestrial biology/mammalogy.

1308. Brinton E. Changes in the distribution of euphausiid crustaceans in the region of the California current. Calif. Coop. Oceanic Fish. Invest. Rep. 1960;7:137-146.
invertebrates/MINERALS MANAGEMENT SERVICE.

1309. Brinton E. Vertical migration and avoidance capability of euphausiids in the California current. Limnol. Oceanogr. 1967;12(3):451-483. California current/nets/euphausiids/zoogeography/functional morphology/vertical migrations/zooplankton/Pieper/MINERALS MANAGEMENT SERVICE.

1310. Brinton E. Distributional atlas of Euphausiacea (Crustacea) in the California Current region. Calif. Coop. Oceanic Fish. Invest. Atlas 18 1973;II:336.
zooplankton/text/dawson/pieper/MINERALS MANAGEMENT SERVICE.

1311. Littler MM, Murray SN. Influence of domestic wastes on the structure and energetics of intertidal communities near Wilson Cove, San Clemente Island / by Mark M. littler and Steven N. murray. Davis : California Water Resources Center, University of California, 1977. 1977;viii:p.88
California. University, Davis. Water Resources Center. Contribution; no. 164 Other-US Technical completion report. u.S. dept. of the Interior Office of Water Research and Technology project no. a-054-CAL and Water Resources Center project W-491. includes bibliographies. Monograph.
Sewage/Toxicology/California/Marine ecology/AGRICOLA.

1312. Muller P, Henderson D. Dynamics of the Oceanic Surface Mixed Layer. Proceedings of Aha Huliko'a Hawaiian Winter Workshop (4th) held in Manoa, Hawaii on January 14-16, 1987. 1987;
Partial contents: structures and fluxes in a deep convecting mixed layer; equatorial turbulence--mixed layer and thermocline; zonal momentum balance at the equator; the mixed layer of the western equatorial Pacific Ocean; observations of ocean waves and Langmuir circulation with Doppler sonars; unsteady shallowing mixed layer; some effects of heating on the wind-driven velocity in the upper ocean; mixed-layer shear related to wind stress in the Central Equatorial Pacific; mixed-layer fronts in the California Current; horizontal scales of wind forced inertial motions; subduction; wind forcing and observed oceanic wavenumber spectra; energy and momentum fluxes through the sea surface; hamiltonian description of the interaction of surface waves with mixed-layer currents; radiative processes affecting ocean mixed-layer heat content and their monitoring from satellite; monitoring ocean surface layer processes; similarity theories and microturbulence in the atmospheric mixed layer; global mixed-layer natural and anthropogenic fluxes.

dynamical oceanography/surface mixed layer/oceanic boundary layer/thermocline/surface water waves/ocean circulation/Langmuir circulation/current measurement/Doppler sonar/wave-current interaction/satellite sensing/heat transfer/anthropogenic factors/ASFA.

1313. Howell DG. A review of the estimates for the radiometric ages for the Relizian Stage of the Pacific Coast. Fritsche AE, Ter Best H, Jr., Wornardt WW. The Neogene symposium; selected technical papers on paleontology, sedimentology, petrology, tectonics and geologic history of the Pacific Coast of North America. ; 1976. p. p.13-15.
U. S. Geol. Surv., Menlo Park, Calif., United-States Soc. Econ. Paleontol. Mineral. 51st annual meeting of the Pacific Section of SEPM; Tomorrow's oil from today's provinces, San Francisco, Calif., April 21-24, 1976 Analytic; Book; Conference publication B; Bibliography and Index of Geology (1969-present). Obispo Formation/Point Sal Formation/Tranquillon Volcanics/Monterey Formation/California/stratigraphy/Miocene/biostratigraphy/foraminifera/absolute age/coastal/San Luis Obispo/Santa Ynez Mountains/Santa Cruz Island/Santa Barbara Island/San Clemente Island/assemblages/sedimentary rocks/Neogene/clastic rocks/terrigenous/shale/mudstone/fossiliferous/lithostratigraphy/igneous rocks/volcanic/tuff/basalt/andesite/dacite/breccia/dates/volcanic rocks/K/Ar/review/United States/correlation/boundary/lower Miocene/Saucesian/Relizian/Luisian/GEOREF.

1314. Halvorson W, Fenn D, Allardice W. Soils and vegetation of Santa Barbara Island, Channel Islands National Park, California, USA. ENVIRON. MANAGE 1988;12(1):109-118.
The multifaceted development of an erosion surface on Santa Barbara Island, Channel Islands National Park, California, has led to this study of the relationship between soils and vegetation. A dry Mediterranean climate and past attempts at farming and introductions of alien species have led to vegetative degradation accompanied by both gully and surface erosion. Soil and vegetation analyses show this erosion to be in a location of transition. The soils are Typic Chromoxererts (Vertisol Order) with high clay, salinity, and sodium contents. The vegetation is ecotonal in nature, grading from a principally alien annual grassland with *Avena fatua* and *Atriplex semibaccata* to a shrub community dominated by the native *Suaeda californica*. Management toward revegetation and stabilization of this island ecosystem will be difficult with high clay, saline-sodic soils and disturbed vegetation.
soil/vegetation/environment management/USA/California/Channel Islands Natl. Park/soils/environmental management/California/Channel Islands Natl. Park/relationship/CSA Life Sciences Collection.

1315. Brinton E. Parameters relating to the distributions of planktonic organisms, especially euphausiids in the eastern tropical Pacific. Prog. Oceanogr. 1979;8(3):125-189.
Distribution/Population parameters/Euphausiacea/Pacific Ocean/East Baja/California Coast/Zooplankton/Habitats/California Current/Euphausia/Nyctiphanes/Stylocheiron/Pleuroncodes/Statistical analysis/Crabs/Density/Zoogeography/E/eximia/N/simplex/P/planipes /E/diomedae/species range/Pieper/Bonnell/marine mammals/MINERALS MANAGEMENT SERVICE.

1316. Hickey BM (Former: Washington Univ., Seattle. School of Oceanography. Funder: Department of Energy, Washington, DC.) West Coast Physical Oceanography Program: Circulation and

Particle Fluxes in the Southern California Bight: Annual Technical Progress Report: A Short Report. ; 1988. Report No.: DOEER603334. 36p.

Portions of this document are illegible in microfiche products. PC A03/MF A01 Contract: FG0585ER60333.

Field programs consisting of 40 current meters distributed on 10-15 current meter moorings were executed during 1985 to 1988 in the Santa Monica/San Pedro shelf and basin region. The CROSS experiment was designed to investigate cross-shelf/slope/basin coherence scales and forcing mechanisms; the BASIN experiment was designed to investigate longshelf and longslope and round the basin coherence scales and forcing mechanisms; the SILL experiment was designed to ascertain the importance of water and property exchange between basins; the SHELF experiment was designed to study the spring transition period, with a special focus on circulation over the shelf. CTD surveys over the basin and shelf were taken upon deployment and retrieval of the moorings and usually on one cruise mid-way through the deployment. The CTD cruises, each with /approximately/80 stations that include transmission and oxygen data as well as temperature and conductivity, will number eight when the final six months of this grant begins. Several conclusions are possible. With few exceptions, flow the Santa Monica Basin is poleward throughout the year for monthly averages. The poleward flow occurs in long period pulses that have generally short (<20 km) coherence scales. The pulses are not driven by local wind and do not have the characteristics of coastal trapped waves. Pulses of equatorward flow can occur at times, particularly during spring in the surface layers. At this time, inflow from the Santa Barbara Channel occurs (e.g., May 86). The average below-sill depth circulation pattern is a counterclockwise gyre, with speeds /approximately/0.5 cm/s. (ERA citation 13:049772).

California/Coastal Regions/Compiled Data/Continental Shelf/Oceanography/Progress Report/Sampling/Currents/Pacific Ocean/Sediments/ERDA/580500/NTIS.

1317. Eichbaum WM, Bernstein BB. Comprehensive analysis of marine monitoring in southern California. Oceans '89/OCEANS '89: THE GLOBAL OCEAN. VOLUME 2: OCEAN POLLUTION 1989:pp. 337-343 5204 Wissioming Rd., Bethesda, MD 20816, USA.

The purpose of the case study was to conduct a review and assessment of marine environmental monitoring in the Southern California Bight. The bight was selected in part because of substantial concern in California that the intensive monitoring activities in the bight do not produce information that can be used for decision making by government agencies. The study's goal was to assess whether monitoring in Southern California is optimally designed to address the bight's physical, chemical, and biological characteristics. Further, and more importantly, the study would determine whether or not monitoring was meeting society's needs by providing information that had an impact on decision making. marine pollution/environmental monitoring/marine ecology/marine geology/chemical oceanography/physical oceanography/government policy/INE, USA, California/Oceanic Abstracts.

1318. Davies IE, Vent RJ, Brown JC. Fish school acoustic target strength. INTERNATIONAL COUNCIL FOR THE EXPLORATION OF THE SEA. JOURNAL DU CONSEIL 1977 Sep;37(3):288-292 NUC, Ocean Acoustics Group, San Diego, CA 92132.

Data presented were collected as a cooperative study between the NUC and the Southwest Fishery Center of NMFS. Field work was done during 6 cruises of the Fisheries Service's R/V David Starr Jordan. Acoustic target strengths of 10,534 fish schools were measured in the California Current system during 6 cruises from Nov. 1974 to

Oct. 1975. Measurements were made with a side-looking, 30 kHz sonar with a pulse duration of 10 msec; a separate set of 260 schools was measured with a pulse duration of 170 msec. Peak target strength for the 10 msec data set ranged from -20 to +20 dB with a mean of -7.3 dB (SD of 5.9 dB); mean intensity target strength was -2.4 dB. For the 170 msec data set, peak target strength ranged from -10 to +23 with a mean of +1.6 dB (SD of 5.6 dB); mean intensity target strength was +4.8 dB. Target strength depended on pulse length and range (vol sampled). AM, FT.

Fish schools/California Coast/California Current/Mexico West Coast/Acoustic surveys/David Starr Jordan cruises/acoustic target strength/OceanAbstracts.

1319. Hilton A. Pycnogonids from the Allan Hancock Expeditions. Allan Hancock Pacific Expeditions 1946;5(9):227-340 Sandy Subtidal Invertebrates, Santa Barbara Island.

1320. D'VINCENT S, MOSER HG, AHLSTROM EH. DESCRIPTION OF THE LARVAE AND EARLY JUVENILES OF THE PACIFIC BUTTERFISH, PEPRILUS SIMILLIMUS (FAMILY STROMATEIDAE). REPORT CALIF. COOP. OCEANIC FISH. INVEST. 21 1980: 172-179, ILLUSTR.

* PISCES ** SUPERCLASS GNATHOSTOMATA *** CLASS TELEOSTOMI ****
DIVISION TELEOSTEI ***** SUPERORDER ACANTHOPTERYGII *****
PERCIFORMES ***** SUBORDER STROMATOIDEI ***** STROMATEIDAE
***** PEPRILUS SIMILLIMUS.

BIOMETRICS/MEASUREMENTS/DEVELOPMENTAL STAGES/LIFE CYCLE & DEVELOPMENT/LIFE CYCLE/LARVA/DESCRIPTION/JUVENILE STAGES/LIFE HISTORY/CALIFORNIA CURRENT/DEVELOPMENT/ONTOGENESIS/FIN FORMATION & INTERNAL STRUCTURES/Zoological Index.

1321. Audesirk TE. A field study of growth and reproduction in *Aplysia californica*. Biol. Bull. 1979;157(3):407-421
Address: Div. Biol. Sci., Univ. Missouri, Columbia, MO 65211.
Observations of field growth rates, reproductive activities, and abundance of *Aplysia californica* were made over a 3-yr period on Santa Catalina Island off southern California. The mean weight of the population was found to vary with the location in which the animals were collected, presumably as a result of differing availability of food. Seasonal weight differences were also apparent. In general, small specimens of *A. californica* appear between Feb and May. Mean weight reached a maximum between June and Aug. Considerable variability was encountered from year to year. Tagging and recapture showed that growth rates reached a maximum in the spring just prior to breeding. The rate decreased thereafter until weight loss was experienced in Aug and Sept. *A. californica* was usually most abundant in the spring, with numbers decreasing during the summer. The animals almost completely disappeared during Oct, Nov, and Dec with the exception of extremely small specimens found on algae. Breeding activity was occasionally observed as early as April and reached its greatest intensity during July and Aug when at least 80% of the animals collected were in breeding aggregations. Histological examination of gonads showed maximum oocyte diameter between June and Oct, and minimum between Jan and March. Data are consistent with an annual species whose extended summer breeding period is terminated by the death of mature individuals during the fall. growth/reproduction/reproductive biology/seasonal variations/population dynamics/seasonal effects/food availability/growth rates/abundance Mollusca/Gastropoda *Aplysia californica*/Santa Catalina Island/marine biology.

1322. Brinton E. Euphausiid distributions in the California current during the warm winter-spring of 1977-1978 in the context

of a 1949-1966 time series. Calif. Coop. Oceanic Fish. Invest. Rep. 1981;22:135-154.

MINERALS MANAGEMENT SERVICE.

1323. Brinton E, Reid JL. On the effects of interannual variations in circulation and temperature upon the euphausiids of the California current. Pelagic Biogeography, Proceedings of an International Conference, the Netherlands 29 May-5-June 1985. UNESCO Technical Papers in Marine Science 1986;49:24-34. physical oceanography/ecosystems/MINERALS MANAGEMENT SERVICE.

1324. Mais KF. Pelagic fish surveys in the California current / by Kenneth F. mais. [Sacramento] : State of California, Resources Agency, Dept. of Fish and Game, 1974. 1974:p.79 California, Department of Fish and Game. fish bulletin; 162 Other-US Bibliography: p. 78-79. Monograph. Fishery resources/California/Northern anchovy/Echo sounding/fishing/AGRICOLA.

1325. Fiedler PC. Relationships between remotely-sensed surface properties and subsurface structure in the ocean. 1988; The analyses of historical temperature-depth data from the California Current and recent surface and Expendable Bathythermograph data from the Gulf of California have demonstrated that surface variables measurable by remote sensors do provide information about subsurface structure. However, estimates of subsurface structure based on empirical relationships are valid only regionally and are of limited reliability. A vertical model like the one developed here can be a powerful tool in studying the physical and biological mechanisms that produce empirical surface-subsurface relationships. Ultimately, such a model could serve as the basis for a scheme to maintain continuously-updated estimates of subsurface structure. The estimates would be nowcasted by the model using surface variables (e.g. surface temperature and color) and physical driving variables (e.g. winds, back radiation and cloudiness) monitored continuously by remote sensing. remote sensing/sea surface/surface temperature/bathythermographic data/XBTs/temperature profiles/vertical profiles/thermal structure/ISE/ California Current/ISE/California Gulf/mathematical models/ASFA.

1326. Bischoff JL, Clancy JJ, Booth JS. Magnesium removal in reducing marine sediments by cation exchange. Geochim. Cosmochim. Acta. Univ. South. Calif., Dep. Geol. Sci.; Contrib. No. 346 1975;39(5):p.559-568 Univ. South. Calif., Dep. Geol. Sci., Los Ang., Calif., United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present). California/geochemistry/magnesium/sediments/Santa Barbara Basin/abundance/marine environment/pore water/experimental studies/data/cation exchange capacity/reduction/Pacific Ocean/North Pacific/United States/Holocene/modern/offshore/GEOREF.

1327. Caddell S. Early life history descriptions of the deepbody and slough anchovies with comparisons to the northern anchovy (family Engraulidae). BULL. MAR. SCI 1988;42(2):273-291. Larval descriptions of *Anchoa compressa* and *A. delicatissima* are based upon laboratory-reared specimens and larvae collected from Newport Bay, California. Eggs of engraulid species indigenous to the southern California Bight are pelagic, lack an oil globule and have a segmented yolk. *Anchoa compressa* eggs are nearly spherical and average 0.80 mm in diameter. Eggs of *A. delicatissima* and *Engraulis mordax* are ellipsoid; major axis averages 0.94 mm and

1.33 mm respectively; minor axis averages 0.57 mm and 0.66 mm respectively. Newly hatched Anchoa larvae are unpigmented and relatively undifferentiated. Preanal lengths of larvae less than 10 mm range from 68 to 70% SL and progressively decline to values less than 62% SL in post-flexion larvae. Anchoa larvae are distinguished from *E. mordax* by lower preanal myomere counts (20-26 vs. 26-31), greater dorsal-anal fin overlap lengths, higher anal fin ray counts and dorsolateral gut pigmentation located near the anus.

surveys/USA/California/Newport Bay/fish eggs/fish larvae/animal morphology/ontogeny/life history/*Anchoa compressa*/*Anchoa delicatissima*/comparative studies/rearing/*Engraulis mordax*/ichthyoplankton

surveys/INE/USA/California/Newport Bay/larvae/*Anchoa*/CSA Life Sciences Collection.

1328. Eppley RW (Performer: California Univ., San Diego, La Jolla. Inst. of Marine Resources. Funder: Department of Energy, Washington, DC.) Primary Production, Nutrients, and Particulate Matter in the Southern California Bight: Contribution to the C, N, and O sub 2 Budgets: Goals, Priorities and Technical Progress, June 1986. ; 1986. Report No.: DOEER603362. 11p.

Paper copy only, copy does not permit microfiche production. PC A03 Contract: FG0585ER60336.

The goal of this work is to determine the spatial and temporal variations in the planktonic primary productions and to estimate the sinking flux of biogenic carbon leaving the surface layer by measuring new production. New production is that fraction of the primary production that drives the sinking flux of biogenic organic particles. It is the production due to nutrients that enter the euphotic zone from the outside, such as those mixed up from deep water or those scrubbed out of the atmosphere by rain. The rest of the primary production is based upon nutrients recycled within the euphotic zone and is called regenerated production. In practice, new production is usually measured as the rate of nitrate assimilated by the plankton, calculated in carbon units. Nitrate is present in concentrations up to 40 micromolar several hundred meters below the euphotic zone in the North Pacific Ocean while it is usually depleted from local surface waters. In the Southern California Bight nitrate is usually present in the lower part of the euphotic zone. Concentrations increase with depth reaching maximum values at about 1000 m. The region of increasing nitrate with depth is called the nitracline. Only the upper part of the nitracline is in the euphotic zone where there is enough light for plant growth. 10 refs., 2 figs., 2 tabs. (ERA citation 13:047434).

Carbon Cycle/Evaluation/Nitrates/Plankton/Progress Report/Sampling/Spatial Distribution/Time Dependence/Nutrients/Particulates/Plant Growth/ERDA/580500/NTIS.

1329. Howe BM, Mercer JA, Spindel RC, Worcester PF. Accurate positioning for moving ship tomography. Oceans '89/OCEANS '89: THE GLOBAL OCEAN. VOLUME 3: NAVIGATION, REMOTE SENSING, UNDERWATER VEHICLES/EXPLORATION 1989:pp. 880-886 Appl. Phys. Lab., Coll. Ocean and Fish. Sci., Univ. Washington, Seattle, WA 98105-6698, USA.

The goal of Moving Ship Tomography (MST) is to synoptically measure the sound speed field $c(x,y,z)$ over a large (Mm) region of the ocean. In the present version, a ship lowers a hydrophone array to listen to moored acoustic sources several hundred kilometers away. The acoustic travel times between the sources and the receiving hydrophone array, at many different ship stations, are then inverted to obtain the sound speed field. One challenging problem in MST is to accurately track position of the receiving hydrophone array. Two complementary systems are used. One is ship-mounted and

consists of a very-short-baseline (VSBL) acoustic tracking system, roll and pitch sensors, the ship's gyro, and a GPS receiver. The other is a Floating Acoustic-Satellite Tracking (FAST) range consisting of two spar buoys, each with a GPS receiver, acoustic pinger, and RF link to the ship. The advantage of the ship-mounted system is its seaworthiness. Two advantages of the FAST range are the long baselines possible when the buoys are deployed far apart, and the independence from the ship and its motion. The FAST range can be deployed and recovered in seas up to sea state 4 and used to calibrate the VSBL system. Results from tests off San Clemente Island and on Lake Washington are presented.

acoustic tomography/positioning systems/ship motion/hydrophones/acoustic arrays/acoustic tracking systems/satellites/sea state/INE, USA, California, San Clemente I./USA, Washington, Washington L./pinger/Oceanic Abstracts.

1330. Love MS, Larson RJ. Geographic variation in the occurrence of tympanic spines and possible genetic differentiation in the kelp rockfish (*Sebastes atrovirens*). COPEIA 1978 Feb 10;No. 1:53-59

Univ. of California, Dept. of Biological Sciences and Marine Science Inst., Santa Barbara, CA 93106.

The frequency of occurrence of tympanic cranial spines in *S. atrovirens*, an eastern Pacific scorpaenid, was examined over much of the species' geographic range. Tympanic spines occur significantly more often in individuals from the southern part of the range. Apparently, *S. atrovirens* falls roughly into 2 groups: central and southern California, though there is clinal variation within each group. It is hypothesized that the occurrence of tympanic spines is determined genetically and that the difference in tympanic spine occurrence between the northern and southern parts of *S. atrovirens*' range is due to low gene flow between northern and southern populations. This restricted gene flow may be due to the actions of the California Current and the southern California eddy. Recruitment of *S. atrovirens* in central California would come primarily from local eddies of the California Current in central California, while recruitment in southern California would come primarily from southern California larvae entrained in the southern California eddy. AM.

Genetics/Sebastes/Rockfish/California Coast/Geographic variations/Zoogeography/Fish larvae/Population variations/S/atrovirens/tympanic cranial spines/OceanAbstracts.

1331. Johnson NW, W.M. Lewis. Pelagic larval stages of the sand crabs, *Emerita analoga*, Stimpson, *Blepharipoda occidentalis* Randall, and *Lepidopa myops*, Stimpson. Biological Bulletin 1942;83(1):67-87

Sandy Subtidal Invertebrates, San Miguel Island, dispersal Larvae.

1332. CALIFORNIAN COOPERATIVE OCEANIC FISHERIES INVESTIGATIONS. SYMPOSIUM OF THE CALCOFI CONFERENCE PT. 2. IDYLLWILD, CALIFORNIA OCTOBER 31 - NOVEMBER 2, 1978. NONCONSUMABLE, LIVING RESOURCES OF THE CALIFORNIA CURRENT: INTERACTIONS WITH CONSUMABLE RESOURCES AND THEIR EXPLOITATION. REPORT CALIF. COOP. OCEANIC FISH. INVEST. 21 1980: 27-81.

PAPERS INDEXED SEPARATELY.

ANIMALS & MAN/ORGANIZED STUDY/MEETINGS/CALIFORNIA/IDYLLWILD OCT/31 - NOV/2 1978, RESOURCES OF CALIFORNIA CURRENT/PACIFIC OCEAN/NORTHERN PACIFIC/CALIFORNIA CURRENT/SYMPOSIUM ON FISH RESOURCES/Zoological Index.

1333. Azzaroli A. About pigmy mammoths of the northern Channel Islands and other island faunas. Quaternary Research (New

York) 1981;16(3):423-425 Address: Univ. Firenze, Mus. Geol. e Paleontol., Florence, ITA.

biogeography/paleogeography/paleontology/Pleistocene/Quaternary/Cenozoic/upper Pleistocene/islands Mammalia/Elephantoidea/pigmy mammoths/Santa Barbara County/northern California Channel Islands/vertebrate paleontology.

1334. Brooks ER, Mullin MM. Diel changes in the vertical distribution of biomass and spacing in the Southern California Bight. Calif. Coop. Ocean. Fish. Invest. Rep. 1983;24:210-215. Pieper/Dawson/zooplankton/TEXT/MINERALS MANAGEMENT SERVICE.

1335. Martin JH, Bruland KW, Broenkow WW. Cadmium transport in the California current [Water pollutants]. Marine Pollutant Transfer. H. L. Windom & R. A. Duce, eds. 1976. ; 1976. p. p.159-184.

Other-US Article.
California/AGRICOLA.

1336. Wishner KF, Gowing MM. In situ filtering and ingestion rates of deep-sea benthic boundary-layer zooplankton in the Santa Catalina Basin. MAR. BIOL 1987;94(3):357-366.

In situ rates of filtration, particulate ingestion, and carbon ingestion of deep-sea benthic boundary-layer zooplankton were determined in December 1984 in the Santa Catalina Basin, at 1,300 m depth in the California Borderland, by a short-term radioisotope-incorporation technique. Zooplankton were collected at 1 or 50 m above the bottom with an opening-closing net system on a submersible, and incubated at depth with labelled amino acids in special cod-end chambers. Concentrations of particulate material and particulate organic carbon in the ambient water were also measured. These deep-sea benthic boundary-layer zooplankton may have the potential to respond to food pulses, and their relatively high ingestion rates suggest that they could have significant effects on particulate, chemical, and bacterial processes in the near-bottom water column. filter feeders/zooplankton/benthic boundary layer/deep water/particulate organic matter/INE/USA/California/Santa Catalina Basin/ASFA.

1337. Quintino J, Machado F. Heat flow and the Mid Atlantic Rift volcanism of San Miguel Island, Azores. Tectonophysics. 1977;41(1-3):p.173 Heat flow and geodynamics, Grenoble, Aug. 29, 1975 Analytic; Serial; Conference publication B; Bibliography and Index of Geology (1969-present). Azores/tectonophysics/heat flow/plate tectonics/San Miguel Island/Atlantic Ocean/Mid Atlantic Ridge/geothermal gradient/temperature/magma chambers/models/rifting/volcanism/magmas/volcanology/volcanoes/structure/eruptions/mechanism/GEOREF.

1338. Bruner BL. Numerical Study of Baroclinic Circulation in Monterey Bay. [dissertation] ; 1988. 49p.

Performer: Naval Postgraduate School, Monterey, CA

The circulation of Monterey Bay is both variable and complex, and is likely to be significantly influenced by circulation in the adjacent California current. To study this circulation a two-layer, numerical model was used. The model was forced by inflow and outflow at an open boundary that connected the Pacific Ocean with the bay. Topography representing Monterey Canyon was included in the lower layer of the model. The effects of wind and tidal forcing were not considered. Results indicate that surface circulation is strongly constrained by topography when the lower layer flow is 5 cm/sec or larger and that the flows within the bay are consistent with geostrophic, vorticity-conserving flow over bottom topography.

The sensitivity of the model to the distribution and strength of inflow and outflow forcing location was investigated. The model was found to be sensitive to the location of inflow and outflow forcing and also to the inflow and outflow vertical structure.

Flow/Layers/Mathematical models/Numerical analysis/Ocean models/Pacific ocean/Strength General/Submarine canyons/Surfaces/Theses/Variables/Vertical orientation/Ocean currents/Ocean bottom topography/California current/Two layer ocean model/Monterey Bay/NTIS.

1339. Wang DW-, Teng CC, Steele KE. Buoy directional wave observations in high seas. Oceans '89: THE GLOBAL OCEAN. VOLUME 5: DIVING SAFETY AND PHYSIOLOGY, OCEAN ENGINEERING/TECHNOLOGY 1989:pp. 1416-1420 Computer Sciences Corp., Stennis Space Center, MS 39529-6000, USA. Directional wave data from an NDBC 3-meter heave-pitch-roll discus buoy located off the coast of California were analyzed for a storm event in late 1987. The measured nondirectional wave spectra showed a constant slope at the high frequency end on a log-log plot. Higher frequency waves responded more quickly to the wind direction than lower frequency waves. The spreading parameter, s , was expressed as a function of wave frequency, which agreed with the results from several previous studies. This paper also concisely describes NDBC's standard directional wave measurement buoy system and the related techniques for data processing. wave direction sensors/discus-shaped buoys/wave buoys/wave spectra/ wave analysis/wind direction/data processing/OCEANIC ABSTRACTS.

1340. Bernstein RL, Breaker L, Whritner R. California Current eddy formation: Ship, air and satellite results. SCIENCE 1977 Jan 28;195(4276):353-359 SIO, La Jolla, CA 92093. Quantitative measurements of the circulation of the California Current, obtained through hydrographic determinations of temperature and salinity, are being augmented by satellite data. Clouds permitting, satellite scanner systems can locate major ocean frontal boundaries if they are associated with even quite weak horizontal sea-surface temperature gradients. The satellite data are most usefully interpreted where the surface and main thermocline temperature distributions bear some relation to each other. In such a region it is possible to make interpretations of circulation based on satellite-derived sea-surface temperature patterns. The accuracy of these interpretations depends on the availability of historical and present-day subsurface data, collected by conventional methods from ships and aircraft. The very high resolution radiometer (VHRR) of the NOAA-3 satellite is the highest quality IR scanner orbited to date. Satellite IR scanners, in addition to providing information on circulation with vastly increased spatial resolution, can provide increased time resolution. These improvements in resolution have shown that much of the spatial variation in the California Current takes place along well-defined fronts. from AS. Coastal currents/Eddies/California Current/California Coast/Circulation/Pacific Ocean Northeast/Remote sensing/Satellite observations/Radiometers/OceanAbstracts.

1341. Lalicker CG, I. McCulloch. Some Textulariidae of the Pacific Ocean. Allan Hancock Pacific Expeditions 1940;6(2):115-143 Sandy Subtidal Invertebrates, Anacapa Island, Santa Rosa Island, San Clemente Island, Santa Cruz Island.

1342. CALIFORNIAN COOPERATIVE OCEANIC FISHERIES INVESTIGATIONS. SYMPOSIUM OF THE CALCOFI CONCERENCE PART 3. IDYLLWILD, CALIFORNIA OCTOBER 23-25, 1979. CLIMATE & ECOLOGICAL

REGIMES. REPORT CALIF. COOP. OCEANIC FISH. INVEST. 21 1980: 83-112, ILLUSTR.

PAPERS INDEXED SEPARATELY.

ANIMALS & MAN/ORGANIZED STUDY/MEETINGS/CALIFORNIA/IDYLLWILD OCTOBER 23-25 1979/CLIMATE & ECOLOGICAL REGIMES, CALIFORNIA CURRENT/PACIFIC OCEAN/NORTHERN PACIFIC/CALIFORNIA CURRENT/SYMPOSIUM ON CLIMATE & ECOLOGICAL REGIMES/Zoological Index.

1343. Baber DW, Coblenz BE. Immobilization of feral pigs with a combination of ketamine and xylazine. J. Wildl. Manage. 1982;46(2):557-560 Address: Dep. Fish. & Wildlife, Oregon State Univ., Corvallis, OR 97331. This paper reports the use of a combination of ketamine hydrochloride and xylazine hydrochloride (KH-XH) to immobilize feral pigs (*Sus scrofa*) on Santa Catalina Island, California.

catching methods/feral populations/immobilization/live capture/drugs/ketamine/xylazine/feral pigs/*Sus scrofa*/Santa Catalina Island/terrestrial biology/mammalogy.

1344. Brown DA, Gossett RW, Hershelman GP, Ward CF, Westcott AM, Cross JN. Municipal wastewater contamination in the Southern California Bight: Part 1. Metal and organic contaminants in sediments and organisms. Mar. Environ. Res. 1986;18(4):291-310. Outfalls/heavy metals/PCB/DDT/marine pollution/Wastewater treatment/industrial wastes/domestic Wastes/sediment/pollution/pollution effects/ marine organisms/marine fish/marine/invertebrate/scadmium/zinc/copper/INE/USA/California/Southern/Calif ornia/Bight/ANTHROPOGENIC/anderson/Hood/Thompson/Bray/Murray/ecosystem/algae/spermatophytes/text/chemical oceanography/MINERALS MANAGEMENT SERVICE.

1345. The ecology of the Southern California Bight : implications for water quality management, three year report / of the Southern California Coastal Water Research Project. El Segundo : Southern California Coastal Water Research Project, 1973. 1973;xxx:p.531 Southern California Coastal Water Research Project. SCCWRP TR; 104 Other-US Updates and supercedes SCCWRP TR 104-I. bibliography: p. 505-531. Monograph. Marine ecology/Water quality management/Marine resources conservation/Southern California Bight/AGRICOLA.

1346. Brown DA, Bay SM, Greenstein DJ, Szalay P, Hershelman GP, Ward CF, Westcott AM, Cross JN. Municipal wastewater contamination in the Southern California Bight. Part 2. Cytosolic distribution of contaminants and biochemical effects in fish livers. MAR. ENVIRON. RES 1987;21(2):135-161. This study examines the cytosolic distribution of metals and oxygenated organic metabolites (MTBs), and biochemical effects, in livers of fish collected from both highly contaminated and less contaminated southern California coastal sites. Concentrations of Cd, Cu and Zn were frequently lower in cytosolic pools of longspine combfish, yellowchin sculpin, and California tonguefish from highly contaminated Palos Verdes (PV) relative to those from less contaminated Santa Monica Bay (SMB) despite much higher concentrations of these metals in sediments at PV. Patterns of cytosolic metal distribution differed more between metals than between species or sampling locations. The lower metal concentrations, higher glutathione concentrations, and higher catalase activities found in fish from PV relative to those from SMB are in accordance with effects known to result from exposure to organic contaminants.
heavy metals/outfalls/Zaniolepis latipinnis/Icelinus

guadriseriatus/Symphurus atricauda/Scorpaena guttata/Pisces/waste water/cadmium/copper/zinc/sewage disposal/pollution effects/INE/Southern California Bight/INE/USA/California/liver/marine fish/ASFA.

1347. McLean H, Howell DG, Vedder JG. Paleogeographic implications of the Miocene basement unconformity, Santa Cruz Island, California. Geol. Soc. Am., Abstr. Programs. 1975;7(3):p.346

U. S. Geol. Surv., Menlo Park, Calif., United-States The Geological Society of America, Cordilleran Section, 71st annual meeting, Los Angeles, Calif., March 25-27, 1975 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).

San Onofre Breccia/Willows Diorite/Blanca Formation/California/stratigraphy/Miocene/lithostratigraphy/paleogeography/Santa Cruz Island/United States/reconstruction/unconformities/transgression/basement/GEOREF.

1348. Middaugh D, Hemmer M. Reproductive ecology of the tidewater silverside, *Menidia peninsulae* (Pisces: Atherinidae) from Santa Rosa Island, Florida. COPEIA.; no. 3 1987;:727-732.

The reproductive ecology of the tidewater silverside, *Menidia peninsulae*, was studied during 1982-83 along the shoreline of Santa Rosa Island, Florida. Adult *Menidia* were observed at low tide spawning on a red alga, *Ceramium byssoideum*. Pinfish, *Lagodon rhomboides*, were noted preying upon newly spawned *Menidia* eggs. The annual reproductive cycle of *M. peninsulae* extended from Feb.-July with the highest spawning activity during March-June at water temperatures of 16.7-30.8 C. Spawning and subsequent hatching of larvae may have occurred in periodic pulses throughout the spring and early summer.

USA/Florida/Santa Rosa Island/reproduction/spawning/reproductive cycle/*Menidia peninsulae*/seasonal variations/ASW/USA/Florida/Santa Rosa I./CSA Life Sciences Collection.

1349. Small LF, Huh CA (Performer: Oregon State Univ., Corvallis. School of Oceanography. Funder: Department of Energy, Washington, DC.) DOE (Department of Energy) West Coast Basin Program, California Basin Study: Progress Report 4, (July 1986-June 1987). ; 1987. Report No.: DOEER603403. 54p. Portions of this document are illegible in microfiche products. PC A04/MF A01 Contract: FG0585ER60340.

The overall objective of our research is to understand the transport pathways and mass balances of selected metabolically active and inactive chemical species in the Santa Monica/San Pedro Basins. One focus is to examine the role of zooplankton and micronekton in the cycling and remineralization of chemical materials in the Southern California Bight, with particular reference to C, N and certain radionuclides and trace metals. A second focus is to examine these same radionuclides and trace metals in other reservoirs besides the zooplankton (i.e., in seawater, sediment trap material and bottom sediments). Knowledge of the rates, routes and reservoirs of these nuclides and metals should lead to a cogent model for these elements in Santa Monica/San Pedro Basins. 28 refs., 13 figs., 7 tabs. (ERA citation 13:025095).

California/Baseline Ecology/Biomass/Buildup/Crustaceans/Environmental Transport/Feces/Lead 210/Metals/Mineral Cycling/Mineralization/Mineralogy/Nitrogen Cycle/Nutrients/Progress Report/Radioisotopes/Sediments/Spatial Distribution/Thorium 228/Thorium 234/Carbon Cycle/Coastal

Waters/Zooplankton/ERDA/520500/Path of pollutants/Southern California Bight/NTIS.

1350. SMITH PE. THE EFFECTS OF INTERNAL WAVES ON FISH SCHOOL MAPPING WITH SONAR IN THE CALIFORNIA CURRENT AREA. INTERNATIONAL COUNCIL FOR THE EXPLORATION OF THE SEA. RAPPORTS ET PROCES-VERBAUX DES REUNIONS, 170: 223-231, FEB. 1977 1977 NMFS, SOUTHWEST FISHERIES CENTER, LA JOLLA, CA 92037.
CALIFORNIA COAST/SOUND PROFILES/CALIFORNIA CURRENT/SOUND VELOCITY/MAPPING/SONAR/FISH SCHOOLS/INTERNAL WAVES/FISH SCHOOL MAPPING/OceanAbstracts.

1351. Moore JP. The polychaetous annelids dredged by the U.S.S. Albatross off the coast of Southern California in 1904. I. Syllidae, Sphaerodoridae, Hesionidae and Phyllodocidae. Proceedings Academy of National Science, Philadelphia 1909;61:321-351
Sandy Subtidal Invertebrates, Annelids, Santa Barbara Island.

1352. BAILEY KM. RECENT CHANGES IN THE DISTRIBUTION OF HAKE LARVAE: CAUSES AND CONSEQUENCES. REPORT CALIF. COOP. OCEANIC FISH. INVEST. 21 1980:167-171 * PISCES ** SUPERCLASS GNATHOSTOMATA *** CLASS TELEOSTOMI **** DIVISION TELEOSTEI ***** SUPERORDER PARACANTHOPTERYGII ***** GADIFORMES ***** SUBORDER GADOIDEI ***** MERLUCCIIDAE ***** MERLUCCIUS PRODUCTUS.
ECOLOGY/POPULATION STUDY/POPULATION DYNAMICS/POPULATION DENSITY/LARVAE, DECREASED ABUNDANCE, OVERFISHING, CALIFORNIA CURRENT/PACIFIC OCEAN/NORTHERN PACIFIC/CALIFORNIA CURRENT/DECREASED LARVAL ABUNDANCE & OFFSHORE DISTRIBUTION/Zoological Index.

1353. Baber DW, Coblenz BE. Density, home range, habitat use, and reproduction in feral pigs on Santa Catalina Island, California, USA. J. Mammal. 1986;67(3):512-525
Address: BEAK CONSULTANTS, INC., 317 SW ALDER, PORTLAND, OREG. 97204. A feral pig population on Santa Catalina Island, California, was studied for 17 months beginning in July 1980. A total of 136 pigs was marked and 188 recaptured during capture-recapture studies at two sites. Density was estimated to be 21 to 34 pigs/km² (95% confidence interval). Dry season home ranges determined from radio-telemetry data were small and differed significantly between boars (2.04 +/- 0.20 km²-95% ellipse; 2.44 +/- 0.30 km²-harmonic mean method) and sows (0.90 +/- 0.23 km²-95% ellipse; 1.46 +/- 0.14 km²-harmonic mean method). During the dry season, pigs preferred cool moist canyon bottom, the result of both a physiological need for free water and behavioral responses to high environmental temperatures. Patterns of utilization during the wet season appeared to be primarily a function of food availability. Seasonality in time of birth was evident, with piglets born in winter and spring (1980) or spring and summer (1981). Litter size as measured by fetal counts was 5.00 +/- 0.36 and sows averaged 0.86 +/- 0.17 litters over a 12-month period. Most sows were older than 1 year when they first conceived, and litter size increased from puberty and peaked at 2-3 years of age. Intrauterine mortality of fetuses averaged 25% and piglet mortality was estimated to be 58% prior to weaning. Mortality rates appeared to be higher for piglets born in summer than in winter or spring.
seasonality/behavior/mortality/radio-telemetry/population biology/reproductive biology/feral populations/population density/habitat utilization/reproduction/Sus scrofa/feral pig/Santa Catalina Island/terrestrial biology/mammalogy.

1354. Sawbridge JR. Tiaja insula, a new megophthalmine leafhopper from the Santa Barbara Channel Islands (Homoptera: Cicadellidae). Pan Pac Entomol, Oct 1975 1975;51(4):p.268-270

Article.

California/Santa Barbara Channel
Islands/Homoptera/Cicadellidae/AGRICOLA.

1355. Moser HG, Smith PE, Eber LE. Larval fish assemblages in the California Current region, 1954-1960, a period of dynamic environmental change. REP. CCOFI 1987;28:97-127. Analysis of nearly 200 taxa of fish larvae from CalCOFI surveys in 1954-60 placed 30 taxa into nine recurrent groups. Two complexes of four recurrent groups each were formed by extensive interlinking among the group. A "northern" complex represents the subarctic-transitional fauna and the coastal pelagic fauna and its associates. A "southern" complex incorporates transitional, warm-water cosmopolite and eastern tropical Pacific taxa. One recurrent group was associated with the extensive continental shelf area of Bahia Sebastian Viscaïno and the Punta Abreojos-Cabo San Lazaro Bight. There was much variability in the constitution of the recurrent groups within the complexes and some change in the degree of overlapping species distributions among the complexes over the seven-year period from 1954 to 1960. The northern-southern complex structure was similar to that described in a previous analysis of data from 1975.

fish larvae/ichthyoplankton surveys/ecological
aggregations/environmental conditions/INE/California
Current/ISE/California Current/IE/California Current/ASFA.

1356. Lamar DL, Merifield PM. Application of ERTS images to study of active and potentially active faults, Santa Barbara area, California. Geol. Soc. Am., Abstr. Programs. 1975;7(3):p.339
Calif. Earth Sci. Corp., Santa Monica, Calif., United States The Geological Society of America, Cordilleran Section, 71st annual meeting, Los Angeles, Calif., March 25-27, 1975 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).

Santa Barbara County/California/geophysical surveys/remote sensing/San Andreas Fault/Big Pine Fault/Santa Ynez Fault/More Ranch Fault/Santa Cruz Island Fault/Santa Rosa Island Fault/United States/imagery/satellite/ERTS/applications/faults/movement/extent /active faults/GEOREF.

1357. Middaugh D, Hemmer M. Influence of environmental temperature on sex-ratios in the tidewater silverside, *Menidia peninsulae* (Pisces: Atherinidae). COPEIA.; no. 4 1987;:958-964. Sex-ratios of *Menidia peninsulae* from Santa Rosa Island, Florida were studied during a 13 mo survey. Monthly samples revealed significant deviations from the expected sex-ratio of 1:1. During May-Oct., young-of-year (YOY) females comprised 70-94% of the individuals collected in the 32.5-62.4 mm standard length (SL) size-class. These females were the presumptive progeny of reproduction at cold to cool fluctuating temperatures (14.1-24.2 C), during Feb.-April. In contrast, collections of YOY *Menidia* during Nov.-April yielded 35-60% females. These individuals were the presumptive progeny of reproductive activity and sexual differentiation in May-Aug. at warm fluctuating water temperature of 23.5-31.5 C. Sex-ratios for combined (13 mo) collections of YOY were identical (69% females) to sex-ratios in older *Menidia*.
sex ratio/temperature/USA/Florida/Santa Rosa Island/sex determination/temperature effects/*Menidia peninsulae*/ASW/USA/Florida/Santa Rosa I./CSA Life Sciences Collection.

1358. (Performer: Oregon State Univ., Corvallis. Funder: Department of Energy, Washington, DC.) Role of Zooplankton and

Micronektron in the Cycling and Remineralization of Chemical Materials in the Southern California Bight: Progress Report, November 1985-June 1986. ; 1986. Report No.: DOEER603402. 14p. Portions of this document are illegible in microfiche products. PC A03/MF A01 Contract: FG0585ER60340.

A Progress Report on Grant FG05-85ER60340 has already been submitted to DOE, and is appended here. The appended report covers much of the work completed during the current contract period. Work on the just-completed May 1986 cruise samples is just beginning at the time of writing. Sediment traps deployed at two locations in Santa Monica Basin in October 1985 were recovered in February 1986. The traps have sequentially rotating cups set to collect material for 14 days each during the deployment period. We have finished radiochemical analyses on the sediment trap samples collected on the February 1986 Cruise. Pellet production rates for salps and euphausiids were reported earlier. The February cruise was principally a hydrographic and trap recovery cruise, and there was no time for pellet production rate experiments. Thus, all the February hauls are being analyzed to assess diel biomass estimates of selected size classes of zooplankton in the vicinity of the traps. 5 tabs. (ERA citation 13:025260).

California/Coastal Waters/Mineral
Cycling/Mineralization/Oceanography/Pacific Ocean/Progress
Report/Radioecological Concentration/Radium 228/Sampling/Sediment
Water Interfaces/Traps/Lead 210/Particulates/Plutonium
239/Plutonium 240/Polonium 210/Sediments/Thorium 234/Thorium
238/Zooplankton/ERDA/580500/ERDA/520500/NTIS.

1359. Joergensen BB, Zawacki LX, Jannasch HW. Thermophilic bacterial sulfate reduction in deep-sea sediments at the Guaymas Basin hydrothermal vent site (Gulf of California). DEEP-SEA RES. (A OCEANOGR. RES. PAP. 1990;VOL. 37, NO. 4A:pp. 695-710 Dep. Ecol. and Genet., Univ. Aarhus, Ny Munkegade, 8000 Aarhus C, Denmark. Sulfate reduction was studied by radiotracer methods in geothermally heated mud retrieved from an area near black smokers in the southern trough of the Guaymas Basin at 2,000 m water depth. Sediment cores were taken by the submersible Alvin from three closely spaced sites. Steep hydrothermal gradients from 2.7 degree C at the surface up to 126 degree C at 74 cm depth were measured in the sediments. Extensive conversion of sulfate to H sub(2)S, with 4 mM SO sub(4)@u2 super(-) and 15 mM H sub(2)S at 5 cm depth, indicated thermogenic reduction at depth in the upwards percolating hot pore fluid. Pyrite concentrations were high, 200 mu mol S cm super(-3), while FeS was low near detection limit. Bacterial sulfate reduction showed maximum rates of 30-140 nmol SO sub(4)@u2 super(-) cm super(-3) d super(-1). While mesophilic sulfate reduction occurred near the cold (2-3 degree C) sediment surface, extremely thermophilic activity was observed in deeper, hot layers, the actual depth dependent on the temperature profile of the particular core. In the subsurface sediment at 10-45 cm depth, optimum temperatures for sulfate reduction increased from 63 to 83 degree C, with corresponding maximum temperatures of 66-90 degree C.
sulfate reduction/hydrothermal springs/sediment chemistry/bacteria/ISE, California Gulf, Guaymas Basin/Oceanic Abstracts.

1360. BLASCO D. RED TIDE IN THE UPWELLING REGION OF BAJA CALIFORNIA. LIMNOLOGY AND OCEANOGRAPHY, 22(2): 255-263, MAR. 1977 1977
BIEGELOW LAB. FOR OCEAN SCIENCES, MCKOWN PR., W. BOOTHBAY HARBOR, ME 04575. CERATIUM/UPWELLING/RED TIDE/MEXICO WEST COAST/CALIFORNIA CURRENT/ GYMNODINIUM/DINOFLLAGELLATES/BAJA CALIFORNIA COAST/GONYAULAX/ PLANKTON BLOOMS/C/FURCA/G/POLYEDRA/OceanAbstracts.

1361. Moore JP. The polychaetous annelids dredged by the U.S.S. Albatross off the coast of Southern California in 1904. IV. Spionidae to Sabellariidae. Proceedings Academy of National Science, Philadelphia 1923;65:179-259 Sandy Subtidal Invertebrates, Annelids, Santa Rosa Island, Santa Cruz Island.

1362. ANDERSON DW, GRESS F, MAIS KF, KELLY PR. BROWN PELICANS AS ANCHOVY STOCK INDICATORS AND THEIR RELATIONSHIPS TO COMMERCIAL FISHING. REPORT CALIF. COOP. OCEANIC FISH. INVEST. 21 1980: 54-61, ILLUSTR.

* PISCES ** SUPERCLASS GNATHOSTOMATA *** CLASS TELEOSTOMI ****
DIVISION TELEOSTEI ***** SUPERORDER CLUPEOMORPHA *****
CLUPEIFORMES ***** SUBORDER CLUPEOIDEI ***** ENGRAULIDAE
***** ENGRAULIS MORDAX.

TECHNIQUES/ECOLOGICAL TECHNIQUES/POPULATION DENSITY
MEASUREMENT/DEDU CTION FROM AVIAN PREDATOR POPULATION SIZE,
CALIFORNIA/FEEDING/CARNIVO ROUS
FEEDING/PREDATION/PREDATORS/PELECANUS OCCIDENTALIS CALIFORNICUS
(AVES)/POPULATION RELATIONSHIPS/PACIFIC OCEAN/NORTHERN PACIFIC/CALI
FORNIA CURRENT/POPULATION SIZE INDICATED BY AVIAN
PREDATORS/Zoological Index.

1363. Baber DW, Coblentz BE. Diet, nutrition, and conception in feral pigs on Santa Catalina Island, California, USA. J. Wildl. Manage. 1987;51(2):306-317 Address: BEAK CONSULTANTS INC., 317 S W ALDER, PORTLAND, OREG. 97204. Dietary preference, nutrition, and their effect on animal condition and conception were examined in a feral pig (*Sus scrofa*) population on Santa Catalina Island, California. Diets were primarily herbaceous and varied seasonally. Fruits and forbs were the most preferred foods in dry season diets, whereas fruits, grasses, and forbs were most preferred during the wet season. Seasonal differences in diets reflected changes in availability or phenology of plants. Abrupt dietary shifts to annual grasses and forbs in winter were strongly influenced by precipitation patterns. Seasonal trends were apparent in acid detergent fiber (ADF), cellulose (CEL), and crude protein (CP) levels in the diet but not in acid detergent lignin (ADL), phosphorus (PHOS), gross energy (GE), and digestible energy (DE). Diets were characterized as high in fiber, low in energy, and seasonally deficient in protein. Kidney fat (KFI) and femur marrow fat (FMF) indices indicated pig body condition declined in summer and fall and improved in winter and spring. Optimal performance of pigs on Catalina appeared to be linked to the quantity of the oak (*Quercus* spp.) crop in early fall and the timing and duration of fall-winter rains. A seasonal pattern in breeding was evident, with conception apparently related to both nutrition and photoperiod. Fertility declined in late spring and summer as photoperiod increased; onset of estrus and breeding in fall or winter were regulated by nutritional status of sows.
acid detergent lignin/fiber/cellulose/crude
protein//phosphorus/energy/fat/season/estrus/fertility/feral
populations/feral animals/diet/nutritional status/conception/feral
pig/*Sus scrofa*/oak/*Quercus* spp./Santa Catalina Island/terrestrial
biology/mammalogy.

1364. Brownell RL,J, Eber L, Longhurst AR, Perrin WF, Smith PE. A preliminary description of the California Current ecosystem including marine mammals. 1976;
TEXT/CROSS/ALLEN/FISH/ecosystem/interrelationships/MINERALS
MANAGEMENT SERVICE.

1365. Yeaton RI. An ecological analysis of chaparral and

pine forest bird communities on Santa Cruz Island and mainland California. Ecology Durham, Late Summer 1974 1974;55(5):p.959-973 Article.
California/AGRICOLA.

1366. Wolf P, Smith PE, Scannell CL. The relative magnitude of the 1986 Pacific sardine spawning biomass off California. REP. CCOFI 1987;28:21-29. The spawning biomass of the Pacific sardine off southern California during 1986 remains at or above 20,000 short tons. This determination was made using an egg production area method, which estimates the area over which eggs of a specified spawning biomass (20,000 short tons) would be expected to occur. The area method was developed from the egg production method, which estimates adult biomass from measurements of egg production in the spawning area and from the egg production rate of the adult population. The August 1986 survey extended from Point Conception to San Diego and ranged from the 10-fathom isobath to offshore approximately 25 miles. A total of 226 sardine eggs was collected at 59 of 330 stations. Spawning extended from Santa Barbara to Dana Pt. and out to the Santa Barbara Channel Is. and Santa Catalina I., and covered an estimated 955 n.mi super(2). This spawning area is 43% larger than the spawning area observed in 1985.
spawning populations/sardinops Caerulea/Clupeidae/biomass/INE/USA/California/ASFA.

1367. Junger A. Some thoughts on the structure of the continental borderland, southern California. Geol. Soc. Am., Abstr. Programs. 1975;7(3):p.331 U. S. Geol. Surv., Santa Barbara, Calif., United-States The Geological Society of America, Cordilleran Section, 71st annual meeting, Los Angeles, Calif., March 25-27, 1975 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).
California/structural geology/tectonics/south/continental borderland/Tertiary/United States/basins/upper Tertiary/Miocene/Pliocene/structure/faults/movement/epeirogeny/sh ortening/GEOREF.

1368. Beasley ME, Batteen ML, Mooers CN (Performer: Naval Postgraduate School, Monterey, CA). Changes in the California Current System Observed off Northern California during July-August 1986. Master's thesis. ; 1987. Report No.: NPS6888002. 73p. PC A04/MF A01.
Changes in the flow pattern of the California Current System (CCS) in a relatively short time period (approx. one week) are investigated. The offshore flow pattern changed orientation from southwestward to southward on a cool filament seen previously was no longer discernible. The nearshore flow pattern changed from a predominantly southward to a northward flow. The changes occurred between two OPTOMA cruises conducted in the summer of 1986. Two possible causes are investigated for these changes: 1) a change in a poleward undercurrent of the CCS, and 2) a change in the coastal winds. Analysis of cross sections of the poleward undercurrent indicate that it remained subsurface throughout the cruises. Analysis of wind data indicate that southward winds were the dominant wind pattern throughout the first cruise. Wind data from a moored buoy off Point Arena indicate northward winds (i.e., wind reversals) following the first cruise, which could be associated with the changes in the flow patterns of the CCS.
California/Coastal regions/Cooling/Cross sections/Directional/Filaments/Flow/Inshore areas/Meteorological data/North Direction/Offshore/Patterns/Reversible/Short range Time/Theses/Upwelling/Water flow/Wind/Summer/Ocean currents/Air

water interactions/Wind direction/California current/Undercurrents
Oceanography/NTIS.

1369. Priede IG, Smith KL,, Amrstrong JD. Foraging behavior
of abyssal grenadier fish: Inferences from acoustic tagging and
tracking in the North Pacific Ocean. DEEP-SEA RES. (A OCEANOGR.
RES. PAP. 1990;VOL. 37, NO. 1A:pp. 81-101 Univ. Aberdeen, Dep.
Zool., Tillydrone Ave., Aberdeen AB9 2TN, UK. Abyssal grenadier
fish *Coryphaenoides yaquinae* were *Coryphaenoides armatus* and
observed arriving at baits deployed within view of a free-fall
video vehicle (FVV) camera on the sea floor at two stations in the
North Pacific, Sta. F32 degree 50'N, 124 degree W, 4400 m deep in
the vicinity of the California current and Sta. CNP 31 degree N,
159 degree W, a 5900 m deep oligotrophic station. The number of
fish within view of the camera increased to a mean maximum of 4.7
at 60 min at Sta. F and 11.8 by 400 min at Sta. CNP, a paradox in
view of presumed lower fish population density at Sta. CNP. Fish
that ingested transmitters moved away at radial velocities between
1 and 15 cm s super(-1), reaching a mean radius of 233 m by 370 min
at Sta. F and 622 min at Sta. CNP. Fish appear to be active
foragers with no evidence for a "sit and wait" foraging strategy.
Grenadiers generally remained near the sea floor as they dispersed.
Only one vertical movement to an altitude of ca 25 m was recorded
and this comprised less than 0.2% of tracking time.
feeding behavior/abysobenthic zone/sonic tags/tracking/acoustic
data/*Coryphaenoides armatus*/I, North Pacific/OCEANIC ABSTRACTS.

1370. ANONYMOUS. RESEARCH ON THE MARINE FOOD CHAIN. PROGRESS
REPORT, JULY 1974--JUNE 1975. PT. I. INTRODUCTION AND ACCOUNT OF
WORK IN PROGRESS. PT. II. MANUSCRIPT REPORTS OF WORK CONCLUDED. PT.
III. CRUISE SUMMARIES. U.S. ENERGY RESEARCH AND DEVELOPMENT
ADMINISTRATION. ERDA ENERGY RESEARCH ABSTRACTS, 1(2): 232, FEB.
1976 1976
ANONYMOUS.

LIGHT/RESEARCH VESSELS/PRIMARY PRODUCTIVITY/ENVIRONMENTAL IMPACT/
MICROBIOLOGY/SEDIMENTS/NUCLEAR POWER PLANTS/THERMAL POLLUTION/
COOLING WATERS/PHYTOPLANKTON/PACIFIC OCEAN NORTH/POPULATION
DYNAMICS/PLANKTON/FOOD CHAINS/ABSTRACT ONLY/SOUTHERN CALIFORNIA
BIGHT/1971-74/PHOTOBIOLOGY/SAN ONOFRE/OceanAbstracts.

1371. Moore JP. The polychaetous annelids dredged by the
U.S.S. Albatross off the coast of Southern California in 1904.
III. Euphrosinidae to Goniadidae. Proceedings Academy of National
Science, Philadelphia 1911;63:234-318 Sandy Subtidal
Invertebrates, Annelids, Santa Rosa Island, Santa Barbara Island.

1372. ALVARINO A. THE RELATION BETWEEN THE DISTRIBUTION OF
ZOOPLANKTON PREDATORS AND ANCHOVY LARVAE. REPORT CALIF. COOP.
OCEANIC FISH. INVEST. 1980;21:150-160
* PISCES ** SUPERCLASS GNATHOSTOMATA *** CLASS TELEOSTOMI ****
DIVISION TELEOSTEI ***** SUPERORDER CLUPEOMORPHA *****
CLUPEIFORMES ***** SUBORDER CLUPEOIDEI ***** ENGRAULIDAE
***** ENGRAULIS MORDAX.
FEEDING/CARNIVOROUS FEEDING/PREDATION/PREDATORS/ZOOPLANKTON,
COMPOSITION SIZE & DISTRIBUTION, CALIFORNIA
CURRENT/ECOLOGY/POPULATION STUDY/POPULATION DYNAMICS/LARVAL
ABUNDANCE IN RELATION TO ZOOPLANKTON PREDATORS/CALIFORNIA
CURRENT/PACIFIC OCEAN/NORTHERN PACIFIC/ZOOPLANKTON PREDATORS
DISTRIBUTION IN RELATION TO LARVAL ABUNDANCE/Zoological Index.

1373. Baber DW. Ecology of feral pigs on Santa Catalina
Island [dissertation]. : Oregon State University; 1085. 101.
A feral pig population on Santa Catalina Island, California,

was studied for 17 months beginning in July 1980. Density was estimated to be 21 to 34 pigs/km² (95% confidence interval) using capture-recapture techniques. Dry season home ranges determined from radio-telemetry data were small and differed significantly between boars and sows. Patterns of habitat use according to vegetative community, topographic position, slope, aspect, elevation, vertical distance to water, and horizontal distance to water were examined. During the dry season, pigs preferred cool moist canyon bottoms, the result of both a physiological need for free water and behavioral responses to high environmental temperatures. Patterns of utilization during the wet season appeared to be primarily a function of food availability. Diets were primarily herbaceous, although small amounts of insects and vertebrate matter were eaten, and varied seasonally. Fruits and forbs were the most preferred foods in the dry season, while fruits, grasses and forbs were most preferred during the wet season. Seasonal differences in diets reflected changes in availability and phenology of plants. Seasonal trends were apparent in acid detergent fiber, cellulose, and crude protein levels in the diet, but not in acid detergent fiber, phosphorus, gross energy, digestible energy, protein digestibility and cellulose digestibility. Diets were characterized as high in fiber, low in energy and seasonally deficient in protein. Kidney fat and femur marrow fat indices indicated pigs declined in body condition in summer and fall, and improved in winter and spring. Optimal performance of pigs on Catalina appeared to be linked to the quantity of the acorn crop in early fall and the timing and duration of fall-winter rains. A seasonal pattern in breeding was evident, with conception apparently linked to both nutrition and photoperiod. Fertility declined in late spring and summer as photoperiod increased; onset of estrus and breeding in fall or winter were regulated by nutritional status of sows. Litter size as measured by fetal counts was 5.00 (+OR-) 0.36 S.E., and sows averaged 0.86 (+OR-) 0.17 S.E. litters over a 12 month period. Most sows were older than 1 year when they first conceived, and litter size increased from puberty and peaked at 2-3 years of age. Intrauterine mortality of fetuses averaged 25% and piglet mortality was estimated to be 58% prior to weaning. Mortality rates appeared to be higher for piglets born in summer than in winter or spring.

exotics/feral pigs/diet/breeding/fertility/feral pigs/Santa Catalina Island/terrestrial biology.

1374. Miller DR. Mealybugs of San Clemente Island, California (Homoptera : coccoidea: Pseudococcidae). Panpac Entomol, Apr 1974 1974;50(2):p. 193-202 Article.
California/AGRICOLA.

1375. Roesler CS, Chelton DB. Zooplankton variability in the California Current, 1951-1982. REP. CCOFI 1987;28:59-96. Seasonal and nonseasonal variations in zooplankton biomass in the California Current system are examined from CalCOFI measurements over the period 1951-82. Seasonal signals indicate that total biomass and degree of seasonality are greater in the northern regions, and springtime blooming is initiated in the northern nearshore regions up to two months earlier than in the southern and far offshore regions. Nonseasonal zooplankton biomass variability is examined using empirical orthogonal function (EOF) analysis. The timing of zooplankton biomass variations relative to variations in southward advection suggests that nonseasonal zooplankton biomass variations are controlled by two processes: (1) the response to local zooplankton populations to advection of zooplankton biomass--

the dominant process in the north--and (2) the response of local zooplankton populations to nutrient advection or the development of more favorable environmental conditions caused by changes in advection. Examination of the biogeographic boundaries of 15 of the dominant zooplankton species in the survey area during periods of strong current variations also indicate that these mechanisms control the low-frequency zooplankton variability.
zooplankton/seasonal variations/biomass/environmental conditions/geographical distribution/INE/California Current/ISE/California Current/IE/California Current/ASFA.

1376. Howell DG. The East Santa Cruz Basin Fault, southern California continental borderland. Geol. Soc. Am., Abstr. Programs. 1975;7(3):p.327 U. S. Geol. Surv., Menlo Park, Calif., United-States The Geological Society of America, Cordilleran Section, 71st annual meeting, Los Angeles, Calif., March 25-27, 1975 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).
California/structural geology/faults/south/Santa Cruz Basin/Santa Cruz Island/East Santa Cruz Basin Fault/displacements/strike slip faults/extent/Cenozoic/United States/paleogeography/lithofacies/Eocene/Miocene/middle Miocene/Tertiary/upper Tertiary/basins/sedimentation/environment/paleocurrents/GEOREF.

1377. Sholes O, Beatty S. Influence of host phenology and vegetation on the abundance of *Tamalia coweni* galls (Homoptera: Aphididae) on *Arctostaphylos insularis* (Ericaceae). AM. MIDL. NAT 1987;118(1):198-204.
Tamalia coweni formed galls on immature leaves of *Arctostaphylos insularis* during the wet season on Santa Cruz Island, California. Because immature leaves were absent from twigs with fruit, the more nonfruiting twigs on a shrub, the more aphid galls on its leaves. Plant species richness, host plant size, host plant abundance, and proximity of neighboring host shrubs were not significantly related to gall abundance. Thus, a resource concentration effect was evident for the exploited host organ (immature leaves), but not for whole host plants. galls/host plants/phenology/*Tamalia coweni*/*Arctostaphylos insularis*/Aphididae/abundance/CSA Life Sciences Collection.

1378. Stabeno PJ, Smith RL (Performer: Oregon State Univ., Corvallis. School of Oceanography). Deep Sea Currents Off Northern California. ; 1987. 18p. Pub. in Jnl. of Geophysical Research, v92 nC1 p755-771, 15 Jan 87. PC A03/MF A01 Contract: N0001484C0218.
Current meters records from 14 moorings in the deep-sea basin (3000-4500 m deep) south of the Mendocino Fracture Zone are analyzed. All moorings had current meters between 200 m and 500 m above the bottom, and some extended to within 150 m of the surface. There were high vertical correlations between measurements on the same mooring within 1500 m of the bottom and within 800 m of the surface but almost no significant correlation in the horizontal. In the basin the presence of eddies appears strongest at depths below 1200 m. Several of the records exceed 3 years in length, and one extended for 5 years. Spectral analysis of these shows that most of the kinetic energy below 3000 m is in the temporal mesoscale (periods of 31 to 120 days), while the spectral estimates in the upper 1000 m are dominated by longer time scales. Only in the deep records is there a significant southward mean flow. Neither a mean California Current nor a poleward undercurrent is apparent in the shallower data (above 1250 m). The currents in the upper 500 m nearest the continental margin are influenced by the presence of cold filaments originating near Point Arena.

California/Deep oceans/Estimates/Filaments/Water flow/Fracture
Mechanics/Low temperature/Mean/Measuring instruments/Mooring/North
Direction/Records/Reprints/Scale/Spectra/Spectrum
analysis/Time/Flowmeters/Correlation/Oceanographic data/Vertical
orientation/Horizontal orientation/Directional/Kinetic energy/Ocean
currents/Eddies Fluid mechanics/Ocean basins/NTIS.

1379. Silber GK, Newcomer MW, Perez-Cortes M H. Killer
whales (*Orcinus orca*) attack and kill a Bryde's whale
(*Balaenoptera edeni*). CAN. J. ZOOL./J. CAN. ZOOL 1990;VOL. 68, NO.
7:pp. 1603-1606

Inst. Mar. Sci., Univ. California, Santa Cruz, CA 95064, USA. On 3
May 1988, we observed a group of killer whales that pursued,
killed, and partially consumed a Bryde's whale in the northern Gulf
of California, Mexico (31 degree 01'N, 114 degree 15'W). The attack
was observed from 06:54 to 08:53 while circling in a single-engine
aircraft at an altitude of 160 m. The group comprised about 15
killer whales, including two adult males and at least two calves.
Females and (or) subadult males pressed the attack most intently.
The killer whales tore skin and blubber from the right flank of the
Bryde's whale, and on 11 occasions the killer whales swam onto the
head or back of the Bryde's whale, which hindered its breathing.
The respiration intervals of the Bryde's whale were short and
irregular, and blow rates differed significantly from those of
undisturbed Bryde's whales. Fatiguing the whale may have
facilitated an easier kill by asphyxiation. After the death of the
Bryde's whale, the two adult male killer whales surfaced slowly
about 200-300 m away from the remainder of the group, which
presumably fed on the submerged Bryde's whale carcass.
Orcinus orca/*Balaenoptera edeni*/aggressive behavior/predation/feeding
behavior/mortality/ISE, California Gulf/Oceanic Abstracts.

1380. HAURY LR. A COMPARISON OF ZOOPLANKTON PATTERNS IN THE
CALIFORNIA CURRENT AND NORTH PACIFIC CENTRAL GYRE. MARINE BIOLOGY,
37(2): 159-167, AUG. 31, 1976 1976
WHOI, MAIN ST., WOODS HOLE, MA 02543.
PACIFIC OCEAN NORTH/HORIZONTAL DISTRIBUTION/SPATIAL DISTRIBUTION/
CALIFORNIA CURRENT/ZOOPLANKTON/NORTH PACIFIC CENTRAL GYRE/COMMUNITY
STRUCTURE/SMALL SCALE/OceanAbstracts.

1381. Moore JP. The polychaetous annelids dredged by the
U.S.S. Albatross off the coast of Southern California in 1904. I
Polynoidae, Aphroditidae, and Segaleonidae. Proceedings Academy of
National Science, Philadelphia 1910;62:328-402
Sandy Subtidal Invertebrates, Annelids, Santa Barbara Island, Santa
Rosa Island, Santa Cruz Island.

1382. GORDON M, KNAUER GA, MARTIN JH. MYTILUS CALIFORNIANUS
AS A BIOINDICATOR OF TRACE METAL POLLUTION: VARIABILITY AND
STATISTICAL CONSIDERATIONS. MARINE POLLUT. BULL. 11(7) 1980:
195-198, ILLUSTR.
* MOLLUSCA ** BIVALVIA *** PTERIOMORPHIA **** ORDER MYTILOIDA *****
MYTILACEA ***** MYTILUS CALIFORNIANUS.
ANIMALS & MAN/POLLUTION/CHEMICAL POLLUTION/TRACE METALS,
BIOINDICATOR, CALIFORNIA (MARINE)/BIOCHEMISTRY/CHEMICAL
COMPOSITION/ POLLUTANT CONTENT/ENVIRONMENTAL FACTORS/CHEMICAL
ENVIRONMENT/INORGANIC CHEMICALS/PACIFIC OCEAN/NORTHERN
PACIFIC/SOUTHERN CALIFORNIA BIGHT/TRACE METAL POLLUTANT
BIOINDICATOR/Zoological Index.

1383. Bachman WR. Paleogene conglomerates from Point Arena,
California, through Valle de las Palmas, Baja California
[dissertation]. San Diego, CA: San Diego State University; 1984.

253.

sedimentation/paleogeography/stratigraphy/Paleogene/provenance indicators/rhyodacite porphyry/volcanic belts/reconstruction conglomerate/Baja California/Southern California/Point Arena/Valle de las Palmas/San Nicolas Island/Sierra Madre Basin/Piru Basin/Point Reyes/Point Lobos/Garcia Mountain/stratigraphy/historical geology.

1384. Cox JL. DDT in marine plankton and fish in the California current. Calif Coop Oceanic Fish Invest Rep, June 1972 (Pub. 1973) 1973;16:p.107-111 Article. California/California Current/AGRICOLA.

1385. Spies RB, Bauer JE, Hardin D. Stable isotope study of sedimentary carbon utilization by *Capitella* spp.: Effects of two carbon sources and geochemical conditions during their diagenesis. MAR. BIOL 1989;101(1):69-74. Two experiments were conducted to determine the effect of the type of sediment organic matter and geochemical conditions during diagenesis on the stable carbon isotope ratio $\delta^{13}\text{C}$ of the deposit-feeding polychaete worms *Capitella* spp. Laboratory experiments showed $\delta^{13}\text{C}$ values of -13.5 to -13.9 ppt for worms grown on fresh and aged kelp, *Macrocystis pyrifera*. Field experiments on worms in the Santa Barbara Channel, California (USA), in 1986 revealed more negative $\delta^{13}\text{C}$ values (to -19 ppt) when oil and kelp were added to sediments. animal nutrition/diets/Polychaeta/*Capitella*/sediment composition/organic carbon/geochemistry/diagenesis/kelps/carbon cycle/INE/Santa Barbara Channel/oil seepages/ASFA.

1386. Hawkins JW, Divis AF. Petrology and geochemistry of mid Miocene volcanism on San Clemente and Santa Catalina islands and adjacent areas of the southern California borderland. Geol. Soc. Am., Abstr. Programs. 1975;7(3):p.323-324 Scripps Inst. Oceanogr., Geol. Res. Div., La Jolla, Calif., United States; Univ. Calif., Dep. Geol. Sci. The Geological Society of America, Cordilleran Section, 71st annual meeting, Los Angeles, Calif., March 25-27, 1975 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). California/petrology/igneous rocks/volcanic/Miocene/south/San Clemente/Santa Catalina/United States/volcanic rocks/middle Miocene/andesite/dacite/rhyolite/tholeiite/geochemistry/genesis/crystallization /textures/phenocrysts/GEOREF.

1387. Smith R, Bidigare R, Prezelin B, Baker K, Brooks J. Optical characterization of primary productivity across a coastal front. MAR. BIOL 1987;96(4):575-591. This study details the primary productivity and optical properties of a frontal region in July 1985 along 35 degree 50'N in the Southern California Bight which is shown to be consistent with the concurrent high-performance liquid-chromatography pigment-analysis. The authors describe here a "quasi-synoptic" shipboard bio-optical sampling strategy across a frontal region as an example of time-corrected data for assessing phytoplankton production in highly variable ocean regions. coastal waters/phytoplankton/primary production/measuring techniques/optical properties/vertical distribution/Southern California Bight/USA/ California/CSA Life Sciences Collection.

1388. Johnson JE, Wittmann PA, Mooers CN (Performer: Naval Postgraduate School, Monterey, CA). Hydrographic Data from the OPTOMA (Ocean Prediction Through Observation, Modeling and

Analysis) Program: OPTOMA23, 9-19 November 1986. Progress rept. Nov 86-Sep 87. ; 1988. Report No.: NPS6888001. 95p. The OPTOMA (Ocean Prediction Through Observation, Modeling and Analysis) Program, seeks to understand the mesoscale (fronts, eddies, and jets) variability and dynamics of the California Current System (CCS) and to determine the scientific limits to practical mesoscale ocean forecasting. OPTOMA 23 is the last of the OPTOMA surveys and it is unique in that this was the first effort to integrate concurrent satellite, drifting buoy, ship, and aircraft data in a comprehensive oceanographic, meteorological, and acoustical study of the CCS. Specific goals of the airborne surveys were to: provide synoptic data for objective analysis of various parameters (e.g., SST from AXBT and PRT-5, mixed layer depth, thermal structure); provide initialization, boundary condition updating, and verification fields for dynamical model forecasts; and coordinate the observational strategy of the R/V POINT SUR by using near real time analyses to vector the ship into areas of interesting mesoscale activity.

Predictions/Acoustic data/Aerial reconnaissance/Boundaries/Buoys/California/Depth/Drift/Fluid dynamics/Forecasting/Mixed layer Marine/Oceans/Predictions/Real time/Thermal properties/Meteorological data/Data acquisition/Spaceborne/Airborne/Shipboard/Fronts Oceanography/Eddies Fluid mechanics/Jet flow/Salinity/Sea water/Ocean models/Ocean currents/Oceanographic data/Ocean temperature/OPTOMA project/California current/Mesoscale ocean forecasting/NTIS.

1389. HAURY LR. SMALL-SCALE PATTERN OF A CALIFORNIA CURRENT ZOOPLANKTON ASSEMBLAGE. MARINE BIOLOGY, 37(2): 137-157, AUG. 31, 1976 1976 WHOI, MAIN ST., WOODS HOLE, MA 02543. SAMPLING METHODS/ZOOPLANKTON/CALIFORNIA CURRENT/GUADELUPE ISLAND/BAJA CALIFORNIA COAST/VERTICAL DISTRIBUTION/HORIZONTAL DISTRIBUTION/OceanAbstracts.

1390. National Marine Fisheries Service (National Marine Fisheries Service). Fisheries Document no. 604. Washington D.C.: Government Printing Office; 1906. Lists Albatross stations. INvertebrates, Sandy subtidal Santa Barbara Santa Catalina, Santa Rosa Islands, Santa Cruz Island.

1391. HEINBOKEL JF. EVALUATION OF TINTINNID GRAZING IN THE SOUTHERN CALIFORNIAN BIGHT. PROCEEDINGS INT. CONGR. PROTOZOOLOG. 5 1977: 362. ABSTR. * PROTOZOA ** PHYLUM CILIOPHORA *** POLYHYMENOPHOREA **** SUBCLASS SPIROTRICHIA ***** OLIGOTRICHIDA ***** TINTINNIDA. FEEDING/HERBIVOROUS FEEDING/GRAZING/QUANTITATIVE ESTIMATION, SOUTHERN CALIFORNIA BIGHT/DIGESTION & NUTRITION/NUTRITION/DIET/QUANTITY OF FOOD CONSUMED/GRAZING EVALUATION, SOUTHERN CALIFORNIA BIGHT/ECOLOGY/ECOLOGICAL ENERGETICS/ENERGY FLOW/GRAZING EVALUATION, SOUTH CALIFORNIA BIGHT/PACIFIC OCEAN/NORTHERN PACIFIC/SOUTHERN CALIFORNIA BIGHT/GRAZING EVALUATION/Zoological Index.

1392. Miller DR. Mealybugs of San Miguel Island, California (Homoptera: Coccoidea: Pseudococcidae). Panpac Entomol, July 1973 1973;49(3):p.264-269 Article. California/Coccoidea/San Miguel Island/AGRICOLA.

1393. Tegner MJ, Breen PA, Lennert CE. Population biology of red abalones, *Haliotis rufescens*, in southern California and management of the red and pink, *H. corrugata*, abalone fisheries.

FISH. BULL 1989;87(2):313-339. Population dynamics of red abalones, *Haliotis rufescens* Swainson, were studied at Johnsons Lee, Santa Rosa Island, California from 1978 through 1982 and in 1984. Tagging studies were used to calculate the von Bertalanffy growth parameters. Size-frequency distributions were used to assess settlement rate and fishable stock, and to estimate the natural mortality rate. These results were employed in yield-per-recruit and egg-per-recruit analyses; similar calculations were made for pink abalones, *H. corrugata* Gray, using values from the literature. Analyses suggest that present sport and commercial minimum legal sizes allow for adequate egg production to maintain stock sizes; simple recruitment overfishing is not a satisfactory explanation for the sharp and continuing decline in landings of both species.

mollusk fisheries/fishery management/fishery biology/*Haliotis rufescens*/*Haliotis corrugata*/fisheries/*Haliotis*/USA/California/Santa Rosa Island/management/INE/USA/California/Santa Rosa Island/population dynamics/ASFA.

1394. Cole MR. Poway clasts, sandstone petrology, and palinspastic reconstruction of the southern California borderland. Geol. Soc. Am., Abstr. Programs. 1975;7(3):p.305
Texaco Inc., Los Angeles, Calif., United-States The Geological Society of America, Cordilleran Section, 71st annual meeting, Los Angeles, Calif., March 25-27, 1975 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).

Poway Formation/California/sedimentary petrology/sedimentary rocks/sandstone/Tertiary/south/Santa Ana Mountains/Santa Monica Mountains/Simi Hills/Peninsular Ranges/clastic rocks/terrigenous/composition/petrography/clasts/environmental analysis/paleogeography/United States/Eocene/Oligocene/reconstruction/palinspastic maps/lower Tertiary/GEOREF.

1395. Prezelin B, Bidigare R, Matlick H, Putt M, Ver HB. Diurnal patterns of size-fractionated primary productivity across a coastal front. MAR. BIOL 1987;96(4):563-574.
In July 1985, diurnal patterns of photosynthesis and pigmentation were characterized for whole water (> 0.4 μ m) and size-fractionated (> 5 μ m and 0.4 to 5 μ m) communities from three light depths sampled across a coastal thermal front in the Southern California Bight. Variations in chlorophyll a and accessory pigment-to-chlorophyll a ratios showed no obvious diurnal trends. Timing of peak photosynthetic potential ($P_{sub(max)}$) and its coincidence with variations in light-limited rates of photosynthesis (α), as well as diurnal amplitudes in $P_{sub(max)}$ and α , often differed between size fractions sampled within the same community. Primary productivity was 20-fold greater on the cold water side, where > 5 μ m diatoms dominated the mixed layer and accounted for 80% of daytime productivity.

coastal waters/primary production/phytoplankton/photosynthesis/USA/California/pigments/Southern California Bight/diurnal variations/size/fractionation/content/CSA Life Sciences Collection.

1396. Fiedler PC (Performer: Naval Ocean Systems Center, San Diego, CA). Relationships between Remotely-Sensed Surface Properties and Subsurface Structure in the Ocean. Final rept. ; 1988. 50p.
The analyses of historical temperature-depth data from the California Current and recent surface and Expendable Bathythermograph (XBT) data from the Gulf of California have demonstrated that surface variables measurable by remote sensors do

provide information about subsurface structure. However, estimates of subsurface structure based on empirical relationships are valid only regionally (coastal areas of 100's of km) and are of limited reliability. A vertical model like the one developed here can be a powerful tool in studying the physical and biological mechanisms that produce empirical surface-subsurface relationships. Ultimately, such a model could serve as the basis for a scheme to maintain continuously-updated estimates of subsurface structure. The estimates would be nowcasted by the model using surface variables (e.g. surface temperature and color) and physical driving variables (e.g. winds, back radiation and cloudiness) monitored continuously by remote sensing. California/Cloud cover/Coastal regions/Gulfs/Models/Oceans/Physical properties/Reliability/Subsurface/Surface temperature/Surfaces/Theses/Variables/Vertical orientation/Wind/Artificial satellites/Marine biology/Infrared radiation/Thermoclines/Ocean currents/Remote detectors/Ocean surface/Bathythermograph data/Physical oceanography/NTIS.

1397. O'Malley Wade S. California and its adjacent federal waters. Oceans '89/OCEANS '89: THE GLOBAL OCEAN. VOLUME 1: FISHERIES, GLOBAL OCEAN STUDIES, MARINE POLICY AND EDUCATION, OCEANOGRAPHIC STUDIES 1989:pp. 103-111 Environ. Aff. Agency, State California, CA, USA.

California's stake in its adjacent federal waters potentially affects every facet of State business including legal, trade, economic, social, technological, environmental, and scientific interests. While it is too early for California to be making claims to the extended territorial sea or to be writing comprehensive ocean management plans for its adjacent federal waters, clearly the State does need to provide a means to incorporate its interests in those waters. California should, therefore, commend a task force to provide a clear accounting of California's interests in its adjacent territorial sea and EEZ, to evaluate its legal, fiscal, and institutional capabilities to manage those interests, and to recommend options for a State framework for effective management of its interests offshore.

Exclusive Economic Zone/ocean policy/resource development/environment management/coastal states/INE, USA, California/legal aspects/coastal zone management/territorial waters/Oceanic Abstracts.

1398. HEWITT RP. DEVELOPMENT AND USE OF SONAR MAPPING FOR PELAGIC STOCK ASSESSMENT IN THE CALIFORNIA CURRENT AREA. NATIONAL MARINE FISHERIES SERVICE. FISHERY BULLETIN, 74(2): 281-300, APR. 1976 1976 NMFS, SOUTHWEST FISHERIES CENTER, LA JOLLA LAB., P.O. BOX 271, LA JOLLA, CA 92038. STOCK ASSESSMENT/PELAGIC FAUNA/MAPPING/CALIFORNIA CURRENT/ACOUSTIC SURVEYS/DATA PROCESSING/DATA ACQUISITION/SAMPLING METHODS/FISH SCHOOLS/SONAR/MEASURING METHODS/ACOUSTIC PROPERTIES/SONAR MAPPING/LOS ANGELES BIGHT/OceanAbstracts.

1399. Osburn RO. Bryozoa of the Pacific Coast of America, Part I. Cheilostomata - Anasca. . Allan Hancock Pacific Expedition 1950;14(1):1-270 Invertebrates, Sandy subtidal, Anacapa Island, Santa Rosa Island, Santa Cruz Island, Santa Barbara Island.

1400. Bardgette JJ. A deep-water platform in the Santa Barbara Channel. J. Pet. Technol. 1978;30(4):498-506 Address: Exxon Co. This paper describes the construction, transportation, connection, launch, and erection of a deep-water platform in 850 ft of water in the Hondo field of the Santa Barbara Channel. All phases of

construction and the problems that were overcome are discussed.
deep water platforms/construction/petroleum/offshore drilling/Santa
Barbara Channel/Hondo Field/petroleum/engineering.

1401. Page HM, Hubbard DM. Temporal and spatial patterns of
growth in mussels *Mytilus edulis* on an offshore platform:
Relationships to water temperature and food availability. J. EXP.
MAR. BIOL. ECOL 1987;111(2):159-179. Temporal and spatial (depth)
patterns of shell growth were studied in the mussel *Mytilus edulis*
in relation to water temperature and potential food availability,
at an offshore oil platform, Holly (ARCO), in the Santa Barbara
Channel, California. Length-specific growth rates were highest from
late May to July and at a depth of 9 m. The time to achieve a
length of 50 mm from recruitment was estimated at 6-8 months.
Growth rates were not correlated with water temperature, using
multiple regression and correlation analysis. Temporal variation in
the growth of 20- and 35-mm mussels correlated with chlorophyll a
concentration at time legs of 2 and 4 wk, respectively.
food availability/temporal variations/spatial distribution/USA/
California/Santa Barbara Channel/growth/temperature effects/*Mytilus*
edulis/geographical distribution/INE/USA/California/Santa Barbara
Channel/water temperature/ASFA.

1402. Campbell RH, Wolf SC, Hunter RE, Lee WHK, Ellsworth
WL, Wagner HC, VeDder JG, Junger A. The Santa Barbara Channel
region, a review. Geol. Soc. Am., Abstr. Programs.
1975;7(3):p.301-302
U. S. Geol. Surv., Menlo Park, Santa Barbara, Calif., United-States
The Geological Society of America, Cordilleran Section, 71st annual
meeting, Los Angeles, Calif., March 25-27, 1975 Analytic; Serial;
Conference publication; Abstract B; Bibliography and Index of
Geology (1969-present). California/oceanography/marine
geology/Santa Barbara Channel/Channel Islands/Ventura Basin/Pacific
Ocean/United
States/basins/channels/interpretation/topography/structure/seismic
surveys/continental shelf/sediments/fracture zones/GEOREF.

1403. Roos M. Possible climate change and its impact on
water supply in California. Oceans '89: OCEANS '89: THE GLOBAL OCEAN.
VOLUME 1: FISHERIES, GLOBAL OCEAN STUDIES, MARINE POLICY AND
EDUCATION, OCEANOGRAPHIC STUDIES 1989:pp. 247-249 Hydrol. Branch,
California Dep. Water Resour., 1416 Ninth St., P.O. Box 942836,
Sacramento, CA 94236-0001, USA.
Forecasts of historically large climate changes are being made by
global climate modelers with warming of 3 to 8 degrees Fahrenheit
(1.5 to 4.5 degree Celsius) by the middle of the next century.
These changes, if they occur, would have profound impact on
California's water resources. A substantial shift in runoff
patterns would be expected, with loss of a large fraction of spring
snowmelt. This shift will make it difficult or impossible to fill
major multipurpose reservoirs once the flood control season is
past, with losses in current water project water yields and
hydroelectric power. The predicted rise in sea level would cause
problems in the Sacramento-San Joaquin Delta, the hub of major
water transfer in the state. There would be increased risk of levee
failures in the Delta and a potential increase in salinity
intrusion from the ocean which could affect water supplies of the
central and southern portions of the state. climatic
changes/hydrology/water supply/interactions/water resources/USA,
California/greenhouse effect/runoff/reservoirs
(water)/hydroelectric power/sea level/flooding/saline
intrusion/Oceanic Abstracts.

1404. ALEXANDER GV. TRACE METALS IN SOUTHERN CALIFORNIAN MUSSELS. MARINE POLLUTION BULLETIN, 7(1): 7-9, JAN. 1976 1976 UNIV. OF CALIFORNIA AT LOS ANGELES, LAB. OF NUCLEAR MEDICINE AND RADIATION BIOLOGY, WESTWOOD, CA 90020.
TRACE ELEMENTS/METAL UPTAKE/DIGESTIVE ORGANS/CALIFORNIA COAST/MUSSELS/WATER POLLUTION/MYTILUS/TRACE METALS/M/CALIFORNIANUS/AG/ZN/SOUTHERN CALIFORNIA BIGHT/CR/CU/NI/PB/OceanAbstracts.

1405. Osburn RO. Bryozoa of the Pacific coast of North America Part 2. Cheilostomata-Ascophora . Allan Hancock Pacific Expeditions 1952;14(2):271-611

1406. HUI CA. UNDERSEA TOPOGRAPHY AND DISTRIBUTION OF DOLPHINS OF THE GENUS DELPHINUS IN THE SOUTHERN CALIFORNIA BIGHT. JOURNAL MAMMAL. 60(3) 1979: 521-527, ILLUSTR.
* MAMMALIA ** CETACEA *** ODONTOCETI **** DELPHINIDAE *****
DELPHINUS. FEEDING/FOOD AVAILABILITY/DISTRIBUTION WITHIN HABITAT, RELATIONSHIPS, CALIFORNIA (MARINE)/ENVIRONMENTAL FACTORS/PHYSICAL ENVIRONMENT/UNDER WATER TOPOGRAPHY, DISTRIBUTION, RELATIONSHIPS, CALIFORNIA (MARINE)/ECO LOGY/POPULATION STUDY/POPULATION DYNAMICS/POPULATION SIZE/AGGREGATION SIZE, INFLUENCING FACTORS, CALIFORNIA (MARINE)/HABITAT/DISTRIBUTION WITHIN HABITAT/INFLUENCING FACTORS, CALIFORNIA (MARINE)/PACIFIC OCEAN/NORTHERN PACIFIC/SOUTHERN CALIFORNIA BIGHT/AGGREGATION SIZE, DEPTH & LOCAL DISTRIBUTION, INFLUENCING FACTORS/Zoological Index.

1407. Barlough JE, Berry ES, Smith AW, Skilling DE. Prevalence and distribution of serum neutralizing antibodies to Tillamook Bovine Calicivirus in selected populations of marine mammals. J. Wildl. Dis. 1987;23(1):45-51 Address: DEP. VETERINARY MICROBIOLOGY, NEW YORK STATE COLLEGE VETERINARY MED., CORNELL UNIV., ITHACA, NEW YORK 14853.
Neutralizing antibodies to Tillamook calicivirus (TCV) were found in sera collected from California sea lions (*Zalophus c. californianus* Lesson) in 1983 and 1984 and in sera collected from Steller sea lions (*Eumetopias jubatus* Schreber) in 1976 and 1985. The combined prevalence of antibodies for these two species was 10/228 = 4.38%. Titers ranged from 1:20 (five animals), to 1:40 (four animals), to 1:80 (one animal) by standard microtiter neutralization assay. The seropositive pinnipeds were dispersed widely along the margins of the eastern Pacific rim, from the Bering Sea to the Santa Barbara Channel. Antibodies to TCV were not found in sera collected from northern fur seals (*Callorhinus ursinus* L.), Pacific walruses (*Odobenus rosmarus divergens* Illiger), seals of the family Phocidae, or several cetacean species. Tillamook calicivirus was isolated originally in 1981 from dairy calves in Oregon; the finding of neutralizing antibodies in two widely distributed species of sea lions suggests the possibility of a marine origin for this agent. California sea lions/*Zalophus californianus*/Steller sea lions/*Eumetopias jubatus*/pinnipeds/northern fur seals/*Callorhinus ursinus* /Pacific walruses/*Odobenus rosmarus divergens* Illiger/seals/Phocidae/cetaceans/Bering Sea to the Santa Barbara Channel/marine biology/mammalogy/virology.

1408. Burkov VA, Pavlova YV. Description of the eddy field of the California Current. Oceanol. Acad. Sci. USSR 1980;20(3):272-278. eddies/dynamic topography/meanders/bottom topography/effects/upwelling/cyclones/anticyclones/zooplankton/Pi eper Hickey/physical oceanography/MINERALS MANAGEMENT SERVICE.

1409. Burkov VA, Pavlova YV. Karakteristika vikhrevogo polya

Kalifornijskogo techeniya. (Characteristics of the California current eddy field). Okeanologiya 1980;(3):415-424.
eddies/dynamics/meanders/bottom topography/upwelling/topographic effects/zooplankton/Pieper/MINERALS MANAGEMENT SERVICE.

1410. Miller DR. Mealybugs of Santa Cruz Island, California (Homoptera: Coccoidea: Pseudococcidae). Pan pacific Entomol, Oct 1971 1971;47(4):p.293-303 Article.
AGRICOLA.

1411. Yamazaki H, Lueck R. Turbulence in the California Undercurrent. J. PHYS. OCEANOGR 1987;17(9):1378-1396.
Vertical profiles of microstructure velocity over the San Diego Trough showed enhanced levels of kinetic energy dissipation in the intrusive region between the California Undercurrent and the surface California Current. If the observed rate of dissipation is typical, then the kinetic energy of the undercurrent is extracted with a minimum time scale of 11 days. The time scale for the dissipation of total mechanical energy (kinetic plus potential) and the transit time from southern California to Vancouver Island are comparable. The vertical eddy diffusivity is less than $1.9 \times 10^{-5} \text{ m}^2 \text{ s}^{-1}$ and is not a factor in the mixing of the undercurrent.
INE/USA/California Undercurrent/turbulence measurement/kinetic energy/energy dissipation/bottom topography effects/coastal currents/physical oceanography/INE/USA/California/San Diego Trough/dynamical oceanography/ASFA.

1412. Ashley RJ, Berry RW, Fischer PJ. Geology of the northern continental shelf of the Santa Barbara Channel from Gaviota to El Capitan. Geol. Soc. Am., Abstr. Programs. 1975;7(3):p.290
Intersea Res. Corp., San Diego, Calif., United-States; San Diego State Univ., Dep. Geol. Sci.; Calif. State Univ., Dep. Geol. The Geological Society of America, Cordilleran Section, 71st annual meeting, Los Angeles, Calif., March 25-27, 1975 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).
California/oceanography/geophysical surveys/structural geology/Santa Barbara Channel/Santa Ynez Range/Gaviota/El Capitan/Molino/South Elwood/continental shelf/United States/sediments/seismic surveys/profiles/folds/faults/Cenozoic/Miocene/Pliocene/Pleistocene/Holocene/structure/GEOREF.

1413. Goeden R. New records of Tephritidae (Diptera) from Santa Cruz Island, California. PAN-PAC. ENTOMOL 1986;62(4):326-328.
Published records for five species of Tephritidae from Santa Cruz Island are reviewed. Nineteen species and nine genera of Tephritidae are newly reported from this island. Six new host-plant-species rearing records are included in these distribution data.
Tephritidae/new records/geographical distribution/host plants/USA/California/Santa Cruz I./CSA Life Sciences Collection.

1414. Burlingame AL. Year II. Intertidal study of the Southern California Bight. Hydrocarbon analysis of intertidal flora/fauna and GC/GCMS analysis. Sections 2.4 and 2.5. Prep. for U.S. Dep. Interior, Minerals Management Service, Pacific OCS Region, Los Angeles, CA. Prep. by Science Applications, Inc., La Jolla, CA. 1978;III:237.
MINERALS MANAGEMENT SERVICE.

1415. Shor EN, Ebrahimi CL (Performer: Scripps Institution of Oceanography, La Jolla, CA. Marine Physical Lab.) Marine Geophysics, a Navy Symposium. Conference proceedings. ; 1987. Report No.: MPLU4287. 102p. PC A06/MF A01 Grant: N0001487G0052. This symposium, in honor of the 80th birthdays of Russell W. Raitt and Victor Vacquier and the 40th anniversary of the Marine Physical Laboratory of Scripps Institution of Oceanography, of the University of California San Diego was held on 16 October 1986 at SIO, La Jolla, California. Partial contents: Bibliographies of Russell W. Raitt and Victor Vacquier; Acoustic and seismic researches--ONR programs and efforts; Drifting acoustic sensors, Modeling multi-bounce phases in marine sediments, and Development of seismic-refraction techniques in the southern California borderland: Researchers in Magnetism, - The source of marine magnetic anomalies; and Principles of operation and applications of RF-driven SQUID magnetometers in paleomagnetism and rock magnetism; Researches in tectonics--Heat flow off Sumatra, Marine heat flow and sea-floor tectonics, and Paleomagnetism of oriented drill core from the Alaskan North Slope.

Acoustic detectors/Bibliographies/California/Cores/Drift/Drills/Heat transfer/Laboratories/Magnetic anomalies/Magnetic properties/Navy/Ocean bottom/Oceans/Operation/Rock/Sediments/Tectonics/Underwater acoustics/Seismic waves/Bottom bounce/Refraction/Magnetometers/Alaska/Sumatra/Marine geophysics/Symposia/Squid magnetometers/Paleomagnetism/Seismic refraction/Raitt R W/Vacquier V/NTIS.

1416. JAN TK. POLLUTANT INPUTS AND DISTRIBUTIONS OFF SOUTHERN CALIFORNIA. AMERICAN CHEMICAL SOCIETY: 169TH NATIONAL MEETING: SPECIAL SYMPOSIUM ON MARINE CHEMISTRY IN THE COASTAL ENVIRONMENT. (N.P.), (1975?). NO. 30 1975 SOUTHERN CALIFORNIA COASTAL WATER RESEARCH PROJECT, EL SEGUNDO, CA 90245. MYTILUS/HALOGENATED PESTICIDES/FLATFISH/CRABS/CALIFORNIA COAST/MICROSTOMUS/CANCER/WATER POLLUTION/METALS/TRACE ELEMENTS/soles/ PCB COMPOUNDS/MUSSELS/M/CALIFORNIANUS/C/ANTHONYI/M/PACIFICUS/M/EDULIS /SOUTHERN CALIFORNIA BIGHT/PALOS VERDES PENINSULA/DDT/ABSTRACT ONLY/OceanAbstracts.

1417. Osburn RO. Bryozoa of the Pacific Coast of America part 3. Cyclostomata, Ctenostomata, Entoprocta and Addenda. Allan Hancock Pacific Expeditions 1953;14(3):613-841

1418. METHOT RD, JR, KRAMER D. GROWTH OF NORTHERN ANCHOVY, ENGRAULIS MORDAX, LARVAE IN THE SEA. FISHERY BULL. U.S. NATN. OCEAN. ATMOS. ADMN 77(2) 1979: 413-423, ILLUSTR.
* PISCES ** SUPERCLASS GNATHOSTOMATA *** CLASS TELEOSTOMI ****
DIVISION TELEOSTEI ***** SUPERORDER CLUPEOMORPHA *****
CLUPEIFORMES ***** SUBORDER CLUPEOIDEI ***** ENGRAULIDAE
***** ENGRAULIS MORDAX.
LIFE CYCLE & DEVELOPMENT/LIFE CYCLE/LARVA/GROWTH RATE, CALIFORNIA (MARINE)/DEVELOPMENT/GROWTH/GROWTH RATE/LARVAE, CALIFORNIA (MARINE)/PACIFIC OCEAN/NORTHERN PACIFIC/SOUTHERN CALIFORNIA BIGHT/LARVAL GROWTH RATE/Zoological Index.

1419. Barsky SM. High technology in underwater research. Sea Technol. 1984;25(12):33-37
Address: Diving Systems Internatl., Santa Barbara, CA 93106, USA. Compact underwater color video, decompression computers, surface-supplied diving systems with communications, and microcomputers, are the tools currently being used by research scientists for Channel Islands National Park. Channel Islands National Park

(CINP), off the coast of southern California, encompasses five islands and the submerged lands out to 1.6 kilometers surrounding each of these islands. The islands include Santa Barbara, Anacapa, Santa Cruz, Santa Rosa, and San Miguel -- a total of 246,980 acres. Part of this mandate required the National Park Service to provide a series of biennial reports (through 1990) which would include: an inventory of all terrestrial and marine species, indicating their population dynamics, and probable trends as to future numbers and welfare, and recommendations as to what actions should be considered for adoption to better protect the natural resources of the park.

marine parks/marine resources/environmental surveys/marine technology underwater color video/decompression computers/Channel Islands National park/environmental surveys/underwater research/California Channel Islands/Channel Islands National Park/Santa Barbara Island/Anacapa Island/Santa Cruz Island/Santa Rosa Island/San Miguel Island/engineering/marine biology/marine technology.

1420. Philbrick RN. The plants of Santa Barbara Island, California. Madrono, Jan 1972 (Pub. May 25, 1972) 1972;21(5, pt. 2):p.65 Article.
AGRICOLA.

1421. Archer D, Emerson S, Smith CR. Direct measurement of the diffusive sublayer at the deep sea floor using oxygen microelectrodes. NATURE 1989;340(6235):623-626.
The first direct in situ measurements of the thickness of the diffusive sublayer for dissolved oxygen in the deep sea are presented. The positions of 17 oxygen microelectrode profiles relative to the visible sediment/water interface reveal that the sublayer is 0.5-1.5 mm thick, with measurements ranging to 3.5 mm. The diffusive flux of isotopically light carbon through the sublayer should cause the super(13)C content at the interface of typical deep-sea sediments to be similar to 0.1 ppt lighter than the bottom-water value, setting a limit on the precision of the record of past bottom-water given by the carbon isotope composition of the shells of benthic foraminifera.
carbon 13/INE/USA/Washington/INE/Santa Catalina Basin/chemical oceanography/ocean floor/sediment-water interface/benthic environment/dissolved oxygen/fossil foraminifera/carbon isotope ratio/layers/ASFA.

1422. Soutar A, Crill PA. Sedimentation and climatic patterns in the Santa Barbara Basin during the 19th and 20th centuries. Geol. Soc. Am., Bull. 1977;88(8):p.1161
Scripps Inst. Oceanogr., La Jolla, Calif., United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present).
California/stratigraphy/Holocene/modern/paleoclimatology/sedimentation/Santa Barbara Basin/United States/patterns/temperature/precipitation/rain/sedimentary structures/laminations/varves/thickness/tree rings/growth rings/data/19th century/20th century/planar bedding structures/environmental analysis/climate/Pacific Ocean/GEOREF.

1423. Roden GI, Fredericks WJ (Performer: Washington Univ., Seattle. School of Oceanography). North Pacific Ocean. Tradewind Region East of Hawaii, R/V Thomas G. Thompson: 25 September - 1 November 1972. STD Data Report. ; 1987. Report No.: CONTRIB1719. 619p.
PC A99/MF A01 Contracts: N0001467A0103, N0001484C0111.
During September and October 1972, scientists aboard the R/V Thomas G. Thompson studied the thermohaline and density structures in the

tradewind region east of the Hawaiian Islands. An additional hydrographic section was made from the working area to San Diego, Ca. A total of 300 stations were taken. The primary objectives of the field study in the tradewind region east of Hawaii were: 1) to investigate the mesoscale thermohaline and density structures in 2700 km high resolution sections across the tradewind region. 2) to determine the subtropical and doldrum fronts occurring at the boundaries of this region. 3) to study the mesoscale dynamic height and baroclinic flow perturbations in the tradewind region. 4) to assess the mesoscale and baroclinic flow structures across the California current between the subtropical gyre and the coast.

Autumn/California/Density/Depth/East Direction/Fronts
Oceanography/Hawaii/Hydrography/Ocean currents/Salinity/Sea
water/Structural properties/Temperature/Wind/High
resolution/Coastal regions/Stratification/Marine meteorology/Fronts
Meteorology/Thermal properties/North pacific ocean/Oceanographic
data/Trade winds/Baroclinic flow/California current/Doldrums/Gyres
Oceanography/NTIS.

1424. Hundermark BW. Field evaluation of the Rotronic humidity sensor and the Impulsphysik visibility sensor. MDS '89: Conf. and Exposition on Marine Data Systems PROCEEDINGS, MDS '89: CONFERENCE AND EXPOSITION ON MARINE DATA SYSTEMS 1989:pp. 81-85 Computer Science Corp., Stennis Space Center, MS 39529-6000, USA. The performances of a Rotronic humidity sensor and an Impulsphysik visibility sensor were evaluated in a marine environment. The main analysis focused on the Rotronic humidity sensor and Impulsphysik visibility sensor installed at the National Data Buoy Center's (NDBC) Coastal-Marine Automated Network (C-MAN) station at Pt. Arguello, California (PTGC1). A statistical evaluation was done for Aug. 1988 data that compared the dewpoint and visibility values at PTGC1 with surface observations from nearby Vandenberg Air Force Base (VBG). Results show that the Rotronic humidity sensor accurately depicted the marine environment. The mean dewpoint difference between the two sites was 1.5 degree C. The sensor performed quite well in fog, and importantly, sensor hysteresis was not evident. Rotronic humidity sensors installed at 11 NDBC stations (8 moored buoys and 3 C-MAN sites) were monitored for up to 9 months. The overall results were favorable, although there were isolated sensor failures. The Impulsphysik visibility sensor responded well in fog, and the data showed good correlation with the collocated relative humidity sensor. The visibility sensor operated in the field for 11 months without failure.

humidity/visibility/meteorological instruments/data buoys/sensors/
performance assessment/OCEANIC ABSTRACTS.

1425. LYNN RJ. ON THE YEAR-TO-YEAR DIFFERENCES IN THE CHARACTERISTICS OF THE CALIFORNIA CURRENT. PACIFIC SCIENCE ASSOCIATION: THIRTEENTH PACIFIC SCIENCE CONGRESS: RECORD OF PROCEEDINGS 1975;1. VANCOUVER, B.C., CAN.: UNIVERSITY OF BRITISH COLUMBIA, (1975?). P. 261
NOAA, LA JOLLA, CA 92037.
SALINITY ANOMALIES/CALIFORNIA CURRENT/ANNUAL VARIATIONS/TEMPERATURE ANOMALIES/ABSTRACT ONLY/GEOPOTENTIAL ANOMALY/OceanAbstracts.

1426. Scholl DW. Geology and surrounding recent marine sediments of Anacapa Island. [dissertation] Los Angeles, California: University of Southern California; 1959.
Reviewed in Emery (1960).
Invertebrates, Sandy Subtidal, Anacapa Island, Ecology.

1427. CASEY R, GUST L, LEAVESTEY A, WILLIAMS D, REYNOLDS R, DUIS T, SPAW JM. ECOLOGICAL NICHEs OF RADIOLARIANS, PLANKTONIC

FORAMINIFERANS AND PTEROPODS INFERRED FROM STUDIES ON LIVING FORMS IN THE GULF OF MEXICO AND ADJACENT WATERS. TRANSACTIONS GULF CST ASS. GEOL. SOCS 29 1979: 216-223, ILLUSTR. * MOLLUSCA ** GASTROPODA *** OPISTHOBRANCHIA **** ORDER THECOSOMATA. FEEDING/ECOLOGICAL NICHE, MICROPLANKTON, NORTH WEST ATLANTIC & EASTERN PACIFIC/DIGESTION & NUTRITION/NUTRITION/DIET/ECOLOGY/COMMUNITY/ECOLOGICAL NICHE/MICROPLANKTON, NORTH WEST ATLANTIC & EASTERN PACIFIC/LIFE HABIT/AQUATIC HABIT/PLANKTON/ECOLOGICAL NICHE, NORTH WEST ATLANTIC & EASTERN PACIFIC/ATLANTIC OCEAN/NORTH ATLANTIC/NORTH WEST ATLANTIC/GULF STREAM & SARGASSO SEA/ECOLOGICAL NICHES, MICROPLANKTON/ GULF OF MEXICO/PACIFIC OCEAN/EASTERN PACIFIC/CALIFORNIA CURRENT/Zoological Index.

1428. Bartling WA. Sedimentology of Upper Cretaceous strata, San Miguel Island, California, and its relation to the tectonics of the southern California borderland [dissertation]. San Diego, CA: San Diego State University; 1981. unknown.
Address: Univ. Calif., Dep. Geol. Sci., Santa Barbara, CA.
sedimentation/paleogeography/sedimentary petrology/environment Cretaceous/structural geology/submarine fans/Upper Cretaceous submarine environment/tectonics/continental shelf/sedimentary rocks/Mesozoic/sedimentary basins/tectonic controls/San Miguel Island/San Diego County/ geology/sedimentary petrology.

1429. Walstad KC, Hearsh FE, C. Oil pollution in the Santa Barbara Channel: a comprehensive bibliography with particular emphasis on the oil spill of January 28, 1969, compiled and edited by Kay Walstad and Fred E. Hearsh; systems advisor: Lies Jaccarino. Santa Barbara, Calif., University Library, University of California, Santa Barbara, [C1972]. ; 1972. vii. 195.
Monograph.
Oil pollution of rivers, harbors, etc/Bibliography/Water/Pollution/Santa Barbara Channel/Bibliography/AGRICOLA.

1430. Johnson JE, Wittmann PA, Mooers CN. Hydrographic data from the OPTOMA (Ocean Prediction Through Observation, Modeling and Analysis) Program: OPTOMA23, 9-19 November 1986. REP. U.S. NAV. POSTGRAD. SCH 1988;
The OPTOMA (Ocean Prediction Through Observation, Modeling and Analysis) Program, seeks to understand the mesoscale (fronts, eddies, and jets) variability and dynamics of the California Current System (CCS) and to determine the scientific limits to practical mesoscale ocean forecasting. Specific goals of the airborne surveys were to: provide synoptic data for objective analysis of various parameters (e.g., SST from AXBT and PRT-5, mixed layer depth, thermal structure); provide initialization, boundary condition updating, and verification fields for dynamical model forecasts; and coordinate the observational strategy of the R/V Point Sur by using near real time analyses to vector the ship into areas of interesting mesoscale activity.
INE/California Current/hydrographic surveys/ocean currents/mesoscale features/oceanic eddies/oceanic fronts/jets/airborne sensing/OPTOMA/ASFA.

1431. Cole MR, Truex JN. Santa Monica and Santa Ana mountains; relation to Oligocene Santa Barbara Basin. Am. Assoc. Pet. Geol., Bull. 1977;61(4):p.616-620 Texaco Inc., Los Ang., Calif., United-States; THUMS Long Beach Co. Analytic; Serial Discussion and reply; for reference to paper by Truex, J. N., see Am. Assoc. Pet. Geol., Bull., Vol. 60, p. 65, 1976. B; Bibliography and Index of Geology (1969-present).
Santa Barbara County/Los Angeles County/Orange

County/California/stratigraphy/Oligocene/paleogeography/south/Santa Monica Mountains/Santa Ana Mountains/Santa Barbara Basin/United States/interpretation/GEOREF.

1432. Roden GI, Fredericks WJ (Performer: Washington Univ., Seattle. School of Oceanography). North Pacific Ocean. Northeast Pacific Transition Zone, R/V Thomas G. Thompson: 1 November - 6 December 1969. STD Data Report. ; 1987. Report No.: CONTRIB1717. 515p.

PC A22/MF A01 Contracts: N0001467A0103, N0001484C0111.

During Nov and Dec 1969 scientists aboard the R/V Thomas G. Thompson studied the thermohaline and density structures in the transition zones between the California current, the tradewind circulation, the outflow from the Gulf of California, and the north equatorial current. Most of the investigations were concentrated off Baja California, the Revilla Gigedos Island region, and across the mouth of the Gulf of California. Of the 254 STD stations planned, 249 were completed; four were lost and one was omitted, because the water in lee of Isla Clarion, Mexico was too shallow. The primary objectives of the field study were: 1) to investigate the mesoscale thermohaline and density structures in the transition zones associated with the outer boundaries of the California current. 2) to study the frontal structures in the Revilla Gigedos islands region, where the California current, the outflow from the Gulf of California, and the north equatorial current intermingle. 3) to determine the mesoscale thermohaline and baroclinic flow structure across the mouth of the Gulf of California by very high resolution hydrographic sections.

Autumn/Boundaries/California/Density/Depth/Equatorial regions/Mexico/North Direction/Pacific ocean/Salinity/Sea water/Structural properties/Temperature/Transitions/Water/Wind/High resolution/Hydrography/Thermal properties/Stratification/Fronts Oceanography/North Pacific Ocean/Ocean currents/Oceanographic data/California Gulf/Northeast Pacific Ocean/Trade winds/Ocean circulation/Baja California/Baroclinic flow/NTIS.

1433. SMITH PE. ENERGY TRANSFORMATIONS IN THE PELAGIC COMMUNITY AS RELATED TO STUDIES ON FISH SURVIVAL AND FISHERIES MANAGEMENT. PACIFIC SCIENCE ASSOCIATION: THIRTEENTH PACIFIC SCIENCE CONGRESS: RECORD OF PROCEEDINGS 1975;1. VANCOUVER, B.C., CAN.: UNIVERSITY OF BRITISH COLUMBIA, (1975?). PP. 49-50 NMFS, SOUTHWEST FISHERIES CENTER, P.O. BOX 271, LA JOLLA, CA 92037. CALIFORNIA CURRENT/ANCHOVIES/ENERGY BUDGET/STANDING STOCK/PLANKTON/ PELAGIC ORGANISMS/FISHERIES MANAGEMENT/ENERGY TRANSFER/ABSTRACT ONLY/OceanAbstracts.

1434. Straughan D. Southern California Baseline Study Final Report III, Report 2,3, and Appendices. Sandy beaches and sloughs. Washington, D.C.: Bureau of Land Management; 1978. Report No.: III. 120 p.

Quarterly surveys at one site on each island (San Miguel and Santa Cruz). Invertebrates, Sandy subtidal, intertidal, Ecology, distribution, San Miguel Island, Santa Cruz Island.

1435. HEINBOKEL JF, BEERS JR. STUDIES ON THE FUNCTIONAL ROLE OF TINTINNIDS IN THE SOUTHERN CALIFORNIA BIGHT. 3. GRAZING IMPACT OF NATURAL ASSEMBLAGES. MARINE BIOL., BERL. 52(1) 1979: 23-32, ILLUSTR.

* CILIOPHORA ** POLYHYMENOPHORA *** SUBCLASS SPIROTRICHA **** OLIGOTRICHIDA ***** TINTINNINA.
ECOLOGY/ECOLOGICAL ENERGETICS/TROPHIC STRUCTURE/GRAZING IMPACT, CALIFORNIA (MARINE)/COMMUNITY/COMMUNITY STRUCTURE/CALIFORNIA

(MARINE)/PACIFIC OCEAN/NORTHERN PACIFIC/SOUTHERN CALIFORNIA BIGHT/C
COMMUNITY STRUCTURE & GRAZING IMPACT/Zoological Index.

1436. Bartling WA, Abbott PL. Sedimentology of Upper
Cretaceous submarine fan strata, San Miguel Island, California, and
comparison to selected mainland localities. AAPG-SEG-SEPM Pacific
Section meeting. AAPG Bulletin 1982;66(10):1684 Address: Chevron
U.S.A., San Francisco, CA, USA; San Diego State Univ. Conference:
AAPG-SEG-SEPM Pacific Section meeting. Anaheim, CA, United States,
April 14-17, 1982.

sedimentation/sedimentary rocks/processes/environmental
analysis/deep-sea sedimentation/deep-sea environment/Upper
Cretaceous/Cretaceous/clastic rocks/Santa Barbara County/San Miguel
Island/geology/sedimentary petrology.

1437. Byshev VI. Temporal variability of circulation in the
northeastern Pacific Ocean. Oceanography 1971;11(2):177-182.
pacific ocean north/california current/circulation
water/temporal/variations/surface motion/wind transport/alaska
current/zooplankton/Pieper/MINERALS MANAGEMENT SERVICE.

1438. Barnes RO, Bertine KK, Goldberg ED. N₂:Ar,
nitrification and denitrification in southern California borderland
basin sediments. Limnol. Oceanogr. 1975;20(6):962-970.
text/chemical oceanography/Eganhouse/Venkatesan/diatom
molecules/sediments/nitrogen/argon/basins/geographic/ocean bottom
sampling/California ocean/environments/spatial
distribution/nitrates/MINERALS MANAGEMENT SERVICE.

1439. Brinton E. Distributional atlas of Euphausiacea
(Crustacea) in the California current region, part 1. Calif. Coop.
Oceanic Fish. Invest. Atlas No. 5 1967;:275 charts + xi.
EUPHAUSIDS/ZOOGEOGRAPHY/EUPHAUSIACEA/ATLASES/CALIFORNIA
CURRENT/DATA
COMPILATION/MAMMALBONNELL/Pieper/Dawson/zooplankton/crustacea/inv
ertebrates/TEX T/MINERALS MANAGEMENT SERVICE.

1440. Lloyd RM, Hohn JE. Occurrence of the European
Polypodium australe Fee on San Clemente Island, California. Amer
Fern J, Apr/June 1969, 1969;59(2):p.56-60 Bibliography. Article.
San Clemente Island/California/Santa Barbara Channel/AGRICOLA.

1441. Hulley PA. A taxonomic review of the lanternfish genus
Triphoturus Fraser-Brunner, 1949 (Myctophidae, Osteichthyes). ANN.
S. AFR. MUS 1986;97(4):pp. 71-95.
The genus Triphoturus includes two known species: Triphoturus
nigrescens (Brauer, 1904) and Triphoturus mexicanus (Gilbert,
1890). For the latter species, a southern population and a northern
population may be distinguished on the basis of gill-raker counts.
Phenotypic variation in serial meristic data may be environmentally
induced in the northern population, accounting for differences
between specimens from the California Current region and from the
Gulf of California. The two species are described, together with
comments on their distributions, including the first records of
Triphoturus nigrescens in the Atlantic Ocean; here this species
possesses an Agulhas Subpattern of distribution. animal
morphology/Triphoturus nigrescens/Triphoturus
mexicanus/distribution records/Triphoturus/taxonomy/ASFA.

1442. Feister GH, Hall EA. Tomorrow's oil may come from
southern California basins. Oil Gas J. 1977;75(27):p.96-99
Union Oil Co. Calif., Calif., United-States Analytic; Serial B;
Bibliography and Index of Geology (1969-present).

California/economic geology/petroleum/south/Santa Maria Basin/Ventura Basin/Santa Barbara Channel/Los Angeles Basin/United States/resources/reserves/possibilities/exploration/production/traps/stratigraphic traps/structural traps/faults/GEOREF.

1443. Olivier DA. Numerical Simulations of the California Current: Filament Formation as Related to Baroclinic Instability. Master's thesis. [dissertation] ; 1987. 70p.
Performer: Naval Postgraduate School, Monterey, CA
The California Current System, CCS, consists of four separate currents that are spatially and seasonally distributed of the west coast of the United States. They are: 1) the California Current, a southward flowing surface jet; 2) the California Undercurrent, a northward flowing sub-surface jet; 3) the Davidson Current, a poleward flowing surface jet north of Point Conception; and 4) the Southern California Countercurrent, a northward flowing surface current south of Point Conception in the California Bight. Offshore jets or filaments are a well observed phenomenon in the CCS. Their surface and subsurface structures as well as their spatial and temporal variability are well documented. The methods by which these filaments are formed is not as well understood as their structural form. The most common generation theories are: 1) variations in wind stress coupled with topographic irregularities, 2) dynamic instability, and 3) geostrophic turbulence. This thesis attempts to identify the factor(s) responsible for filament formation south of Cape Mendocino by numerically simulating the CCS using a two-layer, non-linear, primitive equation model. It is shown that baroclinic instability is the primary method by which filaments are formed in this region and that other factors such as barotropic instability, friction and nonlinearities can alter the characteristics of the fastest growing baroclinically unstable wave. Barometric pressure/California/Coastal regions/Dynamics/Equations/Fluids/Friction/Geostrophic currents/Jet flow/Mathematical models/Numerical analysis/South Direction/Stability/Stratification/Stresses/Structures/Subsurface /Theory/Theses /Topography/Turbulence/United states/Ocean waves/West Direction/Wind/Eddies Fluid mechanics/Layers/Nonlinear analysis/Ocean surface/Spatial distribution/Seasonal variations/Directional/Computerized simulation/Air water interactions/Structural properties/Filaments/Ocean currents/Ocean models/CCS California Current System/Instability/Baroclinic instability/Undercurrents Ocean currents/Countercurrents Ocean currents/NTIS.

1444. Johnson MA, O'Brien JJ. The Northeast Pacific Ocean response to the 1982-1983 El Nino. J. GEOPHYS. RES. (C OCEANS 1990;VOL. 95, NO. C5:pp. 7155-7166 Mesoscale Air-Sea Interact. Group, Florida State Univ., Tallahassee, FL 32306, USA.
The ocean's response to atmospheric forcing and to forcing along the coast by Kelvin waves is examined in light of nearshore seasonal variability and the major 1982-1983 El Nino. In addition to driving the northeast Pacific gyre and local currents, the wind modifies the depth to the main thermocline, changing the apparent westward phase speed of Rossby waves excited by passing Kelvin waves. The amplitude of the passing Kelvin wave determines whether the Rossby wave depresses or raises the thermocline while propagating westward. Along the northeast Pacific coast from Oregon to Washington, model results that the wind raises the main thermocline during the 1982-1983 El Nino. Generally, the coastal response off Oregon and Washington appears to be strongly driven by the large-scale atmosphere, while along the California coast and south to the equator, the dominant El Nino signal has an oceanic origin.

El Nino phenomena/Kelvin waves/thermocline/wind pressure/INE/atmospheric forcing/oceanic response/seasonal variations/thermal structure/temperate zones/OCEANIC ABSTRACTS.

1445. ROWE GT. RESPIRATION AND CHEMICAL COMPOSITION OF PLEURONCODES PLANIPES (DECAPODA: GALATHEIDAE): ENERGETIC SIGNIFICANCE IN AN UPWELLING SYSTEM. CANADA. FISHERIES RESEARCH BOARD. JOURNAL, 32(9): 1607-1612, SEPT. 1975 1975 WHOI, MAIN ST., WOODS HOLE, MA 02543.
BAJA CALIFORNIA COAST/PLEURONCODES/CALIFORNIA CURRENT/CHEMICAL ANALYSIS/CALORIC CONTENT/UPWELLING/RESPIRATION RATES/ENERGY BUDGET/ECOSYSTEMS/CRABS/P/PLANIPES/OceanAbstracts.

1446. Straughan D. Sublethal effects of natural chronic exposure to petroleum in the marine environment. : American Petrological Institute; 1976. Report No.: No. 4280. 123 p. Invertebrates, Sandy subtidal, intertidal, Ecology, Santa Cruz Island, San Miguel Island.

1447. CULLEN JJ, RENGER EH. CONTINUOUS MEASUREMENT OF THE DCMU-INDUCED FLUORESCENCE RESPONSE OF NATURAL PHYTOPLANKTON POPULATIONS. MARINE BIOL., BERL. 53(1) 1979: 13-20, ILLUSTR.
* PROTOZOA ** SARCOMASTIGOPHORA *** MASTIGOPHORA **** CLASS PHYTOMASTIGOPHOREA ***** COCCOLITHOPHORIDA ***** COCCOLITHUS HUXLEYI ***** DINOFLAGELLIDA ***** GYMNODINIUM SPLENDENS, PERIDINIUM TROCHOIDEUM.
TECHNIQUES/PHYSIOLOGICAL TECHNIQUES/FLUORESCENCE RESPONSE MEASUREMENT/MARINE PLANKTON PHOTOSYNTHETIC ANALYSIS/ECOLOGICAL TECHNIQUES/DIGESTION & NUTRITION/NUTRITION/ENERGY SOURCES/PHOTOSYNTHESIS/FLUORESCENCE RESPONSE MEASUREMENT TECHNIQUE/PACIFIC OCEAN/NORTHERN PACIFIC/SOUTHERN CALIFORNIA BIGHT/PLANKTON PHOTOSYNTHESIS ANALYSIS BY FLUORESCENCE RESPONSE TECHNIQUE/Zoological Index.

1448. Chinn BD (Geol. Dept.; Cal. St. Univ. Northridge). Geochemical comparison of the Beechers Bay Member of the Monterey Formation, Santa Rosa Island, with the Blanca Formation, Santa Cruz Island. ; 1990 May 11; Cal St Univ Dominguez Hills. ; 1990 May 11. p. No. 61. abstractonly.
SCIR.
fspub/geology/SRD.

1449. Dybel BE (Geol. Dept.; Cal. St. Univ. Northridge). Whole-rock geochemistry of the Jurassic Willows plutonic complex, Santa Cruz Island, California. ; 1990 May 11; Cal St Univ Dominguez Hills. ; 1990 May 11. p. No. 61. abstractonly.
SCIR.
fspub/geology/SRD.

1450. Johnson DL. New evidence on the origin of the fox, Urocyon littoralis clementae, and feral goats on San Clemente Island, California. J. of Mamm. 1975;56:625-628
SCIR.
island fox/evolution/biogeography/SRD.

1451. Timbrook J. A wooden artifact from Santa Cruz Island. J. of Calif. and Great Basin Anthropology 1980;2(2):272-279
SCIR.
fspub/archaeology/chumash/SRD.

1452. Brydn B. San Nicolas Island, Treasure house of the ancients: Part I. Art and Archaeology 1930;29
anthropology/history/SRD.

1453. Meighan CW, Eberhart H. Archaeological Resources of San Nicolas Island. *American Antiquity* 1953;19(2):109-125
archaeology/anthropology/SRD.

1454. Schuster RO, Grigarick AA. Tardigrada of Santa Cruz Island, California. *Pan pacific Entomol*, July 1970. 1970;46(3):p.184-193 Article.
AGRICOLA.

1455. Ashley RJ, Berry RW, Fischer PJ. Offshore geology and sediment distribution of the El Capitan Gaviota continental shelf, northern Santa Barbara Channel, California. *J. Sediment. Petrol.* 1977;47(1):p.199-208 *Intersea Res. Corp., San Diego, Calif., United-States; San Diego State Univ., United States Analytic; Serial B; Bibliography and Index of Geology (1969-present). California/oceanography/continental shelf/sediments/Santa Barbara Channel/El Capitan/Gaviota/Pacific Ocean/North Pacific/United States/structure/folds/faults/thickness/upper Tertiary/Quaternary/lithostratigraphy/structural controls/petroleum/seeps/Tertiary/Miocene/Pliocene/GEOREF.*

1456. Holbrook SJ, Schmitt RJ. Effects of predation risk on foraging behavior mechanisms altering patch choice. *J. Exp. Mar. Biol. Ecol.* 1988;121:151-163
marine biology/Santa Cruz Island/Santa Barbara Channel/ecology/fish/SRD.

1457. Baber D, Coblenz B. Diet, nutrition, and conception in feral pigs on Santa Catalina Island. *J. WILDL. MANAGE* 1987;51(2):306-317. Dietary preference, nutrition, and their effect on animal condition and conception were examined in a feral pig (*Sus scrofa*) population on Santa Catalina Island, California. Optimal performance of pigs on Catalina appeared to be linked to the quantity of the oak (*Quercus* spp.) crop in early fall and the timing and duration of fall-winter rains. A seasonal pattern in breeding was evident, with conception apparently related to both nutrition and photoperiod. Fertility declined in late spring and summer as photoperiod increased; onset of estrus and breeding in fall or winter were regulated by nutritional status of sows. USA/California/Santa Catalina Island/feral populations/*Sus scrofa*/diets/nutritional status/reproduction/CSA Life Sciences Collection.

1458. Jannasch HW, Nelson DC, Wirsen CO. Massive natural occurrence of unusually large bacteria (*Beggiatoa* sp.) at a hydrothermal deep-sea vent site. *NATURE* 1989;VOL. 342, NO. 6251:pp. 834-836

Dep. Biol., Woods Hole Oceanogr. Inst., Woods Hole, MA 02543, USA. White web-like "mats" of the filamentous sulphur-oxidizing bacterium *Beggiatoa* are commonly observed on the surface of anoxic sediments. As a typical interface organism *Beggiatoa* requires a source of inorganic reduced sulphur and dissolved free oxygen. The first pure cultures of marine strains of *Beggiatoa* were recently obtained by artificially reconstructing an O₂-H₂S interface in a semi-solid medium that supports the gliding mobility of the filaments. The maximal thickness of these *Beggiatoa* mats in culture was 1.0 mm. The authors report the discovery of dense layers of filamentous sulphur-oxidizing bacteria up to 3 cm thick on the sediment surface, and up to 30 cm thick between stands of vestimentiferan tube worms at the Guaymas Basin hydrothermal vent site in the Gulf of California at a depth of 2,010 m. *Beggiatoa*/size/bacteria/hydrothermal springs/abundance/organism

aggregations/sulfur/ISE, California Gulf, Guaymas Basin/laboratory culture/population density/sediment-water interface/Oceanic Abstracts.

1459. WICKHAM JB. OBSERVATIONS OF THE CALIFORNIA COUNTERCURRENT. JOURNAL OF MARINE RESEARCH, 33(3): 325-340, SEPT. 1975 1975
U.S. NAVAL POSTGRADUATE SCHOOL, DEPT. OF OCEANOGRAPHY, MONTEREY, CA 93940. CALIFORNIA COAST/MIXING/EDDIES/CURRENT DATA/COUNTERCURRENTS/T-S DATA/OceanAbstracts.

1460. Straughan D. Southern California Baseline Study. Intertidal Year Two Final Report. III, Report 1.3. Sandy Beach/Slough. Washington, D. C.: Bureau of Land Management; 1978. 110 p + Appendices.
Invertebrates, Sandy subtidal, intertidal, Ecology, Distribution, San Miguel Island, Santa Cruz Island.

1461. CASEY R, SPAW JM, KUNZE F, REYNOLDS R, DUIS T, MCMILLEN K, PRATT D, ANDERSON V. RADIOLARIAN ECOLOGY AND THE DEVELOPMENT OF THE RADIOLARIAN COMPONENT IN HOLOCENE SEDIMENTS, GULF OF MEXICO AND ADJACENT SEAS WITH POTENTIAL PALEONTOLOGICAL APPLICATIONS. TRANSACTIONS GULF CST ASS. GEOL. SOCS 29 1979: 228-237, ILLUSTR.
* PROTOZOA ** SARCOMASTIGOPHORA *** SARCODINA **** CLASS ACTINOPODEA ***** SUBCLASS RADIOLARIA.
ENVIRONMENTAL FACTORS/PHYSICAL ENVIRONMENT/SEASON/COMMUNITY STRUCTURE TRENDS, NORTH WEST ATLANTIC & EASTERN PACIFIC/ECOLOGY/COMMUNITY STRUCTURE/SEASONAL TRENDS, NORTH WEST ATLANTIC & EASTERN PACIFIC/PALAEOECOLOGY/DEVELOPMENT OF SEDIMENTS, HOLOCENE, NORTH WEST ATLANTIC & EASTERN PACIFIC/ATLANTIC OCEAN/NORTH ATLANTIC/NORTH WEST ATLANTIC/GULF STREAM & SARGASSO SEA/SEASONAL COMMUNITY STRUCTURE & DEVELOPMENT OF HOLOCENE SEDIMENTS/GULF OF MEXICO/PACIFIC OCEAN/EASTERN PACIFIC/CALIFORNIA CURRENT/CAENOZOIC/QUATERNARY/HOLO CENE/NORTH WEST ATLANTIC & EASTERN PACIFIC/PALAEOECOLOGY & DEVELOPMENT OF SEDIMENTS/Zoological Index.

1462. Tissot BN. Morphological variation along intertidal gradients in a population of black abalone *Haliotis cracherodii* Leach 1814. J. Exp. Mar. Biol. Ecol. 1988;117:71-90
fspub/Santa Cruz Island/mollusks/SRD.

1463. Licari D. The susceptibility of chaparral and coastal sage to invasion by *Foeniculum vulgare* Mill, Santa Cruz Island, CA. [dissertation] UCLA, Geography Dept.: UCLA; 1988. Honors Thesis.
fspub/fennel/management/SRD.

1464. Ferren WR, Junak SA, Barkworth ME. Noteworthy Collections, California: *Stipa diegoensis* Swallen (Poaceae). Madrono 1986;33:309-310 fspub/botany/flora/Santa Cruz Island/SRD.

1465. Chandler DS. A revision of North American *Notoxus* with a cladistic analysis of the New World species (Coleoptera: Anthicidae). Entomography 1983;1:333-438
fspub/insects/entomology/Santa Cruz Island/SRD.

1466. Daily M, Stanton C. Historical highlights of Santa Cruz Island. La Reata 1983;5:14-19
fspub/history/SRD.

- # 1467. Finnamore AT. Revision of the American species of *Mimesa* (Hymenoptera: Pemphredonidae: Pseninae),. Lyman Ent. Mus. Res. Lab. Mem. 1983;12:1-171
fspub/insects/hymenoptera/entomology/Santa Cruz Island/SRD.
- # 1468. Gill RJ, Oman P. A new species and new distributional records for megophthalmine leafhoppers, Genus *Tiaja* (Homoptera: Cicadellidae). Entomography 1983;1:281-288
fspub/insects/entomology/Santa Cruz Island/SRD.
- # 1469. Hamilton K. Revision of the Macropsini and Neopsini of the New World (Rhynchota: Homoptera: Cicadellidae), with notes on intersex morphology. Mem. Ent. Soc. Can. 1983;123:1-223
fspub/Santa Cruz Island/insects/entomology/SRD.
- # 1470. Ramsey CR. The Californias. Crump DJ, Silcott PB, editors. America's Seashore Wonderlands. : National Geographic Society; 1985. p. 44-79. fspub/Santa Cruz Island/Channel Islands/SRD.
- # 1471. Okutani T. Systematics, distribution, and abundance of the epiplanktonic squid (Cephalopoda, Decapoda) larvae of the California Current April, 1954 March, 1957. California. University. Scripps Institution of Oceanography. 1969;14:p.86-90
Bulletin Berkeley, University of California Press, 1969, illus, Bibliography: p. 86-90. Monograph.
AGRICOLA.
- # 1472. Kiefer DA, Lasker R. Two blooms of *Gymnodinium splendens*, an unarmored dinoflagellate. U. S. Dep. Commer., Fishery Bull. 1975;73(3):p.675-677 Analytic; Serial B; Bibliography and Index of Geology (1969-present).
palynomorphs/Dinoflagellata/Holocene/modern/Pacific region/Pacific Ocean/Gulf of California/Coyote Bay/United States/California/Southern California Bight/morphology/ecology/blooms/*Gymnodinium splendens*/paleobotany/GEOREF.
- # 1473. Gill E. Comments on some juvenile southern California molluscs. The Festivus 1985;17(3):27-35
fspub/molluscs/marine biology/Santa Cruz Island/SRD.
- # 1474. Van VD, Coblenz B. Some ecological effects of feral sheep on Santa Cruz Island, California, USA. BIOL. CONSERV 1987;41(4):253-268. Long-term overgrazing by feral sheep has resulted in moderate to severe ecological impacts to about one-half of Santa Cruz Island. Feral sheep were generalist herbivores, consuming a variety of plants according to availability and phenology. Insular endemic species in particular were preferred, and sheep reared on their hind legs to reach leaves of endemic shrubs. Effects of sheep on a grassland community included reduced herbaceous cover, increased bare ground, altered community structure, decreased litter, and increased erosion. Sheep browsing impacted shrubs by altering growth form and preventing regeneration, and by completely defoliating lower-growing shrubs. USA/California/Santa Cruz Island/feral populations/grazing/plant communities/environmental degradation/sheep/CSA Life Sciences Collection.
- # 1475. Kaplan IR (Performer: California Univ., Los Angeles. Inst. of Geophysics and Planetary Physics. Funder: Department of Energy, Washington, DC.) Summary of past Research Performed at UCLA (University of California, Los Angeles)

under Support of DOE, Office of Marine Environment: Final Report, 1967-December 1985. ; 1987. Report No.: DOEEV70134T11. 18p. Portions of this document are illegible in microfiche products. PC A03/MF A01 Contract: AS0376EV70134.

The studies have been basically aimed at a better understanding of the processes occurring at the sediment-water interface, the carbon budget in the ocean, the flux of the light elements, and the diagenetic changes of the sedimentary components. Recent research endeavors have focused on environmental problems relating to anthropogenic pollution of the southern California Bight as a result of petroleum exploration and production and shelf edge exchange processes and transport of carbon in the Atlantic shelf, slope and the rise. Brief summaries of research findings relating to southern California nearshore and offshore studies and to the Atlantic Shelf from this laboratory are presented with emphasis on the data generated within the last eight years. (ERA citation 13:006476). California/Carbon Cycle/Continental Shelf/Diagenesis/Environmental Impacts/Geochemistry/Organic Compounds/Research Programs/Sediment Water Interfaces/Coastal Waters/Sediments/Water Pollution/ERDA/520200/ERDA/580500/NTIS.

1476. Sanders NK, Childress JJ. Adaptations to the deep-sea oxygen minimum layer: Oxygen binding by the hemocyanin of the bathypelagic mysid, *Gnathopausia ingens* Dohrn. BIOL. BULL. MAR. BIOL. LAB. WOODS HOLE 1990;VOL. 178, NO. 3:pp. 286-294 Oceanic Biol. Group, Mar. Sci. Inst., Univ. California, Santa Barbara, CA 93106, USA.

The bathypelagic mysid, *Gnathopausia ingens* Dohrn, lives aerobically at oxygen partial pressures as low as 6 torr in the oxygen minimum layer off southern California. This study is concerned with the O sub(2) binding properties of this mysid's hemocyanin and the function of the pigment in O sub(2) uptake at low P sub(O2). The effect of temperature on in vivo hemolymph pH (Delta pH/ Delta t = -0.018) was measured from 2.5 to 12.5 degree C. Hemocyanin concentration was estimated to be 24 mg/l, corresponding to an O sub(2) binding capacity of about 0.3 mmol O sub(2)/l. Freezing of hemolymph samples significantly decreased the affinity and cooperativity of HcO sub(2) binding, necessitating the use of fresh hemolymph. The HcO sub(2) affinity was high (P sub(50) of 1.4 torr at 5.5 degree C, pH 7.87), allowing the loading of O sub(2) even at 6 torr. The cooperativity of HcO sub(2) binding was also high (n sub(50) = 3.5 at 5.5 degree C, pH 7.87); presumably allowing the pigment to function effectively as an O sub(2) transporter within the small P sub(O2) difference between the environment and the tissues. oxygen minimum layer/hemocyanins/oxygenation/bathypelagic zone/Gnat hopausia ingens/OCEANIC ABSTRACTS.

1477. ADAMO LC. SEASONAL MEAN TRANSPORT OF HYPOTHETICAL OIL SLICKS IN SOUTHERN CALIFORNIA WATERS. INSTITUTE OF ENVIRONMENTAL SCIENCES: 21ST ANNUAL TECHNICAL MEETING: 1975;I: ENERGY AND THE ENVIRONMENT. MT. PROSPECT, ILL.: INSTITUTE OF ENVIRONMENTAL SCIENCES, 1975. PP. 49-54 INTERSEA RESEARCH CORP. WIND DATA/CALIFORNIA COAST/SEASONAL VARIATIONS/OIL SLICKS/OFFSHORE LEASES/CURRENT DATA/SOUTHERN CALIFORNIA BIGHT/OceanAbstracts.

1478. Straughan D. Southern California Baseline Study. Intertidal. Year Three II Report 8.0; III. Report 3.0; IV. Report 3.0. Sandy beach and slough community analysis. Washington, D.C.: Bureau of Land Management; 1978. 152p, 39p, 123p. Invertebrates, sandy subtidal, intertidal, ecology, Distribution, San Miguel Island, Santa Cruz Island.

1479. Bartling WA. Upper Cretaceous submarine fans, San Miguel Island and San Diego, and some relations to borderland tectonics. Abstr Programs (Boulder) 1982;14(4):147
Conf. No 82-0028. 19 April to 21 April 1982.
marine environments/sedimentary
basins/faults/faulting/lithostratigraphy/upper cretaceous/San Miguel Island/San Diego/geology.

1480. Stanton C. An Island Memoir. : Santa Cruz Island Company; 1984. SCIR.
history/Santa Cruz Island/SRD.

1481. Atwood JL. Social interactions in the Santa Cruz Island scrub jay. Condor 1980;82:440-448
AUTH AFFL: Manomet Bird Obs., Box 936, Manomet, MA 02345.
fspub/Aphelocoma coerulescens insularis/communal breeding/Santa Cruz Island/SRD.

1482. Vedder JG, Howell DG (US Geol. Sur.) Topographic evolution of the southern California borderland during late Cenozoic time. Power D. The California Islands: a multidisciplinary symposium; 1978 Mar; Santa Barbara, Calif. : Santa Barbara Museum of Natural History; 1980. p. 7-31.
SCIR.
fspub/geology/Santa Cruz Island/SRD.

1483. Glassow MA (UCSB, Dept. of Anthro.) Recent developments in the archaeology of the Channel Islands. Power D. The California Islands: a multidisciplinary symposium; 1978 Mar; Santa Barbara, Calif. : Santa Barbara Museum of Natural History; 1980. p. 79-99.
SCIR.
fspub/Santa Cruz Island/archaeology/chumash/anthropology/SRD.

1484. Minnich RA (UCR, Dept. of Geog.) Vegetation of Santa Cruz and Santa Catalina Islands. Power D. The California Islands: a multidisciplinary symposium; 1978 Mar; Santa Barbara, Calif. : Santa Barbara Museum of Natural History; 1980. p. 123-137.
SCIR.
fspub/Santa Cruz Island/vegetation/botany/SRD.

1485. Brumbaugh RW (US Army Corps. Eng.) Recent geomorphic and vegetal dynamics on Santa Cruz Island, California. Power D. The California Islands: a multidisciplinary symposium; 1978 Mar; Santa Barbara, Calif. : Santa Barbara Museum of Natural History; 1980. p. 139-158.
SCIR.
fspub/Santa Cruz Island/vegetation/botany/erosion/geomorphology/SRD.

1486. Hobbs E. Effects of grazing on the northern populations of *Pinus muricata* on Santa Cruz Island, California. Power D. The California Islands: a multidisciplinary symposium; 1978 Mar; Santa Barbara, Calif. : Santa Barbara Museum of Natural History; 1980. p. 159-165.
SCIR.
fspub/Santa Cruz Island/vegetation/botany/feral sheep/SRD.

1487. Philbrick RH,E. Distribution and evolution of endemic plants of the California Islands. Power D. The California Islands: a multidisciplinary symposium; 1978 Mar; Santa Barbara, Calif. : Santa Barbara Museum of Natural History; 1980. p. 173-187.

SCIR.

fspub/Santa Cruz Island/vegetation/botany/endemics/flora/SRD.

1488. Hochberg M (Santa Barbara Botanic Garden). Factors affecting leaf size of chaparral plant species on the California Islands. Power D. The California Islands: a multidisciplinary symposium; 1978 Mar; Santa Barbara, Calif. : Santa Barbara Museum of Natural History; 1980. p. 189-206.

SCIR.

fspub/Santa Cruz

Island/vegetation/botany/endemics/flora/ecology/SRD.

1489. Feldkamp SD, DeLong RL, Antonelis GA. Diving patterns of California sea lions, *Zalophus californianus*. CAN. J. ZOOL./J. CAN. ZOOL 1989;67(4):872-883. The diving patterns of 10 adult female California sea lions (*Zalophus californianus*) were examined during the summer breeding season on San Miguel Island, California, in 1982 and 1983 using time-depth recorders. During 17 feeding trips, representing 40.6 days at sea, animals made over 8900 dives, the deepest of which was estimated at 274 m, while the longest was 9.9 min. The majority of dives, however, were less than 3 min in duration and 80 m in depth. From estimates of body oxygen stores, the authors predict that dives up to 5.8 min can be supported aerobically. Therefore, cost-benefit considerations based on prey availability and encounter rate may be more important than physiological limits in shaping the foraging patterns of *Zalophus*. Sea lions were active virtually throughout their time at sea, resting on the surface for only 3% of the average trip.

foraging behavior/marine environment/feeding
behavior/swimming/animal physiology/*Zalophus*
californianus/INE/USA/California/San Miguel Island/diving
behavior/ASFA.

1490. Soutar A, Kling SA, Crill PA, Duffrin E, Bruland KW. Monitoring the marine environment through sedimentation. Nature. 1977;266(5598):p.136 Scripps Inst. Oceanogr., La Jolla, Calif., United-States; Univ. Calif., United States Analytic; Serial B; Bibliography and Index of Geology (1969-present).

California/oceanography/sea water/Santa Barbara Basin/Santa Monica Basin/San Pedro Basin/San Diego Basin/composition/suspended materials/monitoring/traps/coastal/data/environmental geology/Pacific Ocean/North Pacific/United States/surveys/GEOREF.

1491. Vivrette NJHM (Santa Barbara Botanic Garden). Zonation of coastal plant species and their correlation with salt levels in the soil. Power D. The California Islands: a multidisciplinary symposium; 1978 Mar; Santa Barbara, Calif. : Santa Barbara Museum of Natural History; 1980. p. 207-213. SCIR.

fspub/Santa Cruz

Island/vegetation/botany/endemics/flora/ecology/Fraser
Pt./Dudleya/Lasthenia/iceplant/SRD.

1492. Bonnell M, Ford R. California sea lion distribution: A statistical analysis of aerial transect data. J. WILDL. MANAGE 1987;51(1):13-20. Sightings of California sea lions (*Zalophus californianus*) recorded on 23 aerial transect surveys of the Southern California Bight were pooled by 30' x 30' grid cells. California sea lions concentrate near their rookery islands and at specific open-water locations in summer. The center of their distribution shifts to the northwest in autumn and to the southeast in winter and spring, probably in response to prey availability. USA/California/Southern California Bight/spatial distribution/habitat/food availability/*Zalophus*

californianus/INE/USA/California/Southern California
Bight/distribution/seasonal variations/seasonal distribution/CSA
Life Sciences Collection.

1493. Pommeranz T, Moser HG (Performer: National Marine Fisheries Service, La Jolla, CA. Southwest Fisheries Center.) Data Report on the Vertical Distribution of the Eggs and Larvae of Northern Anchovy, 'Engraulis mordax', at Two Stations in the Southern California Bight, March-April 1980. Technical memo. ; 1987. Report No.: NOAATMNMFSWFC75. 153p.
Knowledge of the vertical distribution of eggs and larvae of the northern anchovy, *Engraulis mordax*, is needed for conducting research cruises designed to estimate the spawning biomass of that species. Ahlstrom's (1959) study of the vertical distribution of ichthyoplankton species off southern California and Baja California provided information on eggs and larvae of anchovy but was based on only 22 Leavitt net series taken from 1941 to 1955. None of these studies has used the more advanced multiple opening and closing net systems (Wiebe et al., 1976). Because of this the authors conducted a cruise during March-April 1980 aboard the Scripps Institution of Oceanography research vessel Ellen B. Scripps, using the MESSHAI system (Pommeranz et al., 1979) as the primary sampler. The report presents a detailed listing of data collected on that cruise. A separate paper providing an analysis of these data is in preparation.
Reproduction Biology/Nets/Sampling/Eggs/Larvae/Distribution
Property/Samplers/Depth/Age/Tables Data/Biomass/Marine
fishes/Oceanographic surveys/Southern California Bight/Northern
anchovy/*Engraulis mordax*/NTIS.

1494. Espinoza J. The southern limit of *Sargassum muticum* (Yendo) Fensholt (Phaeophyta, Fucales) in the Mexican Pacific. BOT. MAR 1990;VOL. 33, NO. 2:pp. 193-196
Cent. Invest. Biol. Baja California Sur, A.C. Apdo. Postal No. 128, La Paz, Baja California Sur 23060, Mexico.
The length of coastline colonized in the last 15 years by *Sargassum muticum* in the Mexican Pacific, is half of that reported for the same species during the decade 1963 to 1973, along the Pacific coast of North American. Given the higher mean seawater temperatures in the south of the alga's range, a better performance was expected. The year-round reproduction of *S. muticum* in the middle of the Baja California peninsula, as well as its ability to grow and reproduce at very wave-exposed sites, may promote further successful colonization southwards. coastal waters/*Sargassum muticum*/water temperature/sexual reproduction/ecological distribution/introduced species/ISE, Mexico/ distribution records/geographical distribution/colonization/exposed habitats/temperature effects/seaweeds/OCEANIC ABSTRACTS.

1495. MEARNS AJ. RESPONSES OF COASTAL FISHES AND INVERTEBRATES TO WASTEWATER DISCHARGES. MARINE MUNICIPAL AND INDUSTRIAL WASTEWATER (SIC) DISPOSAL: THIRD INTERNATIONAL CONGRESS: PREPRINTS. (N.P.), (1975?). PP. II-1-II-35 1975 SOUTHERN CALIFORNIA COASTAL WATER RESEARCH PROJECT, BIOLOGY DIV., EL SEGUNDO, CA 90245.
ENVIRONMENTAL IMPACT/CALIFORNIA COAST/SPECIES DIVERSITY/WASTEWATER DISPOSAL/POPULATION DENSITY/OUTFALLS/INVERTEBRATA/FISH/SOUTHERN CALIFORNIA BIGHT/OceanAbstracts.

1496. Straughan D. Preliminary inventory of natural resources of sandy beaches in southern California. : Southern California Edison; 1981. Report No.: 79-RD-108.
Invertebrates; sandy subtidal, intertidal, distribution, ecology,

San Miguel Island, Santa Cruz Island.

1497. HUNT GL. BASELINE STUDIES OF COLONIAL SEABIRDS IN SOUTHERN CALIFORNIA. PROCEEDINGS CONF. COLONIAL WATERBIRD GP 1977 1977: 1-2. ABSTR.

ECOLOGY/POPULATION STUDY/COLONIAL SEABIRDS, CALIFORNIA/NEARCTIC REGION/UNITED STATES OF AMERICA/CALIFORNIA/SOUTHERN CALIFORNIA BIGHT/COLONIAL SEABIRD POPULATION STUDY/Zoological Index.

1498. Basch LV. Ecology, behavior, and functions of bioluminescence in the subtidal sand-dwelling brittle-star *Ophiopsila californica* (Echinodermata: Ophiuroidea: Ophiocomidae) [dissertation]. Los Angeles: University of California; 1985. 236. bioluminescence/behavior/Echinodermata/Ophiuroidea/Ophiocomidae/Ophiopsila californica/Santa Catalina Island/marine biology.

1499. Davis WSVNJM. Distribution of *Malacothrix* (Asteraceae) on the California Islands and the origin of endemic insular species. Power D. The California Islands: a multidisciplinary symposium; 1978 Mar; Santa Barbara, Calif. : Santa Barbara Museum of Natural History; 1980. p. 227-234. SCIR. fspub/Santa Cruz Island/vegetation/botany/endemics/flora/SRD.

1500. Littler MMDWNJM. Overview of the rocky intertidal systems of southern California. Power D. The California Islands: a multidisciplinary symposium; 1978 Mar; Santa Barbara, Calif. : Santa Barbara Museum of Natural History; 1980. p. 265-306. SCIR. fspub/Santa Cruz Island/marine biology/SRD.

1501. Seapy RR, Littler MM. Biogeography of rocky intertidal Macro-invertebrates of the southern California Islands. Power D. The California Islands: a multidisciplinary symposium; 1978 Mar; Santa Barbara, Calif. : Santa Barbara Museum of Natural History; 1980. p. 307-323. SCIR. fspub/Santa Cruz Island/marine biology/SRD.

1502. Murray SN, Littler MM, Abott IA. Biogeography of the California marine algae with emphasis on the southern California Islands. Power D. The California Islands: a multidisciplinary symposium; 1978 Mar; Santa Barbara, Calif. : Santa Barbara Museum of Natural History; 1980. p. 325-339. SCIR. fspub/Santa Cruz Island/marine biology/algae/SRD.

1503. Kant RG. Biogeographic patterns in mussel community distribution from the southern California Bight. Power D. The California Islands: a multidisciplinary symposium; 1978 Mar; Santa Barbara, Calif. : Santa Barbara Museum of Natural History; 1980. p. 341-355. SCIR. fspub/Santa Cruz Island/marine biology/SRD.

1504. Straughan D, Hadley D. Ecology of southern California Island sandy beaches. Power D. The California Islands: a multidisciplinary symposium; 1978 Mar; Santa Barbara, Calif. : Santa Barbara Museum of Natural History; 1980. p. 369-393.

SCIR. fspub/Santa Cruz Island/marine biology/Christy Beach/SRD.

1505. Busath AL. Genetic differentiation of the semi-terrestrial amphipod *Orchestia traskiana* in an expanded habitat

on Santa Cruz Island. Power D. The California Islands: a multidisciplinary symposium; 1978 Mar; Santa Barbara, Calif. : Santa Barbara Museum of Natural History; 1980. p. 395-401. SCIR. fspub/Santa Cruz Island/marine biology/SRD.

1506. Ebeling AW, Larson RJ, Alevizon WS (UCSB, Dept of Biol.) Habitat groups and island-mainland distribution of kelp-bed fishes off Santa Barbara, California. Power D. The California Islands: a multidisciplinary symposium; 1978 Mar; Santa Barbara, Calif. : Santa Barbara Museum of Natural History; 1980. p. 403-431.

SCIR.
fspub/Santa Cruz Island/marine biology/fish/SRD.

1507. Haldorson L (UCSB, Dept of Biol.) Genetic isolation of Channel Islands fish populations: evidence from two embiotocid species. Power D. The California Islands: a multidisciplinary symposium; 1978 Mar; Santa Barbara, Calif. : Santa Barbara Museum of Natural History; 1980. p. 433-442. SCIR. fspub/Santa Cruz Island/marine biology/fish/evolution/SRD.

1508. Pares-Sierra A. Interannual variability of the California Current System: A numerical model. DISS. ABST. INT. PT. B - SCI. & ENG 1988;49(3). A reduced gravity model that incorporates the geometry of western North America has been used to study the dynamics of the California Current System (CCS). Three experiments were implemented: first the model was run using 19 years of wind stress from the Comprehensive Ocean-Atmosphere Data set (local model); a second experiment (remote model) consisted of forcing the model through its southern boundary using the results of a similar reduced gravity equatorial model; in a third experiment, both forcings were used simultaneously. The main objective of this work was to analyze the low frequency variability on the CCS in terms of its contributions from remote and local forcing.
INE/California Current/ocean currents/atmospheric forcing/wind stress/mathematical models/dynamical oceanography/ASFA.

1509. Brumbaugh RW. Gully development in disturbed watersheds on Santa Cruz Island, California; a remote sensing investigation. Assoc. Pac. Coast Geogr., Yearb. 1976;38:p.117 Univ. Calif., Los Angeles, Calif., United-States Analytic; Serial; Abstract B; Bibliography and Index of Geology (1969-present). California/geomorphology/landform evolution/coastal/Santa Cruz Island/erosion/gullies/watersheds/remote sensing/United States/GEOREF.

1510. Hunt GLJ, Pitman RL, Jones H. L. Distribution and abundance of seabirds breeding on the California Channel Islands. Power D. The California Islands: a multidisciplinary symposium; 1978 Mar; Santa Barbara, Calif. : Santa Barbara Museum of Natural History; 1980. p. 443-459.
SCIR.
fspub/Santa Cruz Island/marine birds/SRD.

1511. Traganza ED (Performer: Office of Naval Research, Arlington, VA). Satellite and Synoptic Studies of Chemical Fronts in the California Current and Coastal Upwelling Zone. Technical rept. (Final). ; 1987. 40p. Contract: N0001485K0054. Partial Contents: Chemical flux, mixed layer entrainment and phytoplankton blooms at upwelling fronts in the California coastal zone.
Chemical oceanography/California/Coastal

regions/Hydrography/Entrainment/Layers/Mixing/Phytoplankton/South
Direction/Chemicals/Flux Rate/Aquatic biology/Mean/Position
Location/Ecosystems/Plankton/Distribution/Transmittance/Mixed layer
Marine/Reprints/Temperature/Two dimensional/Wind/Ocean
currents/Upwelling/Fronts Oceanography/Sea water/California
Current/Wind stress/NTIS.

1512. Lewis CA, Ebert TA, Boren ME. Allocation of
super(45)calcium to body components of starved and fed purple sea
urchins (*Strongylocentrotus purpuratus*). MAR. BIOL 1990;VOL. 105,
NO. 2:pp. 213-222
Dep. Biol., San Diego State Univ., San Diego, CA 92182-0057, USA.
An in vivo system was designed to examine stress-related changes in
calcification in the purple sea urchin *Strongylocentrotus*
purpuratus. Small *S. purpuratus* (ca. 2 cm test diam) were
collected from the Mission Bay jetty or Imperial Beach (San Diego,
California, USA) in 1987. super(45)Ca was incorporated from
seawater into all body fractions including the organic
tissue/coelomic fluid. In an initial experiment, sea urchins were
fed or starved for 4 wk and then post-incubated in isotope.
starvation/calcification/calcium isotopes/endoskeleton/feeding
experiments/Echinoidea/*Strongylocentrotus purpuratus*/INE, USA,
California, San Diego/Oceanic Abstracts.

1513. LAM RK. CURRENT MEASUREMENTS OFF THE CALIFORNIA COAST
-- 1972. CALIFORNIA. UNIVERSITY. SCRIPPS INSTITUTION OF
OCEANOGRAPHY, LA JOLLA. SIO REFERENCE 74-12, MAY 1, 1974. 18PP 1974
UNIV. OF WASHINGTON, DEPT. OF OCEANOGRAPHY, SEATTLE, WA 98195.
CURRENT METERS/CURRENT DATA/CALIFORNIA CURRENT/CALIFORNIA
COAST/1972/OceanAbstracts.

1514. Straughan D. Distribution of tar and relationships to
changes in intertidal organisms on sandy beaches in southern
California. Proceedings of the Oil spill conference: Prevention,
Behavior, Control, Clean-up; 1979; Los Angeles, CA. ; 1979. p.
591-601.
Invertebrates, sandy, subtidal, intertidal, Ecology distribution,
San Miguel Island, Santa Cruz Island.

1515. ARTHUR DK. DISTRIBUTION, SIZE, AND ABUNDANCE OF
MICROCOPEPODS IN THE CALIFORNIA CURRENT SYSTEM AND THEIR POSSIBLE
INFLUENCE ON SURVIVAL OF MARINE TELEOST LARVAE. FISHERY BULL. U.S.
NATN. OCEAN. ATMOS. ADMN 1977;75((3)):601-611 * CRUSTACEA **
COPEPODA.
BIOMETRICS/MEASUREMENTS/SIZE/MICROPLANKTON, PISCAN PREDATOR
RELATIONSHIP, CALIFORNIA CURRENT/FEEDING/CARNIVOROUS
FEEDING/PREDATI
ON/PREDATORS/PISCES/MICROPLANKTON DENSITY RELATIONSHIP, CALIFORNIA
CURRENT/ECOLOGY/POPULATION STUDY/POPULATION DYNAMICS/POPULATION
DENSITY/PACIFIC OCEAN/NORTHERN PACIFIC/CALIFORNIA CURRENT/MICROPLAN
KTON ABUNDANCE, PISCAN PREDATOR RELATIONSHIP/Zoological Index.

1516. Basch LV. Bioluminescent anti-predator defense in a
subtidal ophiuroid. R.D. Burke Ea. Echinoderm Biology. Rotterdam:
A.A. Balkema; 1988. 503-515.
bioluminescence/defense/predation/ophiuroid/Santa Catalina
Island/marine biology.

1517. Natural History Field Quarter S1. Preservation and
Management of California Natural Lands: Recommendations [Board of
Environmental Studies, Univ. of Calif. Santa Cruz]. . 1991 Jun. ;
unpublished class report. SCIR.
fspub/management/Santa Cruz Island/preservation/SRD.

1518. Callahan RA, R. Shokes. Southern California baseline study and analysis, 1975-1976. Volume I. Executive summary. Integrated summary report. Final report. 1978;II:492. ecology/marine biology/Southern California Bight/crude oil/natural gas/water pollution/aquatic plants/distribution property/abundance/hydrocarbons/environmental impacts/offshore drilling/coasts/aquatic animals/metals/trace elements/seasonal variations/water chemistry/north Pacific Ocean/Eganhouse/chemical oceanography/algae spermatophytes Bray/thompson/invertebrates/MINERALS MANAGEMENT SERVICE.

1519. George SB, Wayne RK. Island Foxes: A Model for Conservation Genetics. Terra 1991;30(1):18-23 SCIR. fspub/Santa Cruz Island/island fox/evolution/endemic/systematics/Channel Islands/genetics/Santa Rosa Island/San Miguel Island/San Clemente Island/San Nicolas Island/Santa Catalina Island/SRD.

1520. Bolt T. Painters as Preservationists. American Artist 1988;52(555, October):72-77 SCIR. Santa Cruz Island/art/painting/O.A.K./SRD.

1521. Carlisle L. The Santa Cruz Island Collection. Art of California 1990;3(1, January):35-41 SCIR. Santa Cruz Island/art/painting/Stanton/Diebenkorn/SRD.

1522. Kessler JB. Treasure Island. Modern Maturity 1991;34(3):42-47 SCIR. Santa Cruz Island/art/painting/Stanton/history/Diebenkorn/SRD.

1523. Sanders J. Santa Cruz Island. Santa Barbara 1988;14(5, Sept/Oct):36-45, 58-59 SCIR. Santa Cruz Island/history/Stanton/ranch/SRD.

1524. Stenzel F. James Madison Alden; Yankee Artist of the Pacific Coast, 1854-1860. Fort Worth, Texas: Amon Carter Museum; 1975. Santa Cruz Island, p. 50; San Clemente Island p. 54; Santa Barbara Channel p. 53. art/history/Santa Cruz Island/San Clemente Island/Santa Rosa Island/ Santa Barbara Channel/SRD.

1525. Doran AL. Pieces of Eight Channel Islands: A Bibliographical Guide and Source Book. Glendale, Calif.: Arthur H. Clark Co.; 1980. history/Santa Cruz Island/Santa Rosa Island/ San Miguel Island/Anacapa Island/San Nicolas Island/ Santa Barbara Island/Santa Catalina Island/San Clemente Island/animals/birds/flora/SRD.

1526. Brink M.R.B. Radioisotope mobility across the sediment water interface in the deep sea. DISS. ABST. INT. PT. B - SCI. & ENG 1988;49(3). The removal of radiotracers from water to sediments and their partitioning between phases were used to study the rates and mechanisms of transfer for trace elements across the sediment water interface in the deep sea. The in situ mobility of super(22)Na, super(134)Cs, super(133)Ba, super(65)Zn, super(125)Sb, super(7)Be, super(203)Hg, super(54)Mn, super(60)Co, super(59)Fe, super(113)Sn, super(153)Gd, and super(141)Ce was measured using MANOP Lander benthic chambers in the N. equatorial Pacific and in

San Clemente Basin. Diffusion was the predominant mode of transport for radiotracers in the short-term in situ experiments. The observed mobility of radiotracers was compared to that predicted with parameters determined in the laboratory.
radioisotopes/sediment-water exchanges/diffusion/INE/San Clemente Basin/IS/Equatorial Pacific/deep water/geochemical cycle/ASFA.

1527. Campbell RH, Yerkes RF, Truex JN. Santa Monica and Santa Ana mountains; relation to Oligocene Santa Barbara Basin. Am. Assoc. Pet. Geol., Bull. 1977;61(2):p.263-269
U. S. Geol. Surv., Menlo Park, Calif., United-States Analytic; Serial Discussion and reply; for reference to paper by Truex, J. N., see Am. Assoc. Pet. Geol., Bull., Vol. 60, No. 1, 1976. B; Bibliography and Index of Geology (1969-present). Los Angeles County/Ventura County/Orange County/California/structural geology/tectonics/structure/south/Santa Monica Mountains/Santa Ana Mountains/Santa Barbara Basin/faults/interpretation/igneous rocks/volcanic/sedimentary rocks/petroleum/Miocene/United States/GEOREF.

1528. Godden D, Hanna S, Scire J, Strimaitis D (Performer: ERT, Newbury Park, CA. Performer: Sigma Research Corp., Lexington, MA.
Funder: California State Air Resources Board, Sacramento.)
Overwater Plume Dispersion Study. Final rept. ; 1987. Report No.: ERTPD569140, ARBR87306. 73p. See also Appendix, PB87-222386.
Prepared in cooperation with Sigma Research Corp., Lexington, MA. Sponsored by California State Air Resources Board, Sacramento. PC A04/MF A01 Contract: ARBA416532.

The purpose of the study was to develop an air quality modeling methodology to simulate the impact of emissions from oil exploration and production activities in California coastal waters. The study included the collection of data in a field program, and the analysis of the data to determine a relationship between Gaussian dispersion coefficients and overwater transport distance and meteorological variable observed near the source and the shoreline. A plume of sulfur hexafluoride (SF6) and visible 'smoke' was released from an offshore location in the Santa Barbara Channel during onshore flow conditions, and the dispersion of the plume was documented by measuring SF6 concentrations at various distances downwind and by taking a variety of photographs. Experiments were conducted in the Santa Barbara Channel during two one-week period in 1986.

Flow visualization/Emission/Air pollution/Continental shelf/Santa Barbara Channel/Mathematical models/Sulfur fluorides/Air quality/California/Offshore drilling/Plumes/Atmospheric dispersion/NTIS.

1529. SILVER MW. THE HABITAT OF SALPA FUSIFORMIS IN THE CALIFORNIA CURRENT AS DEFINED BY INDICATOR ASSEMBLAGES. LIMNOLOGY AND OCEANOGRAPHY, 20(2): 230-237, MAR. 1975 1975
UNIV. OF CALIFORNIA, COASTAL MARINE LAB., SANTA CRUZ, CA 95064.
ASSOCIATIONS/SALPA/PHYTOPLANKTON/DIATOMS/CALIFORNIA CURRENT/SALPS/S/FUSIFORMIS/OceanAbstracts.

1530. Straughan D, Hadley D. Ecology of southern California island sandy beaches. D. M. Power. The California Islands: proceedings of multidisiplinary symposium; Santa Barbara, CA. Santa Barbara, CA: Santa Barbara Museum of Natural History; 1980. p. p 369-394.

1531. HEINBOKEL JF. STUDIES ON THE FUNCTIONAL ROLE OF TINTIMIDS IN THE SOUTHERN CALIFORNIA BIGHT. 2. GRAZING RATES OF

FIELD POPULATIONS. MARINE BIOL., BERL. 47(2) 1978: 191-197,
ILLUSTR.

* CILIOPHORA ** POLYHYMENOPHORA *** SUBCLASS SPIROTRICHA ****
OLIGOTRICHIDA ***** TINTINNINA.

FEEDING/PARTICULATE FEEDING/FEEDING RATES/DIGESTION & NUTRITION/NUT
RITION/DIET/QUANTITY OF FOOD CONSUMED/FEEDING RATES, NORTHERN
PACIFIC/ECOLOGY/ECOSYSTEM ENERGETICS/COMMUNITY ENERGETICS/PACIFIC
OCEAN/NORTHERN PACIFIC/SOUTHERN CALIFORNIA BIGHT/Zoological Index.

1532. Basch LV, Engle JM. Biogeography and distributional
ecology of *Hemisquilla ensegera californiensis* (Crustacea:
Stomatopoda) in the southern California Bight. F.G. Hochberg.
Recent advances in California Islands Research: Procceedings of the
3rd California Isalnds Symposium. Santa Barbara, CA: Santa Barbara
Museum of Natural History; In press.

biogeography/distribution/Crustacea/Stomatopoda/Hemisquilla
ensegera/Santa Catalina Island/California Channel Islands/marine
biology.

1533. Paduan JD. Response to wind stress and heating in the
North Pacific surface layer. DISS. ABST. INT. PT. B - SCI. & ENG
1988;49(4). Upper ocean field data from two Fall experiments
(STREX, 1980; MILDEX, 1983) are used to infer the oceanic response
to wind stress and heating in the Northeast Pacific Ocean. STREX
examined a region near Ocean Station P (50 degree N, 140 degree W)
from thermistor chain moorings; MILDEX examined a region of the
California Current System (33.5 degree N, 127 degree W). The
budgets of heat and turbulent kinetic energy (TKE) reveal a strong
role for advection in the STREX region. The budgets of heat and
momentum reveal a similarly strong role for advection in the MILDEX
region. Model currents show that the ocean responds to small-scale
(tens of kilometers) variability in the winds.

vertical advection/wind stress/INE/INE/California Current/surface
water/solar radiation/geostrophic flow/Ekman transport/numerical
analysis/dynamical oceanography/ASFA.

1534. Sweeney RE, Kaplan IR. Natural abundance of (15)N as
a source indicator for marine particulate and dissolved nitrogen.
Geol. Soc. Am., Abstr. Programs. 1976;8(6):p.1131
Univ. Calif. Los Ang., Los Ang., Calif., United-States Analytic;
Serial; Abstract B; Bibliography and Index of Geology (1969-
present).

Pacific Ocean/geochemistry/organic materials/sediments/North
Pacific/Santa Barbara Basin/composition/isotopes/nitrogen/N
15/ratios/N 15/N 14/pore
water/ammonia/abundance/measurement/occurrence/GEOREF.

1535. Godden D, Hanna S, Scire J, Strimaitis D (Performer:
ERT, Newbury Park, CA. Performer: Sigma Research Corp., Lexington,
MA.

Funder: California State Air Resources Board, Sacramento.)
Overwater Plume Dispersion Study: Appendix. Final rept. ; 1987.
Report No.: ERTPD569140A, ARBR87307. 178p.

See also PB87-222378. Prepared in cooperation with Sigma Research
Corp., Lexington, MA. Sponsored by California State Air Resources
Board, Sacramento. PC A09/MF A01 Contract: ARBA416532.

The purpose of the study was to develop an air quality modeling
methodology to simulate the impact of emissions from oil
exploration and production activities in California coastal waters.
The study included the collection of data in a field program, and
the analysis of the data to determine a relationship between
Gaussian dispersion coefficients and overwater transport distance
and meteorological variable observed near the source and the

shoreline. The report is appendix and contains data taken during the study.

Air pollution/Emission/Continental shelf/Mathematical models/Flow visualization/Sulfur fluorides/Santa Barbara Channel/Air quality/California/Offshore drilling/Plumes/Atmospheric dispersion/NTIS.

1536. Davis GE. Designated harvest refugia: The next stage of marine fishery management in California. REP. CCOFI 1989;VOL. 30:pp. 53-58 U.S. Natl. Park Serv., Channel Islands Natl. Park, 1901 Spinnaker Dr., Ventura, CA 93001, USA.

Distance from port and depth provided de facto refugia from harvest during the first century of modern exploitation, but recently few California nearshore demersal fisheries have been able to sustain high yields using traditional species-specific management strategies. Designated harvest refugia, or fisheries reserves, should now be evaluated as management tools to enhance or sustain these coastal fisheries. In other parts of the world, designated harvest refugia provide recruits to adjacent harvest zones, protect the genetic diversity of wild stocks, and serve as experimental controls for determinations of potential yield. This concept could be adapted to California's coastal ecosystems by applying accepted theories from ecology and conservation biology.

fishery management/marine fisheries/marine parks/INE, USA, California/Oceanic Abstracts.

1537. DODSON AN. PHYTOPLANKTON ENRICHMENT EXPERIMENTS AND BIOASSAYS IN NATURAL COASTAL SEA WATER AND IN SEWAGE OUTFALL RECEIVING WATERS OFF SOUTHERN CALIFORNIA. ESTUARINE AND COASTAL MARINE SCIENCE, 2(3): 191-206, JULY 1974 SIO, P.O. BOX 1529, LA JOLLA, CA 92037.

WASTE WATERS/SEWAGE/PHYTOPLANKTON/OUTFALLS/CALIFORNIA COAST/NUTRIENTS/GROWTH RATES/FLUORESCENCE/COASTAL WATERS/SOUTHERN CALIFORNIA BIGHT/OceanAbstracts.

1538. Walton BC. The genus *Pylopagurus* (Crustacea: Anomura) in the Pacific with descriptions of two new species. Allan Hancock Pacific Expeditions 1954;18(2):139-173

invertebrates, sandy subtidal, Santa Cruz Island, Santa Barbara Island, San miguel Island, Santa Rosa Island.

1539. YOUNG DR, JAN TK, HEESEN TC. CYCLING OF TRACE METAL AND CHLORINATED HYDROCARBON WASTES IN THE SOUTHERN CALIFORNIA BIGHT. 481-496, ILLUSTR. IN: WILEY, M.L. (ED.) ESTUARINE INTERACTIONS. ACADEMIC PRESS, NEW YORK, SAN FRANCISCO & LONDON 1978: I-XV, 1-603.

ANIMALS & MAN/POLLUTION/CHEMICAL POLLUTION/TRACE METALS & CHLORINATE HYDROCARBONS, SOUTHERN CALIFORNIA BIGHT/BIOCHEMISTRY/CHEMICAL COMPOSITION/POLLUTANT CONTENT/PACIFIC OCEAN/NORTHERN PACIFIC/SOUTHERN CALIFORNIA BIGHT/TRACE METAL & CHLORINATED HYDROCARBON CYCLING/Zoological Index.

1540. Basch LV, Engle JM. Aspects of the ecology and behavior of the stomatopod *Hemisquilla ensigera californiensis* (Gonodactyloidea: Hemisquillidae. Boll. Zool. In press ecology/behavior Gonodactyloidea/Hemisquillidae/Hemisquilla ensigera/Santa Catalina Island/California Channel Islands/marine biology.

1541. Niiler PP, Poulain PM, Haury LR. Synoptic three-dimensional circulation in an onshore-flowing filament of the California Current. DEEP-SEA RES 1989;36(3A):385-405. Hydrographic (CTD and XBT casts) and Lagrangian particle drift

(satellite-tracked mixed layer drifter) measurements taken off Southern California and northern Baja California in July 1985 are in the region where, historically, a stable, broad onshore flow is indicated in the 0/500 db relative dynamic topography. A 50 km wide onshore-flowing filament of cold and low-salinity water is resolved by the new measurements. Water mass properties (temperature, salinity and spiciness) are used to trace the different water masses and describe the circulation in the surveyed region. ocean circulation/oceanic divergences/INE/California Current/ISE/California Current/XBTs/CTD observations/Lagrangian current measurement/water masses/oceanic eddies/geostrophic flow/hydrographic surveys/ASFA.

1542. MacDonald KB, Janes SD, Howden WJ, Jordan PD. Shell assemblages and biogenic sedimentary structures from the Santa Barbara Basin, California Borderland. Geol. Soc. Am., Abstr. Programs. 1976;8(6):p.990-991 Univ. Calif., Santa Barbara, Calif., United-States Analytic; Serial; Abstract B; Bibliography and Index of Geology (1969-present). California/sedimentary petrology/sedimentary structures/Santa Barbara Basin/biogenic structures/lebensspuren/tubes/burrows/environmental analysis/interpretation/shell assemblages/Invertebrata/Mollusca/Brachiopoda/algae/fungi/United States/GEOREF.

1543. O'Hara JF. Comparison of Satellite-Derived Ocean Velocities with Observations in the California Coastal Region. [dissertation] ; 1987. 42p. Performer: Naval Postgraduate School, Monterey, CA
Satellite derived ocean surface velocity vectors in the California Current System (CCS) are compared with in situ hydrographic and Doppler data. The insitu data were acquired during the April 1981 phase of the Coastal Ocean Dynamics Experiment (CODE) experiment. In general, the satellite derived velocities agreed with the in situ data. Due to the baroclinic nature of the study region, the satellite vectors were found to be representative of the subsurface geostrophic flow. Although the number and concentration of the satellite vectors was small, these vectors were capable of resolving the mesoscale features located in the study region. Comparison of colocated data revealed that the in situ Doppler velocity measurements were approximately 1.5 times larger than the satellite derived velocity vectors. These results agree with a similar study conducted in an offshore region. Keywords: Remote sensing; Ocean currents; California current system; California coastal region; Theses.
California/Coastal regions/Fluid dynamics/Oceans/Remote detectors/Artificial satellites/Velocity/Theses/Doppler systems/Offshore/Geostrophic currents/Geostrophic wind/Subsurface/Satellite photography/Vector analysis/Flow fields/Cycles/Infrared photography/Error analysis/Measurement/Coastal regions/Ocean currents/Flow rate/Hydrographic surveying/NTIS.

1544. BLASKOVICH DD. A DRIFT CARD STUDY IN MONTEREY BAY, CALIFORNIA: SEPTEMBER 1971 TO APRIL 1973. MASS LANDING MARINE LABORATORIES. TECHNICAL PUBLICATION 73-04, 1973. 87 PP 1973 CALIFORNIA STATE UNIV., SAN JOSE, DEPT. OF NATURAL SCIENCES, 125 S. SEVENTH ST., SAN JOSE, CA 95114.
CURRENT DATA/CALIFORNIA CURRENT/DIURNAL VARIATIONS/WIND DRIFT CURRENTS/SEASONAL VARIATIONS/MONTEREY BAY/DRIFT MEASUREMENTS/DRIFT CARDS/OceanAbstracts.

1545. Wicksten M. Mainland and insular assemblages of benthic decapod crustaceans of southern California. D. M. Power. The California Islands: proceedings of a multidisciplinary symposium; Santa Barbara, CA. Santa Barbara, CA: Santa Barbara Museum of Natural History; 1980. p. p 357-368.

1546. Bauer RT. Color patterns of the shrimps *Heptacarpus pictus* and *Heptacarpus paludicola* (Caridea: Hippolytidae). Mar. Biol. (Berl.) 1981;64(2):141-152

Address: DEP. INVERTEBRATE ZOOL., NATL. MUS. NAT. HIST., SMITHSONIAN INST., WASHINGTON, D.C. 20560.

Color patterns of the shallow-water shrimps *H. pictus* and *H. paludicola* are formed by chromatosomes (usually termed chromatophores) located beneath the translucent exoskeleton. Development of color patterns is related to size (age) and sex. The color expressed is determined by the chromatosome pigment dispersion, arrangement and density. In populations with well-developed coloration (*H. pictus* from Cayucos, California [USA], 1976-1978, *H. paludicola* from Argyle Channel, San Juan Island, Washington, June-July, 1978), prominent coloration was a characteristic of maturing females, breeding females and some of the larger males. In the Morro Bay, California, population of *H. paludicola* (sampled 1976-1978), color patterns were poorly developed except in a few large females. In both species, most shrimp lose color at night because of pigment retraction in certain chromatosomes. In both species, there are 5 basic morphs: 1 transparent and 4 colored morphs. In the colored morphs, the color patterns are composed of bands, stripes and spots which appear to disrupt the body outline. Each color morph also has a common environmental color in its color pattern, e.g., the green of green algae, the whites and pinks of dead and living coralline algae, and various shades of tidepool litter. These shrimps are apparently under heavy predation pressure by fish. The color patterns probably are camouflage against such visually-hunting predators.

fish
predation/age/sex/chromatosome/pigments/camouflage/chromatophores /shrimps/Caridea/Hippolytidae/Heptacarpus pictus/Heptacarpus paludicola/Cayucos/California /Argyle Channel/San Juan Island/Washington/Morro Bay/ California/marine biology.

1547. Carlucci AF, Craven DB, Robertson KJ, Henrichs SM. Microheterotrophic utilization of dissolved free amino acids in depth profiles of Southern California USA borderland basin waters. Oceanol. Acta. 1986;9(1):89-96. MICROBIAL ACTIVITY/BACTERIA RESPIRATION/MICROBIOLOGY/Geesey/TEXT/MINERALS MANAGEMENT SERVICE.

1548. Carlucci AF, Eppley RW, Beers JR. Introduction to the Southern California Bight. Lecture notes on coastal and estuarine studies. Plankton dynamics of the Southern California Bight 1986;15:1-12.
text/chemical oceanography/Eganhouse/Venkatesan/MINERALS MANAGEMENT SERVICE.

1549. Bernard FR. Five new species of the family Limidae (Bivalvia) from the eastern Pacific Ocean. VENUS JAP. J. MALACOL./KAIZATSU 1988;47(4):225-232. Five new limid bivalves from the eastern Pacific Ocean are described. They are, *Limaria valdiviesae* from northern Chile, 100 m deep; *Limatula macleani* from off San Pedro, southern California, 560 m deep; *L. californica* from off Santa Catalina Island, southern California, 144 m deep; *Plicacesta nasca* from off Shoal Guyot, west of Chile, 228 m deep; and *Limatuletta coani* from off Patton Escarpment, southern California, 3706 - 3806 m deep.

new species/Limidae/Limaria valdiviesae/Limatula macleani/Limatula californica/Plicacesta nasca/Limatuletta coani/ISE/taxonomy/ASFA.

1550. Young DR, McDermott DJ, Heesen TC, Jan TK. Pollutant inputs and distributions off southern California. Am. Chem. Soc., Symp. Ser. (18). Marine chemistry in the coastal environment. 1975:p.424
South. Calif. Coast. Water Res. Proj., El Segundo, Calif., United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present). California/environmental geology/pollution/south/Southern California Bight/water/marine/nearshore/waste disposal/liquid waste/waste water/industrial waste/distribution/United States/GEOREF.

1551. Gorelick G. Santa Catalina Island's endemic Lepidoptera. 3. The Avalon hairstreak, *Strymon avalona* (Lycaenidae): An ecological study. ATALA 1986;14(1):12-14.
A 10-year study of the Avalon Hairstreak *Strymon avalona* is presented, including adult behavior, larval hostplant ecology, phenology, and predators and parasites. Despite the restricted distribution of *S. avalona* and its occasional sympatry with *Strymon melinus* on Santa Catalina Island, this study revealed few threats to either its biological integrity or habitat. Ecological data from other California Channel Islands and several mainland California localities is also included, as are some thoughts on the Avalon Hairstreak's possible evolutionary origin. *Strymon avalona*/ecology/USA/California/Santa Catalina Island/Lycaenidae/endemic species/CSA Life Sciences Collection.

1552. Nierenberg WA, Gautier C, Simpson JJ, Somerville RC, Vallis GK (Performer: Scripps Institution of Oceanography, La Jolla, CA). Scripps Ocean Modeling and Remote Sensing (SOMARS). Semi-annual progress rept. no. 1. ; 1987. 31p.
This is a semi-annual report based on the activities of 10 research groups. 1. Development for the Mercury Array processor for advanced image processing. 2. The use of synthetic Aperture radar for studying ocean waves and wave current interactions. 3. The study of wind sets on the North Pacific Ocean. 4. Development of a Kalman Filtering Spectral Analysis Program. 5. Acquisition of a VAX-11/750 to study Marine Climatology and Ocean Currents. 6. The reduction of Lagrangian DRIFTER DATA for the California Current. 7. Intergration of in-site and remote sensing data for the study of Marine Systems. 8. The study of the mixed layer model of the ocean. 9. Experiments on the Assimilation of Altimeter Data into a Quasi-Geostrophic, Eddy Resolving Numerical Model. 10. Data Assimilation on Basin Scaling Modeling.
Acquisition/Basins Geographic/Marine climatology/Layers/Mixing/Mathematical models/Ocean currents/Image processing/California/Arrays/Mercury/Processing equipment/North Pacific Ocean/Minicomputers/Mixed layer Marine/Eddies Fluid mechanics/Interactions/Waves/Synthetic aperture radar/Wind/Oceans/Ocean models/Oceanography/Ocean waves/VAX II/750 computers/Satellite altimetry/SOMARS/Scripps Ocean Modeling and Remote Sensing/Remote sensing/NTIS.

1553. Azam F, Carlucci AF. Role of bacteria in organic matter fluxes in the southern California coastal zone: Progress report, May 15, 1985-May 14, 1989. REP. U.S. DEP. ENERGY 1989 2070231%.
This project is the microbiological component of the DOE-sponsored interdisciplinary program entitled "Program of Mineralization and Cycling in Marine Systems" -- California Bight Study (CaBS). The main goal of our research is the study of the role of bacteria in

influencing the distribution, decomposition, and vertical flux of materials in the coastal ocean. We have been studying: (1) whether bacteria play a significant role in the decomposition of the organic particles sinking into the ocean's interior; (2) how important are bacteria in assimilating dissolved organic matter (DOM) into the particulate phase (particulate organic matter, POM); (3) by what biochemical strategies do bacteria solubilize the particulate organic matter, both in the upper mixed layer and in the ocean's interior; and (4) whether bacterial activity in the upper mixed layer influences the variability of new production. (Contract FG05-85ER60337. Portions of this document are illegible in microfiche products.).

organic matter/decomposers/biochemical composition/vertical distribution/dissolved organic matter/particulate organic matter/bacteria/INE, USA, California, California Bight/Oceanic Abstracts.

1554. JANDA RJ. PRINCIPAL SOURCES AND DISPERSAL PATTERNS OF SUSPENDED PARTICULATE MATTER IN NEARSHORE SURFACE WATERS OF THE NORTHEAST PACIFIC OCEAN. SCIENTIFIC AND TECHNICAL AEROSPACE REPORTS, 12(5): 529, MAR. 8, 1974 1974 USDI, USGS, 345 MIDDLEFIELD RD., MENLO PARK, CA 94025.

CALIFORNIA COAST/COASTAL CURRENTS/DISPERSION/PACIFIC OCEAN NORTHEAST/RIVER DISCHARGES/SATELLITE OBSERVATIONS/SURFACE WATERS/SUSPENDED PARTICLES/ABSTRACT ONLY/CALIFORNIA CURRENT/DAVIDSON CURRENT/EROSION/ERTS-1/ GYRES/MASS MOVEMENT/NEARSHORE WATERS/OceanAbstracts.

1555. Woodhouse CD (Santa Barbara Museum of Natural History). Literature review of the resources of Santa Cruz and Santa Rosa Islands and the Marine Waters of Channel Islands National Park, California. many, specialized subject bibliographies. Santa Barbara, CA: Santa Barbara Museum of Natural History; 1981. Report No.: Vol II. 706 pp. Extensive bibliographies by subject on the Channel Islands, contains many older references. Bibliography, Channel Islands.

1556. Bea RG. Earthquake and wave design criteria for offshore platforms. Proc. Am. Soc. Civ. Eng. J. Struct. Div. 1979;105(ST2):401-419 petroleum; seismology; engineering. A method that applies experience, projections of environmental conditions, response analyses, and reliability logic is used to develop earthquake and wave design criteria for one class of offshore platform system. The system consists of a steel, tubular-membered, template-type superstructure supported on piles and firm soils, in 300 ft of water. Three fictitious sites are considered. Eastern Gulf of Alaska, Southern California, and the Santa Barbara Channel. Ranges of design wave heights and ground motion velocities are given. Results are compared with those appropriate for a conventional building structure and with those from API RP 2A guidelines for fixed offshore platforms. Good agreement with API guidelines is indicated.

offshore platforms/earthquakes/design/wave forces/structural dynamics Eastern Gulf of Alaska/Southern California/Santa Barbara Channel/Address: Woodward-Clyde Consultants, Houston, TX, USA.

1557. Carson TL. Radiolarian response to the 1983 California El Nino. Siliceous Microfossil and Microplankton of the Monterey Formation and Modern Analogs. Univ. of San Diego, Mar. Stud. Program, San Diego, CA (USA). In: Field Trip Guidebook - Pacific Section, Society of Economic Paleontologists and Mineralogists 1986;45:9-19.

California/radiolarians/ecology/oceanography/continentalmargin/No
rthAmericanPacific/oceancurrents/El
Nino/CaliforniaContinentalBorderland/PacificCoast/speciesdiversit
y/California Current/Spongaster/biomass/nutrients/planktonic
taxa/Hickey/physical oceanography/MINERALS MANAGEMENT SERVICE.

1558. Alldredge AL, Gotschalk CC. Direct observations of the
mass flocculation of diatom blooms: Characteristics, settling
velocities and formation of diatom aggregates. DEEP-SEA RES
1989;36(2A):159-171.

Blooms of chain-forming marine diatoms were observed in the process
of aggregating into centimeter-sized flocs of marine snow in
surface waters of the Santa Barbara Channel, California. These
aggregates were composed of a rich assemblage of living, actively
photosynthesizing diatoms dominated by the setose genus *Chaetoceros*
and by chain-forming *Nitzschia* spp. Flocculation of one bloom
occurred in as little as 24 h, and bloom flocculation apparently
was not triggered by nitrogen-limitation. Marine snow of diatom
origin was also abundant during spring, summer and early autumn
throughout the Southern California Bight, suggesting that diatom
flocculation is a seasonally significant source of marine snow.
Resting spores rarely occurred within either newly formed or aged
diatom flocs. The mean in situ settling velocity (plus or minus
S.D.) of newly formed flocs was 117 plus or minus 56 m d super(-1),
two orders of magnitude faster than unaggregated *Chaetoceros* .
USA/California/Chaetoceros/Nitzschia/algal
blooms/flocculation/seasonal variations/coastal
waters/INE/USA/California/aggregates/formation/ASFA.

1559. McLean H, Howell DG. Elements of tectonism deduced
from Miocene strata, northern Channel Islands, California. Am.
Assoc. Pet. Geol., Bull. AAPG-SEPM-SEG Pacific sections meeting.
1976;60(12):p.2185-2186 U. S. Geol. Surv., Menlo Park, Calif.,
United-States Analytic; Serial; Abstract B; Bibliography and
Index of Geology (1969-present).
Vaqueros Formation/San Onofre Breccia/Rincon
Formation/California/sedimentary petrology/sedimentary
rocks/conglomerate/breccia/sedimentation/Miocene/south/Channel
Islands/Santa Cruz Island/Santa Rosa Island/San Miguel
Island/controls/structural
controls/tectonics/uplifts/lithofacies/provenance/United
States/clastic rocks/terrigenous/GEOREF.

1560. Balch W, Garside C, Renger E. Studies of nitrate
transport by marine phytoplankton using super(36)Cl-C10 super(-
)@d3 as a transport analogue--2. Field observations. DEEP-SEA RES
1987;34(2A):221-236.
Transport of a nitrate analogue, super(36)Cl--C10 super(-)@d3, was
examined in phytoplankton from the Southern California Bight and
Gulf of Maine. Chlorate transport (and by analogy, nitrate
transport) was inhibited by ammonium concentrations exceeding 1% of
the total dissolved inorganic nitrogen concentration. Chlorate
transport rate was highest in water samples in which net uptake was
highest and net uptake or production of ammonium approached zero.
The results suggest that ammonium recycling is tightly coupled
between grazers and phytoplankton in the nitrate-depleted mixed
layers of the Southern California Bight and Gulf of Maine.
phytoplankton/nitrates/nitrogen cycle/Pacific Ocean/Southern
California Bight/Maine Gulf/nitrate/INE/Southern California
Bight/ANW/Maine Gulf/transport processes/transport/CSA Life
Sciences Collection.

1561. Smith PE, Ohman MD, Eber LE. Analysis of the patterns

of distribution of zooplankton aggregations from an acoustic Doppler current profiler. REP. CCOFI 1989;VOL. 30:pp. 88-103 Southwest Fish. Cent., NMFS, NOAA, P.O. Box 271, La Jolla, CA 92038, USA. A test set of data of volume reverberation, measured from the R/V New Horizon, nominally from 12-240-m depth in 4-m intervals, was taken in April 1988 using a 307-kHz acoustic Doppler current profiler (ADCP). A vertical profile was produced each minute for three days over the San Diego Trough off southern California. The results show kilometer-scale zooplankton aggregations with somewhat larger gaps between them. The area profiles had about 10% coverage of zooplankton aggregations. Aggregation target strengths were usually stronger during the morning and evening migrations. Migration rates were of the order of 5-8 cm/s during ascent and 3-4 cm/s during descent. Zooplankton aggregations were of horizontal dimensions intermediate between fish schools and groups of schools. zooplankton/ecological aggregations/vertical distribution/vertical migrations/organism aggregations/INE, USA, California, San Diego Trough/target strength/vertical profiles/Oceanic Abstracts.

1562. JOHNSON RK. FREQUENCY DEPENDENCE OF THE DAILY PATTERN OF SEA REVERBERATION. ACOUSTICAL SOCIETY OF AMERICA. JOURNAL, 54(2): 478-482, AUG. 1973 1973
SIO, MARINE PHYSICAL LAB., P.O. BOX 109, LA JOLLA, CA 92037.
CALIFORNIA CURRENT/DIURNAL VARIATIONS/FREQUENCY DEPENDENCE/REVERBERATION DATA/SOUND SCATTERING/SCATTERER POPULATIONS/OceanAbstracts.

1563. Bebout GE. High P/T fluid flow during subduction zone metamorphism; Catalina Schist terrane, Santa Catalina Island, CA. The Geological Society of America, 99th annual meeting. Abstracts with Programs - Geological Society of America 18(6). ; 1986. 538. Address: Univ. Calif., Dep. Earth and Space Sci., Los Angeles, CA Conference: The Geological Society of America, 99th annual meeting. San Antonio, TX, Nov. 10-13, 1986.
metamorphism/prograde metamorphism/P-T conditions/Catalina Schist/subduction zones/terrane/blueschist facies/greenschist facies/amphibolite facies/veins/metagabbro/metaigneous rocks/eclogite facies/Santa Catalina Island/geology/igneous petrology/metamorphic petrology.

1564. Casey HD. The saury as a latent resource of the California current. Calif. Coop. Oceanic Fish. Invest. Rep. 1970;(14):88-130.
sauries/cololabis/fisheries resources/california coast/population assessment/C/saira/zooplankton/Pieper/MINERALS MANAGEMENT SERVICE.

1565. Casey RE, Carson TL, Weinheimer AL. Modern California current system and radiolarian responses to 'normal' (anti-El Nino) conditions. Am. Assoc. Pet. Geol. Bull. 1986;70(4):464-465.
California/radiolarians/ecology/physical oceanography/continental margin/Holocene/marineenvironment/CaliforniaCurrent/ocean currents/thermohaline circulation/El Nino/California Continental Borderland/Pacific Coast/North American Pacific/Hickey/physical oceanography/MINERALS MANAGEMENT SERVICE.

1566. Bray RN, Miller AC, Jonson S, Krause PR, Robertson DL, Westcott AM. Ammonium excretion by macroinvertebrates and fishes on a subtidal rocky reef in southern California. MAR. BIOL 1988;100(1):21-30.
Ammonium excretion rates of eleven macroinvertebrate and five fish taxa were determined from a total of 324 in situ incubations conducted between October 1984 and August 1985 at 14 to 17 m depths

off Santa Catalina Island, California. Total ammonium excretion ranged from over 100 $\mu\text{mol/h}$ by the kelp bass *Paralabrax clathratus* to less than 0.1 $\mu\text{mol/h}$ by the gastropod *Conus californicus*. Weight-specific ammonium excretion generally ranged from 0.5 to 4 $\mu\text{mol/g/h}$ in invertebrates and from 3 to 7 $\mu\text{mol/g/h}$ in fishes. excretion/population density/*Paralabrax clathratus*/*Conus californicus*/dry weight/size/diurnal variations/INE/USA/California/ammonia/ASFA.

1567. Fischer PJ. Late Neogene Quaternary tectonics and depositional environments of Santa Barbara Basin, California. Am. Assoc. Pet. Geol., Bull. AAPG-SEPM-SEG Pacific sections meeting. 1976;60(12):p.2180
Calif. State Univ., Northridge, Calif., United-States Analytic; Serial; Abstract B; Bibliography and Index of Geology (1969-present).
California/sedimentary petrology/sedimentation/Pliocene/Pleistocene/offshore/south/Santa Barbara Basin/United States/tectonics/changes of level/controls/structural controls/environment/marine/shelf/submarine canyons/submarine fans/provenance/deposition/cyclic/petroleum/GEOREF.

1568. Cicin SB (Performer: California Univ., Berkeley. Inst. of Governmental Studies). Offshore Oil Development in California: Challenges to Governments and to the Public Interest. ; 1986. 18p. Pub. in Public Affairs Report, v27 n1-2 Feb-Apr 86. PC A02/MF A01. The purpose of the paper is to characterize the major challenges to governments and to the public that are posed by the accelerated pace in oil development now taking place offshore California. In recent years, huge oil discoveries have been made off the South/Central Coast of California in the Santa Barbara Channel and in the Santa Maria Basin. A number of oil development proposals are now being considered by relevant federal, state, and local authorities. The article first characterizes the magnitude of the current oil build-up, placing it in historical perspective. Next, it describes the major issues posed by accelerated development, and the complex of federal, state, and local laws that govern offshore oil extraction.
Coasts/History/National government/State government/Local government/Law Jurisprudence/Geophysical prospecting/Sales/Leasing/Constraints/Land use/Drilling platforms/Petroleum industry/Maps/Reprints/Offshore drilling/Crude oil/Government policies/Economic development/California/Announcement bulletins/Oil recovery/NTIS.

1569. Sheres D, Kenyon KE. A double vortex along the California coast. J. GEOPHYS. RES. (C OCEANS 1989;VOL. 94, NO. C4:pp. 4989-4997
Cent. Mar. Sci., Univ. Southern Mississippi, Stennis Space Cent., MS 39401, USA. A double vortex was observed at the entrance to the Santa Barbara Channel, California, with sequential IR imagery from the NOAA 7 satellite during May 1984. While the wind blew strongly to the southeast, the double vortex moved westward with a velocity greater than that estimated for the mutual interaction of two idealized vortices. The effect of the double vortex on incoming Pacific swell is calculated by numerical integration of the ray equations. This calculation shows areas of focusing of the rays near the entrance to the channel, which suggests elevated wave energy there with reduced wave energy nearby. The pattern of wave refraction by mesoscale features, such as a double vortex, can help detect them and estimate their velocity distribution from remotely

sensed surface wave imagery. The similarities and differences between refraction patterns produced by double vortices and by eddies is outlined. The double vortex and its generation by an episodic or tidal flow is investigated using Kashiwai's (1984) approach. An example of the related generation of a single vortex in the Alboran Sea by tidal flow in the Strait of Gibraltar is briefly discussed.

vortices/INE, Santa Barbara Channel/satellite sensing/infrared imagery/oceanic eddies/swell/wave energy/mesoscale features/MED, Alboran Sea/MED, Gibraltar Strait/nearshore dynamics/mathematical models/Oceanic Abstracts.

1570. MOLNAR DL. CALIFORNIA UNDERCURRENT RECONNAISSANCE BETWEEN MONTEREY AND SANTA BARBARA. GOVERNMENT REPORTS ANNOUNCEMENTS, 73(9): 61, MAY 10, 1973 1973 U.S. NAVAL POSTGRADUATE SCHOOL, MONTEREY, CA 93940.

CALIFORNIA CURRENT/ISOHALINE/ISOTHERMS/T-S DATA/UNDERCURRENTS/ABSTRACT ONLY/OceanAbstracts.

1571. Behrents KC. The comparative ecology and interactions between two sympatric gobies (*Lythrypnus dalli* and *Lythrypnus zebra*) [dissertation]. California, USA: University of Southern California; 1983. Unknown. The ecology of two sympatric gobies, *Lythrypnus dalli* and *Lythrypnus zebra*, at Santa Catalina Island, California was compared and the potential for interactions tested experimentally. Factors affecting the distribution and abundance of species were examined at three sites over two years. Abundance of fish was dependent upon the number of shelters available and not correlated to temperature, depth, or density of congeners. Densities of both species fluctuated seasonally in response to recruitment events and annual turnover of adult fish after spawning. Temporal separation was maintained between species by a two month lag in the initiation of spawning and recruitment. Both species occur in rocky subtidal habitats, however subtle differences in spatial preference within habitats were apparent. *Lythrypnus dalli* orient right-side up on horizontal surfaces, while *L. zebra* orient vertically or upside-down on the undersides of horizontal surfaces. Preference remained unchanged in the absence of the congener. Field experiments utilizing artificial habitats indicated no direct interference for habitat space between adult fish. Intraspecific interactions between adult and juvenile *L. dalli* occurred only when habitat space was limited. Dietary differences in type, number, size, and weight of prey reflect differential utilization of foraging areas between species. *Lythrypnus dalli* fed primarily on zooplankton in the water column, while *L. zebra* picked prey from the benthic turf. Differences did not result from the active interference of one species by the other. In fact, *L. dalli* responded to the presence of its congener by increased utilization of benthic prey. This result, together with data collected from laboratory growth experiments, suggest that the potential fitness of *L. dalli* may be enhanced by the presence of *L. zebra*. The prediction that competition should be most intense among morphologically similar species is not supported by the results of this study. Interspecific differences in timing of spawning and settlement, habitat and prey utilization are maintained even in the absence of the suspected competitor. These ecological differences serve to minimize the potential for negative interactions between species, while evidence exists to suggest that *L. dalli* may benefit from its association with *L. zebra*. (Copies available exclusively from Micrographics Department, Doheny Library, USC, Los Angeles, CA 90089.).

sympatric species/shelters/spawning/recruitment/intraspecific competition/gobies/goby/Lythrypnus dalli/Lythrypnus/zebra/Santa Catalina Island/marine biology.

1572. Berelson WM, Buchholtz MR, Hammond DE, Santschi PH. Radon fluxes measured with the MANOP Bottom Lander. DEEP-SEA RES 1987;34(7A):1209-1228. At five Pacific Ocean sites, radon fluxes were determined from water samples collected by the MANOP Lander, from measurements of super(222)Rn and super(226)Ra concentrations in Lander-collected box core sediments, and from measurements of excess radon in the water column. Because there is excellent agreement between the fluxes measured with Lander water samples and the predicted diffusive fluxes in most cases, diffusion must be the primary process controlling benthic exchange of radon at the sites studied. The agreement between the Lander water flux estimates and the water column standing crop estimates indicates that the MANOP Lander functions as an accurate benthic flux chamber in water depths ranging from 1900 to 4900 m.
I/Pacific/benthic boundary layer/radon isotopes/water analysis/water column/molecular diffusion/INE/Pacific/San Clemente Basin/radium/manganese/geochemistry/ASFA.

1573. Crowe BM, Howell DG, McLean H. Miocene volcanic and volcanoclastic rocks of Santa Cruz Island; evidence for offset along Santa Cruz Island Fault. Am. Assoc. Pet. Geol., Bull. AAPG-SEPM-SEG Pacific sections meeting. 1976;60(12):p.2177-2178 U. S. Geol. Surv., Menlo Park, Calif., United-States Analytic; Serial; Abstract B; Bibliography and Index of Geology (1969-present).
California/petrology/igneous rocks/volcanic/sedimentary rocks/Miocene/Santa Cruz Island/United States/volcanism/sedimentation/pyroclastics/correlation/Blanca Formation/clastic rocks/terrigenous/volcanic ash/lithofacies/indicators/faults/displacements/basalt/andesite/dacite/textures /mineral composition/strike slip/composition/Santa Cruz Island Fault/GEOREF.

1574. Briggs K, Chu E. Trophic relationships and food requirements of California seabirds: Updating models of trophic impact. SEABIRDS. FEEDING ECOLOGY AND ROLE IN MARINE ECOSYSTEMS.; 1987; pp. 279-304
The California Current system comprises some of the world's most productive marine waters. From an oceanographic and fisheries standpoint this region is perhaps the best studied in the world, but the role of seabirds and other predators is only now emerging. In this chapter the authors apply new approaches to a familiar bioenergetics model to assess the impact of California coastal seabirds on marine prey populations. The model is based on comprehensive population studies done from mid-1975 through early 1978 in southern California, and 1980 through 1982 in central and northern California, (Briggs et al., 1981 a,b, 1984), as part of our work focusing on all seabird and marine mammal populations in habitats targeted for oil and gas leasing.
trophic relationships/food consumption/coastal waters/USA/California/bioenergetics/Aves/INE/California Current/ISE/California Current/CSA Life Sciences Collection.

1575. Jones ML, Swartz SL (Performer: Cetacean Research Associates, San Diego, CA. Funder: National Oceanic and Atmospheric Administration, Washington, DC.) Radio Telemetric Study and Aerial Census of Gray Whales during Their Southward Migration in the Channel Islands National Marine Sanctuary, January 1986. Final rept. ; 1987. 142p.

Sponsored by National Oceanic and Atmospheric Administration, Washington, DC. PC A07/MF A01 Contract: 50ABNF600067.

The Channel Islands National Marine Sanctuary (CIMMS) is a tract of ocean, about 1,252 n sq. m, encompassing the waters within 6nm of San Miguel, Santa Rosa, Santa Cruz. This island system is uniquely positioned in the Southern California Bight, being the first islands south of Point Conception where the mainland coast turns east toward Santa Barbara. From January 18 to February 4, 1986, a pilot study was conducted in the CINMS with the overall goal of producing baseline information on gray whales (*Eschrichtius robustus*) during the peak period of their southward migration. Strip-surveys were flown to determine the abundance, distribution, behavior, and resource use of gray whales in the CINMS. Animal migrations/Census/Animal behavior/Spatial distribution/Abundance/Populations/Radio tracking/California/Coasts/Cetaceae/Whales/Aerial surveys/Channel Islands/Gray whales/Baseline studies/*Eschrichtius robustus*/NTIS.

1576. Poulain PM, Niiler PP. Statistical analysis of the surface circulation in the California Current System using satellite-tracked drifters. J. PHYS. OCEANOGR 1989;VOL. 19, NO. 10:pp. 1588-1603

Scripps Inst. Oceanogr., Mail Code A-030, La Jolla, CA 92093, USA. A kinematic description of the surface circulation in the southern California Current System is presented using the statistics of the 7-11 month long trajectories of 29 satellite-tracked mixed layer drifters. The drifters were released north of 30 degree N and traveled southward at an average speed of 3-4 cm/s along Baja California through an inhomogeneous field of mesoscale eddies of 15 cm/s rms variability. Lagrangian and Eulerian statistics of the variations about this mean southward drift are computed. Particle-pair statistics are used to study the relative dispersion of particles. The relative diffusivities depend on the initial separation and on the duration of drift.

INE, California Current/physical oceanography/ocean circulation/ocean currents/current observations/drifting data buoys/Eulerian current measurement/Lagrangian current measurement/statistical analysis/Oceanic Abstracts.

1577. SMITH PE. SEASONAL AND GEOGRAPHIC CHARACTERISTICS OF FISHERY RESOURCES: CALIFORNIA CURRENT REGION -- VIII. ZOOPLANKTON. COMMERCIAL FISHERIES REVIEW. WASHINGTON, D.C., 34(5-6): 33-40, MAY-JUNE 1972 NMFS, FISHERY-OCEANOGRAPHY CENTER, LA JOLLA, CA. ZOOPLANKTON/ANNUAL CYCLES/BIOMASS/TEMPERATURE VARIATIONS/CALIFORNIA CURRENT/PLANKTON VOLUME VARIATIONS/OceanAbstracts.

1578. Beilenson AC. What Future for the Santa Monicas? National Parks and Conservation Magazine 1978;52(2):10 Legislation/Wildlife preservation/Santa Monica Mountains/California Channel Islands/conservation/resource management/policy.

1579. CDM I. Sludge disposal in the marine environment: A summary of experiences and effects as they pertain to the Southern California Bight. Prep. for South. Calif. Coastal Water Res. Proj., Long Beach, CA. Prep. by CDM, Inc., Pasadena, CA 1972; MINERALS MANAGEMENT SERVICE.

1580. Center for Coastal Marine Studies. Summary report 1975-78, marine mammals and seabird surveys of the Southern California Bight area. Executive summary. Years I-III. POCS Tech. Pap. No. 81-9. Prep. for U.S. Dep. Interior, Minerals Management Service, Pacific OCS Region, Los Angeles, CA. Prep. by Center for Coastal Marine Studies, Santa Cruz, CA 1981;:40.

MINERALS MANAGEMENT SERVICE.

1581. Center for Marine Studies UoCSC. Marine mammal and seabird survey of the Southern California Bight area. Principal investigator's reports. Book 2. Seabirds. Final Rep. 1978C;III:313.
mammals/seabird/MINERALS MANAGEMENT SERVICE.

1582. Page M. Temporal variation in growth rate, body and gonad weight in a population of *Mytilus edulis* in the Santa Barbara Channel. J. SHELLFISH RES 1988;7(1):p. 129.
This study examined relationships between temporal variation in growth rate, body and gonad weight of *Mytilus edulis* and variation in water temperature and chlorophyll a concentration at an oil production platform located 3 km offshore of Goleta, California. Populations of 20 mm length mussels were enclosed monthly in cages at a depth of 2 m and bimonthly at depths of 9 m and 18 m. Growth rate of 20 mm mussels varied over time ranging from a low of 5.5 mm/mo in December 1984 to a high of > 9.0 mm/mo in late May 1985. Mussels grew from 20 to 50 mm in 3.7 to 7.0 mos. Growth rate was greatest at a depth of 9 m. Temporal variation in growth rate was positively associated with variation in chlorophyll a levels, but not water temperature. The results indicated that growth, reproduction, and nutritional condition of *M. edulis* may be enhanced in the area of higher phytoplankton biomass near Pt. Conception, California.
reproduction/chlorophylls/Mytilus edulis/growth/variability/INE/Santa Barbara Channel/environmental conditions/ASFA.

1583. McLean H. Block fault model of Santa Cruz Island. Am. Assoc. Pet. Geol., Pac. Sect., Misc. Publ. (24). Aspects of the geol. hist. of the Calif. Cont. Borderland. 1976:p.560-561
U. S. Geol. Surv., Menlo Park, Calif., United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present).
California/structural geology/faults/systems/southwest/Channel Islands/Santa Cruz Island/block/United States/GEOREF.

1584. Fishery Bulletin 1986;84(3)
See also PB86-225372. PC A12/MF A01.
Performer: National Marine Fisheries Service, Seattle, WA
Contents: Longevity and age validation of a tag-recaptured Atlantic sailfish, *Istiophorus platypterus*, using dorsal spines and otoliths; Age dependent fecundity, number of spawnings per year, sex ratio, and maturation stages in northern anchovy, *Engraulis mordax*; Some statistical techniques for estimating abundance indices from trawl surveys; Rates of increase in dolphin population size; Discrete-time difference model for simulating interacting fish population dynamics; Fecundity of northern shrimp, *Pandalus borealis*, (Crustacea, Decapoda) in areas of the Northwest Atlantic; Incidental dolphin mortality in the eastern tropical Pacific tuna fishery, 1973 through 1978; Distribution and reproductive biology of the golden king crab, *Lithodes aequispina*, in the eastern Bering Sea; A model of the drift of northern anchovy, *Engraulis mordax*, larvae in the California Current; Parasites of benthic amphipods: dinoflagellates. Age determination/Marking/Populations/Statistical analysis/Dolphins Mammals/Mathematical models/Shrimps/Crustacea/Fecundity/Crabs/Reproduction Biology/Parasites/Food habits/Pacific Ocean/Bering Sea/Marine fishes/Fisheries/Announcement bulletins/NTIS.

1585. Bakun A. Global climate change and intensification of coastal ocean upwelling. SCIENCE (WASH. 1990;VOL. 247, NO. 4939:pp.

198-201 Pacific Fish. Environ. Group, Southwest Fish. Cent., NMFS, NOAA, P.O. Box 831, Monterey, CA 93942, USA.

A mechanism exists whereby global greenhouse warming could, by intensifying the alongshore wind stress on the ocean surface, lead to acceleration of coastal upwelling. Evidence from several different regions suggests that the major coastal upwelling systems of the world have been growing in upwelling intensity as greenhouse gases have accumulated in the earth's atmosphere. Thus the cool foggy summer conditions that typify the coastlands of northern California and other similar upwelling regions might, under global warming, become even more pronounced. Effects of enhanced upwelling on the marine ecosystem are uncertain but potentially dramatic. climatic changes/greenhouse effect/coastal upwelling/wind stress/IN E, USA, California/environmental impact/energy flow/nutrient cycles/ fog/air temperature/Oceanic Abstracts.

1586. HUANG JCK. RECENT DECADAL VARIATION IN THE CALIFORNIA CURRENT SYSTEM. JOURNAL OF PHYSICAL OCEANOGRAPHY. BOSTON, MASS. 2(4): 382-390, OCT. 1972 1972 SIO, LA JOLLA, CA. CALIFORNIA CURRENT/CALIFORNIA COAST/CLIMATIC CHANGES/ATMOSPHERIC CIRCULATION/MASS TRANSPORT/SAN DIEGO/OceanAbstracts.

1587. Belfield WC, Helwig J, La Pointe PR, Dahleen WK. Monterey fractured reservoir, Santa Barbara Channel, California. AAPG annual convention with divisions SEPM/EMD/DPA. AAPG Bulletin 1983;76(3):421-422
Address: Arco Oil and Gas Co., Dallas, TX Conference: AAPG annual convention with divisions SEPM/EMD/DPA Dallas, TX, April 17-20, 1983.

oil fields/gas fields/reservoir properties/Monterey Formation/Monterey fractured reservoir/South Elwood Field/traps/structural traps/faults/offshore/fractures/breccia/clastic rocks/silica/stratigraphic breccia/coalescent-fracture breccia/fault breccia/pore pressure/brecciation/tar/Santa Barbara Channel/economic geology/energy sources/petroleum.

1588. Greene HG. Late Cenozoic geology of the Ventura Basin, California. Am. Assoc. Pet. Geol., Pac. Sect., Misc. Publ. (24). Aspects of the geol. hist. of the Calif. Cont. Borderland. 1976:p.499-529
U. S. Geol. Surv., Menlo Park, Calif., United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present). Ventura County/California/areal geology/structural geology/stratigraphy/geophysical surveys/southwest/Ventura/Oxnard/Port Hueneme/offshore/Santa Barbara Channel/Anacapa Islands/folds/systems/synclinalia/style/anticlinal/faults/displacements/thrust/ age/Miocene/Holocene/seismic surveys/United States/marine/reflection/tectonics/structure/evolution/Cenozoic/unconformities/ geologic history/lithostratigraphy/Pliocene/GEOREF.

1589. Haury LR, Poulain PM, Mantyla AW, Venrick EL, Niiler PP (Performer: Scripps Institution of Oceanography, La Jolla, CA). FRONTS CRUISE: Leg I: 11 July 1985, Leg II: 12-23 July 1985. Data rept. ; 1986. Report No.: SIOREF8623. 135p. PC A07/MF A01
Contract: N0001485C0104.

The data in this report were collected from 1 to 23 July 1985 on the two legs of the FRONTS cruise aboard RV New Horizon of the Scripps Institution of Oceanography. The data were collected and processed by personnel of the Ocean Research Division (ORD), the Marine Life Research Group (MLRG), the Instituto Nacional de

Pesca(INP), the Secretaria de Marina, and the Centro de Investigacion Cientifica y de Educacion Superior de Ensenada (CICESE). The purpose of the cruise was to describe the vertical and horizontal structure and dynamics of the physical, chemical, and biological properties associated with a persistent, seasonally-recurring front in the California Current southwest of San Diego, California.

Data acquisition/Statistical data/Tables Data/Hydrography/Chemical properties/Physical properties/Oceanographic data/Cold fronts/FRONTS Cruise/Macrozooplankton/Biological Properties/NTIS.

1590. Koch H. Desiccation resistance of the supralittoral amphipod *Traskorchestia traskiana* (Stimpson, 1987). CRUSTACEANA 1989;VOL. 56, NO. 2:pp. 162-175

Coll. Educ., Univ. Maine, Orono, ME 04469, USA.

The present study concerns *Traskorchestia traskiana*, a nonsubstrate modifying talitrid amphipod inhabiting the supralittoral zone of rocky to muddy beaches from the Aleutians and western Alaska to northern Baja California. The purpose of this study was to investigate the desiccation resistance of *T. traskiana* over a wide range of temperatures, humidities and saturation deficits, to determine its activity and orientation behavior in a humidity gradient, and to correlate these results with some general observations on the animal's behavior in the field.

desiccation/*Traskorchestia traskiana*/intertidal environment/zoobenthos/beaches/ecophysiology/water balance/INE, North America/OCEANIC ABSTRACTS.

1591. HOLLIDAY DV. RESONANCE STRUCTURE IN ECHOES FROM SCHOOLED PELAGIC FISH. ACOUSTICAL SOCIETY OF AMERICA. JOURNAL, 51(4): 1322-1332, APRIL 1972 1972 UNKNOWN.

FISH SCHOOLS/ECHOES/ACOUSTIC STRUCTURE/CALIFORNIA CURRENT/RESONANT SCATTERING/SWIMBLADDERS/OceanAbstracts.

1592. Belfield WC, Helwig J, La Pointe P, Dahleen WK. South Ellwood oil field, Santa Barbara Channel, California, a Monterey Formation fractured reservoir. C.M. Issacs, R.E. Garrison. Petroleum generation and occurrence in the Miocene Monterey Formation, California. ; 1983. 213-221.

Address: ARCO Oil and Gas Co., Geol. Res., Dallas, TX Conference: 1983 convention of the Pacific Section, Society of Economic Paleontologists and Mineralogists; Petroleum generation and occurrence in the Miocene Monterey Formation, California. Sacramento, CA, May 20-22, 1983.

oil and gas fields/Monterey Formation/Sisquoc Formation/South Ellwood Field/offshore/petroleum/Miocene/Neogene/Tertiary/fractures/breccia/clastic rocks/chert/chemically precipitated rocks/dolostone/carbonate rocks/porcellanite/structural traps/traps/permeability/geopressure/reservoir rocks/X-ray data/opal/silica minerals/framework silicates/silicates/Santa Barbara Channel/economic geology/energy sources/petroleum.

1593. Tielking TA. Wind forcing of eddies and jets in the California Current system. 1988;

A high-resolution, multi-level, primitive equation ocean model is used to examine the response to wind forcing of an idealized flatbottomed oceanic regime along an eastern ocean boundary. A band of steady winds, either with or without a curl, is used as forcing on both an f-plane and a beta-plane. In addition, a stability analysis is made to determine if the necessary and sufficient conditions for instability processes to occur are satisfied. It is seen that when the wind driven coastal jet and undercurrent are

unstable (which occurs in the cases of wind with no curl), eddies and jets are generated. In the case of wind with curl, since the Davidson Current develops rather than the coastal jet and undercurrent, no eddies develop. A comparison of model results with available observations shows that both the time-averaged and instantaneous model simulations of the coastal jet, undercurrent and eddies are consistent with available observational data. oceanic eddies/coastal jets/wind stress/ocean currents/coastal currents/nearshore dynamics/models/INE/California Current/ISE/California Current/ASFA.

1594. Junger A. Tectonics of the southern California Borderland. Am. Assoc. Pet. Geol., Pac. Sect., Misc. Publ. (24). Aspects of the geol. hist. of the Calif. Cont. Borderland. 1976:p.486-498
U. S. Geol. Surv., Menlo Park, Calif., United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present). California/tectonophysics/plate tectonics/southwest/Santa Ines Mountains/Santa Monica Mountains/Santa Ana Mountains/offshore/United States/field studies/microplates/shear zones/experimental studies/models/claycake/faults/wrench/convergent/displacements/right lateral/effects/ridges/maps/tectonic/topographic/tectonics/structure/evolution/ Miocene/Pliocene/GEOREF.

1595. Love M, Axell B, Morris P, Collins R, Brooks A. Life history and fishery of the California scorpionfish, *Scorpaena guttata*, within the Southern California Bight. FISH. BULL 1987;85(1):99-116.
The life history of the California scorpionfish (*S. guttata*) in the Southern California Bight has been examined. Based on sportfish creel census data, the species was most abundant in the southern part of the Bight, particularly around Catalina, San Clemente, and the Coronado Islands. Trawl studies from 1974 to 1984 indicated that California scorpionfish populations varied considerably in abundance, with numbers peaking in 1982. Though the species usually associates with hard substrata, it was abundant over mud about the Palos Verdes Peninsula, site of a major sewage outfall. This anomalous abundance may have been due to the presence of large numbers of a prey species, the ridgeback prawn, *Sicyonia ingentis*, which was attracted to the nutrient-rich substrata. Female California scorpionfish lived to 21 years, males to 15. Females grew faster than males. Pacific Ocean/Southern California Bight/sport fishing statistics/fishery biology/Scorpaena guttata/life history/INE/USA/Southern California Bight/CSA Life Sciences Collection.

1596. Chen C. Topographic Influences in the California Current System. Master's thesis [dissertation]. ; 1986. 50p. Performer: Naval Postgraduate School, Monterey, CA
A ten-level primitive equation numerical model is used to study the influence of the ocean bottom topography in the California Current System. Five different numerical experiments were integrated for 40 days after being initialized with a baroclinic along shore coastal jet representative of the observed coastal jet. By comparison with a flat bottom case, in Experiments 1 and 3, in which the topographic slopes face westward or northward, the topography appears to have stabilizing influences on the mean flow. In experiments 2 and 4, in which the topographic slopes face southward, the topographic beta-effect appears to be strong enough so that these two cases have already reached a quasi-steady state by 40 days. This is because in Experiment 2 and 4 the long,

nondispersive topographic Rossby waves are effective at transporting the eddy energy away from the source region near the coast. The resulting new mean flow appears to be stable. California/Cliffs/Currents/Shores/Flow/Mean/Ocean models/Rossby waves/Topography/Water flow/Equations/Mathematical models/Jet flow/Numerical methods and procedures/Theses/North pacific ocean/Ocean currents/Ocean bottom topography/California Current/NTIS.

1597. MORIN RW. LATE QUATERNARY BIOSTRATIGRAPHY OF CORES FROM BENEATH THE CALIFORNIA CURRENT. MICROPALAEONTOLOGY, 17(4): 475-491, OCT. 1971 1971 UNKNOWN. BIOSTRATIGRAPHY/CALIFORNIA CURRENT/DEEP SEA CORES/FAUNA/LATE QUATERNARY/OceanAbstracts.

1598. Bennett AF, Dawson WR, Putnam RW. Thermal environment and tolerance of embryonic Western Gulls *Larus occidentalis wymani*. *Physiol. Zool.* 1981;54(1):146-154
Address: SCH. OF BIOL. SCI., UNIV. OF CALIFORNIA, IRVINE, CA. 92717. Thermal environment and tolerance of eggs and embryos of western gulls (*L. occidentalis wymani*) on San Nicolas Island, California [USA], were determined. Incubated egg temperature measured by telemetry ranged between 30-36.degree. C and averaged 33.4-34.2.degree. C for 2 different nests; the former underwent pronounced cycles of heating during day and cooling at night. Exposed eggs underwent a daily thermal excursion between 6-50.degree. C. Embryos could maintain heartbeat between 11-46.degree. C. Eggs which were exposed to solar radiation heated slowly (about 5.degree. C/h). Diurnal exposure during parental absence did not result in embryonic mortality unless exposure persisted for several hours. Embryos recovered completely after overnight exposure to relatively cool temperatures. Short-term exposure did not constitute an immediate threat to embryonic survival. Adult gulls in this colony did not closely defend their nests and left them exposed in the presence of an intruder. The behavior of the parent gull and physiological tolerance of the embryos in reference to the thermal environment formed an adaptive suite of characters contrasting with those of other gulls nesting under hot and arid conditions.
heart
rate/heat/behavior/mortality/bioclimateology/thermoregulation/Char adriiformes/We stern Gull/*Larus occidentalis/wymani/San Nicolas Island/terrestrial biology/ornithology.*

1599. McCabe C. Giant fields set to boost California, Alaska output. *OCEAN IND* 1987;22(10):27-33.
Operators prepare to reap benefits of aggressive leasing and drilling programs in late '70s and early '80s, but foundering exploration efforts and low prices jeopardize future contributions from America's offshore frontiers. Development and production projects dominated oil industry activity in Western U.S. offshore frontier areas this year (1987) as operators pressed in both California and Alaska to bring on-stream discoveries that stretch back a decade or more. Most of the California activity stems from discoveries made in tracts leased at OCS Sale 53 in May 1981 and Sale 48 in June 1979. The following report outlines development progress in California's offshore Santa Maria basin and Santa Barbara Channel areas, and also at Endicott field in the Beaufort Sea off Alaska. The few highlights of limited industry exploration activity off California and Alaska are also summarized.
offshore operations/oil fields/oil and gas exploration/oil production/leases/INE/USA/Alaska/INE/USA/California/PNW/USA/Alaska/economics/PN W/Beaufort Sea/INE/USA/California/Santa Maria

Basin/INE/Santa Barbara Channel/ASFA.

1600. Yeats RS. Extension versus strike slip origin of the southern California Borderland. Am. Assoc. Pet. Geol., Pac. Sect., Misc. Publ. (24). Aspects of the geol. hist. of the Calif. Cont. Borderland. 1976:p.455 Ohio Univ., Dep. Geol., Athens, Ohio, United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present).

Los Angeles County/Ventura County/Sespe Formation/San Onofre Breccia/Vaqueros Formation/Rincon Formation/California/structural geology/faults/displacements/southwest/Channel Islands/Santa Cruz Island/Santa Rosa Island/Santa Monica Mountains/Los Angeles/Ventura/horizontal/extension/effects/sedimentary rocks/distribution/Eocene/Miocene/United States/paleogeography/Tertiary/reconstruction/palinspastic/GEOREF.

1601. Wittmann PA, Ciandro ML, Bird AA, Mooers CN (Performer: Naval Postgraduate School, Monterey, CA). Hydrographic Data from the OPTOMA (Ocean Prediction through Observation, Modeling and Analysis) Program OPTOMA21, 7-20 July 1986. Progress rept. May-Jul 86. ; 1987. 65p.

The OPTOMA (Ocean Prediction Through Observation, Modeling and Analysis) program, a joint NPS/Harvard program sponsored by ONR, seeks to understand the mesoscale (fronts, eddies, and jets) variability and dynamics of the California current systems and to determine the scientific limits to practical mesoscale ocean forecasting. To help carry out the aims of this project a series of cruises has been planned two subdomains, nocal and cencal. Optoma21 was a multidisciplinary study which took place from 7 to 20 July 1986 aboard the R/V Point Sur in the nocal domain. In addition to conducting a quasi-synoptic CTD/XBT mapping of a cool anomaly, meandering jet, and eddy system, measurements were made to determine: 1) the fine scale variability of the upper ocean mass and velocity fields; 2) the upper ocean nutrient, optical and phytoplankton fields; and 3) the structure of the zooplankton population. In this report, the CTD/XBT data are presented.

Dynamics/Scale/Oceans/Predictions/Population/Zooplankton/Anomalies/Cooling/Hydrography/Optical properties/Mass/Velocity/Fronts Oceanography/Electrical conductivity/Temperature/Density/Bathythermograph data/Forecasting/Ocean currents/Eddies Fluid mechanics/Sea water/Nutrients/Phytoplankton/California current/OPTOMA project/Mesoscale forecasting/NTIS.

1602. Hunt JW, Anderson BS. Sublethal effects of zinc and municipal effluents on larvae of the red abalone *Haliotis rufescens*. MAR. BIOL 1989;VOL. 101, NO. 4:pp. 545-552 Mar. Pollut. Stud. Lab., Coast Route 1, Granite Canyon, Monterey, CA 93940, USA. Experiments were conducted to develop a sensitive sublethal toxicity test protocol to determine the toxicity of municipal wastewater effluents to larvae of the red abalone *Haliotis rufescens*. In multiple tests, fertilized abalone embryos were exposed for 48 h to dilutions of a reference toxicant, zinc sulfate, and to dilutions of primary- and secondary-treated effluents. The resulting veliger larvae were examined microscopically for larval shell abnormalities. "No observed effect concentrations" (NOECs) for zinc were 39 plus or minus 2.1 $\mu\text{g l}^{-1}$ super(-1) in three 48 h exposures, and 19 $\mu\text{g l}^{-1}$ super(-1) for the 9 d exposure through metamorphosis. Median effect concentrations (EC sub(50)s) were 68 plus or minus 6.9 $\mu\text{g l}^{-1}$ super(-1) h test and 50 $\mu\text{g l}^{-1}$ super(-1) in the 9 d test. Abalone larvae were affected at lower concentrations of primary than of secondary effluent. sublethal effects/zinc/toxicity tests/urban runoff/waste water/vel

igers/abnormalities/shells/Gastropoda/Haliotis rufescens/INE, USA,
California/Oceanic Abstracts.

1603. MALONE TC. THE RELATIVE IMPORTANCE OF NANNOPLANKTON
AND NETPLANKTON AS PRIMARY PRODUCERS IN THE CALIFORNIA CURRENT
SYSTEM. U.S. NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION.
NATIONAL MARINE FISHERIES SERVICE. FISHERY BULLETIN, 69(4):
799-820, OCT. 1971 1971
UNKNOWN.
NANNOPLANKTON/PRIMARY PRODUCTIVITY/STANDING CROP/CALIFORNIA
CURRENT/OceanAbstracts.

1604. Jones GF, Thompson BE. The distribution and abundance
of *Chloeia pinnata* Moore, 1911 (Polychaeta: Amphinomidae) on the
Southern California borderland. PACIFIC SCIENCE
1987;41(1-4):122-131.
The amphinomid polychaete *Chloeia pinnata* Moore (1911) is a widely
distributed member of the benthos of the southern California
borderland where it is a prominent faunal element of every major
habitat including the deep basins. In this wide range of
environments it lives with a large number of other taxa which
differ markedly from one location to another.
ecological distribution/population
density/USA/California/autecology/*Chloeia*
pinnata/INE/USA/California/Southern California
Borderland/distribution/abundance/variations/ecological
associations/ASFA.

1605. Howell DG. Late Miocene counterclockwise rotation of
the south half of Santa Cruz Island. Am. Assoc. Pet. Geol., Pac.
Sect., Misc. Publ. (24). Aspects of the geol. hist. of the Calif.
Cont. Borderland. 1976:p.449-454 U. S. Geol. Surv., Menlo Park,
Calif., United-States Analytic; Serial B; Bibliography and Index
of Geology (1969-present).
California/tectonophysics/plate tectonics/southwest/Channel
Islands/Santa Cruz Island/United
States/movement/rotation/counterclockwise/Miocene/upper
Miocene/foiation/interpretation/strike/faults/displacements/right
slip/East Santa Cruz basin fault/GEOREF.

1606. Ciandro ML, Whittmann PA, Bird AA, Mooers CN
(Performer: Naval Postgraduate School, Monterey, CA). Hydrographic
Data from the OPTOMA (Ocean Prediction through Observation,
Modeling and Analysis) Program OPTOMA22, 27 July-5 August 1986.
Progress rept. Jul-Aug 86. ; 1986. Report No.: NPS6886012. 48p.
The OPTOMA (Ocean Prediction Through Observation, Modeling and
Analysis) Program, a joint NPS/Harvard program sponsored by ONR,
seeks to understand the mesoscale (fronts, eddies, and jets)
variability and dynamics of the California Current System and to
determine the scientific limits to practical mesoscale ocean
forecasting. To help carry out the aims of this project, a series
of cruises has been planned in two subdomains, NOCAL and CENCAL.
The cruise, OPTOMA22, was undertaken during the period 27 July to
5 August 1986, on the USNS De STEIGUER, and sampled a domain
approximately 240km square centered about 280km off the coast
between Pt. Arena and Cape Mendocino. Oceanographic stations were
occupied during the period 27 July to 5 August at approximately
18km along each track.
California/Hydrography/Oceanography/Stations/Dynamics/Oceans/Pred
ictions/Bathymograph data/Temperature/Electrical
conductivity/Density/Fronts Oceanography/Forecasting/Sea
water/Ocean currents/Eddies Fluid mechanics/Mesoscale
forecasting/NTIS.

- # 1607. Mulcahy M. Sub connector problems solved through collaborative efforts. SEA TECHNOL 1989;VOL. 30, NO. 4:pp. 41-46
Michael Mulcahy & Associates, USA.
In the summer of 1988, U.S. Naval Sea Systems Command (NavSea) Code PMS-390 recommended replacing existing metal-shell, three-pin connectors used in submarine sonar transducers with connectors fabricated of glass reinforced epoxy (GRE), culminating some five years of problem-solving development work by Brantner & Associates/SEA CON of El Cajon, California, and other participants in the Navy's Submarine Transducer Reliability Improvement Program (STRIP). A major thrust for the companies involved was to assist the Navy in preventing water leakage in two different metal-shell submarine sonar connectors.
USA, California, El Cajon/acoustic equipment/sonar transducers/connectors/shipboard equipment/submarines/materials technology/Brantner & Associates/SEA CON/USN/glass-reinforced epoxy/Oceanic Abstracts.
- # 1608. Bennett SG. new records of biting midges (Diptera: Ceratopogonidae: Culicoides) from Santa Catalina Island, California, USA. Bull. Soc. Vector Ecol. 1985;10(1):41
Address: ORANGE COUNTY VECTOR CONTROL DISTRICT, 13001 GARDEN GROVE BLVD., GARDEN GROVE, CALIF. 92643,.
new records/feeding behavior/biting midges/Diptera/Ceratopogonidae/Culicoides cactecolus/Culicoides sitiens/Culicoides freeborni/Culicoides baueri/Culicoides ryckmani/Santa Catalina Island/terrestrial biology/entomology.
- # 1609. Chekotillo KA. Features of the circulation of intermediate waters in the north Pacific. Oceanographic Research by the Vityaz in the North Pacific Under the I.G.Y. Program. National Science Foundation, Special Foreign Currency Science Information Program 1969;;110-119.
Pacific ocean north/salinity/topography/water transport/temperatures/circulation/california current/intermediate waters/vityaz 29th voyage/zooplankton/Pieper/MINERALS MANAGEMENT SERVICE.
- # 1610. Chelton DB. Interannual variability of the California current -physical factors. Calif. Coop. Ocean. Fish. Invest. Rep. 1981;22:34-48. Hickey/physical oceanography/Pieper/Dawson/zooplankton/MINERALS MANAGEMENT SERVICE.
- # 1611. Chelton DB. CalCOFI-a 33-year oceanographic survey of the southern California Current System. Time Series of Ocean Measurement 1983;1(24):9-13. oceanographic surveys/time series/fishery oceanography/pelagic fisheries/INE/California Current/ISE/California Current/Hickey/physical oceanography/zooplankton/Pieper/MINERALS MANAGEMENT SERVICE.
- # 1612. Chelton DB, Roesler CS. Zooplankton variability in the California current, 1951-1982. Calif. Coop. Oceanic Fish. Invest. Rep. 1987;28:59-96. algae/MINERALS MANAGEMENT SERVICE.
- # 1613. Love MS, Stephens JSJ, Morris PA, Singer MM, Sandhu M, Sciarrotta TC. Inshore soft substrata fishes in the Southern California Bight. REP. CCOFI 1986;27:84-106.
A series of bimonthly trawls was made at stations off three area (Ormond Beach, Redondo Beach, and San Onofre) in the Southern California Bight. Three depths (6.1, 12.2, and 18.3 m) were sampled from 1982 to 1984. At all three areas, queenfish (*Seriphus politus*), white croaker (*Genyonemus lineatus*), and northern anchovy

(*Engraulis mordax*) dominated the 6.1-m stations. Off the Ormond area, queenfish and white croaker were the important species out to 18.3 m. However, off Redondo and San Onofre, these two species became less dominant in deeper water, giving way to an assortment of flatfishes (particularly speckled sanddab, *Citharichthys stigmaeus*; hornyhead turbot, *Pleuronichthys verticalis*; and fantail sole, *Xystreureys liolepis*). Fish abundances off Redondo and San Onofre decreased with depth, but remained constant at Ormond. Though recruitment of some species such as speckled sanddab and walleye surfperch (*Hyperprosopon argenteum*) declined from 1982 to 1984, a number of species appeared relatively unaffected or even enhanced during the El Niño event.

fishery surveys/Seriphus politus/Genyonemus lineatus/Engraulis mordax/Citharichthys stigmaeus/Pleuronichthys verticalis/Xystreureys liolepis/coastal zone/species diversity/INE/USA/California/El Niño phenomena/ASFA.

1614. Henyey TL. Heat flow and tectonic patterns on the southern California Borderland. Am. Assoc. Pet. Geol., Pac. Sect., Misc. Publ. (24). Aspects of the geol. hist. of the Calif. Cont. Borderland. 1976:p.427-440

Univ. South. Calif., Dep. Geol. Sci., Los Ang., Calif., United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present). California/tectonophysics/heat flow/plate tectonics/south/United States/southwest/Sierra Nevada/coast Ranges/Basin and Range Province/Mexico/north/Baja California/interpretation/triple junction/migration/GEOREF.

1615. Simpson JJ, Koblinsky CJ, Pelaez J, Haury LR, Wiesenhahn D (Performer: Scripps Institution of Oceanography, La Jolla, CA). Temperature Plant Pigment-Optical Relations in a Recurrent Offshore Mesoscale Eddy Near Point Conception, California. ; 1986. 24p.

Pub. in Jnl. of Geophysical Research, v91 nc11 p12919-12936, 15 Nov 86. PC A02/MF A01 Contract: N0001486K0752.

The temperature-plant pigment-optical structure of a mesoscale anticyclonic eddy consistently found in shipboard surveys and satellite-sensed data several hundred kilometers southwest of Point Conception, CA, is described on three different time scales (100-day mesoscale, annual, and several-year). The satellite coastal zone color scanner (CZCS) ocean color imagery detected the near-surface chlorophyll structure of the eddy, but in situ optical and plant pigment data suggest that such imagery does not provide a good estimate of the integrated chlorophyll field of the eddy. Temperature and plant pigment boundaries of the eddy, as determined from two-dimensional gradients of advanced very high resolution radiometer (AVHRR) and CZCS imagery, do not coincide spatially. This and in situ temperature, plant pigment, and optical structure provide additional evidence that some eddy systems in the California Current are not isolated vortex systems but rather continuously entrain waters of nonlocal origin laterally into their upper layers. Within the California Current a ratio of AVHRR/CZCS data is useful for separating inshore from oceanic water masses and following their surface entrainment by offshore vortices.

(Reprints).

California/Eddy currents/Structural properties/Surfaces/Offshore/Vortices/Optical properties/Isolation/Water masses/Optical data/Pigments/Colors/Ratios/Ocean surface/Organic pigments/Coastal regions/Radiometers/High resolution/Oceanographic data/Scale/Time/Layers/Gradients/Two dimensional/Water/Sea water/Eddies Fluid mechanics/Ocean currents/Chlorophylls/California current/NTIS.

1616. Spiesberger JL, Bushong PJ, Metzger K, Birdsall TG.
Basin-scale tomography: Synoptic measurements of a 4000-km length
section in the Pacific. J. PHYS. OCEANOGR 1989;VOL. 19, NO. 8:pp.
1073-1090
Woods Hole Oceanogr. Inst., Woods Hole, MA 02543, USA.
Pulse-like acoustic transmissions (133 Hz, 60 ms resolution),
between a bottom-mounted source near Oahu, Hawaii, and a bottom-
mounted receiver at about 400 km range near the coast of Northern
California, USA, are recorded during a 5-day interval in 1983 and
a 21-day interval in 1987. Measurements of the acoustic travel-time
change, based on the acoustic phase, are made every two minutes to
a precision of about 135 μ s. The 1983 dataset is used to
demonstrate that the travel times along different ray paths
oscillate in phase with each other at periods near the prominent
nontidal periods of 15 and 20 hours. This observation leads to the
conclusion that the ocean process is either barotropic or it
consists of the first or the second baroclinic mode with a
horizontal scale of at least 50 km.
INE, USA, California/ISE, Hawaii, Oahu/acoustic tomography/sound
transmission/sound spectra/spectral analysis/oscillations/internal
waves/physical oceanography/Oceanic Abstracts.

1617. COX JL. UPTAKE, ASSIMILATION, AND LOSS OF DDT RESIDUES
BY EUPHAUSIA PACIFICA, A EUPHAUSIID SHRIMP. U.S. NATIONAL OCEANIC
AND ATMOSPHERIC ADMINISTRATION. NATIONAL MARINE FISHERIES SERVICE.
FISHERY BULLETIN, 69(3): 627-633, JULY 1971 1971
UNKNOWN.
EUPHAUSIA/SHRIMPS/PESTICIDE RESIDUES/CALIFORNIA
CURRENT/DDT/E/PACIFICA/OceanAbstracts.

1618. Bennett SG. Medically important and other
ectoparasitic acarines on vertebrates from Santa Catalina Island,
California, USA. Bull. Soc. Vector Ecol. 1987;12(2):534-538
Address: ORANGE COUNTY VECTOR CONTROL DISTRICT, 13001 GARDEN GROVE
BLVD., GARDEN GROVE, CALIF. 92643.
vertebrate parasites Arthropods/Acarina/Dermacentor
albipictus/Ixodes brunneus/Ixodes pacificus/Ornithonyssus
bacoti/Ornithonyssus sylviarum/Ophionyssus natricis/Pellonyssus
passeri/Dermanyssus gallinae/Eutrombicula belkini/Euschoengastia
ambocalis/Euschoengastia numerosa/Kayella lacerata/Acomatacarus
arizonensis/euschoengastoides neotomae/pteracarus
chalinologus/Santa Catalina Island/terrestrial
biology/parasitology.

1619. Chen C. Topographic influences in the California
Current system. Master's Thesis, Naval Postgraduate School,
Monterey, CA 1987;:50. ocean currents/ocean bottom
topography/California/cliffs/currents/shores/flow/mean/ocean
models/rossby waves/topography/water flow/equations/mathematical
models/jet flow/numerical methods and procedures/theses/north
Pacific Ocean/Hickey/physical oceanography/MINERALS MANAGEMENT
SERVICE.

1620. Chen YQ. The vertical distribution of some pelagic
copepods in the eastern Tropical Pacific. REP. CCOFI
1986;27:205-227.
This study was based on zooplankton samples collected with
standard, opening-closing bongo nets through eight depth intervals
to 600 m or 800 m at 10 stations along a transect from 23 degree N
to 3 degree S in the eastern tropical Pacific during May-Jun. 1974.
The investigation covered four environments: (1) the mouth of the
Gulf of California, where some California Current species occurred

at their southern limits: (2) the oxygen-deficient region (0 sub(2) <0.1 ml/l); (3) the North Equatorial Countercurrent; and (4) the Equatorial Undercurrent. More than 60 species of calanoid copepods were identified and counted. The numerically dominant species -- Eucalanus subtenius), Eucalanus subcrassus , and Rhincalanus nasutus -- constituted respectively 33.5%, 12.8%, and 9.5% of the total numbers. The quantitative, geographical, and vertical distributions of the most common and abundant species are described.

vertical distribution/zooplankton/distribution records/check lists/Calanoida/Eucalanus subtenius/Eucalanus subcrassus/Rhincalanus nasutus/pelagic environment/ISE/ASFA.

1621. Junger A. Offshore structure between Santa Cruz and Santa Rosa islands. Am. Assoc. Pet. Geol., Pac. Sect., Misc. Publ. (24). Aspects of the geol. hist. of the Calif. Cont. Borderland. 1976:p.418-426

U. S. Geol. Surv., Menlo Park, Calif., United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present). California/structural geology/faults/southwest/Channel Islands/Santa Cruz Island/Santa Rosa Island/offshore/Santa Rosa Island Fault/Santa Cruz Island Fault/Carrington Basin/extent/geophysical surveys/seismic surveys/effects/basins/United States/GEOREF.

1622. Ciandro ML, Wittman PA, Bird AA, Mooers CN (Performer: Naval Postgraduate School, Monterey, CA). Hydrographic Data from the OPTOMA (Ocean Prediction through Observation, Modeling and Analysis) Program OPTOMA20, 16 March-6 May 1986. Progress rept. Mar-May 86. ; 1986. Report No.: NPS6886008. 187p.

The OPTOMA (Ocean Prediction Through Observation, Modeling, and Analysis) Program a joint NPS/Harvard program sponsored by ONR, seeks to understand the mesoscale (fronts, eddies, and jets) variability and dynamics of the California Current System and to determine the scientific limits to practical mesoscale ocean forecasting. To help carry out the aims of this project, a series of cruises has been planned in two subdomains, NOCAL and CENCAL, Three cruises were undertaken during March, April and May 1986: two (Legs M1 and M11) on the NOAA ship Mc AUTHOR, one (Leg D) on the USNS DE STEIGUER. In addition, one P-3 overflight (Leg P) was made one week before the first cruise. Leg P, on 16 March, sampled a domain approximately 240km square centered about 280 km off the coast between Pt. Arena and Cape Mendocino, with additional transects from and to San Francisco, Leg M1 was carried out from 24 March to 3 April (Figure 8), Leg M11 from 7 to 15 April (Figure 20), and Leg D from 25 April to 6 May (Figure 32). Each cruise sampled the same domain as Leg P. On these cruises, oceanographic stations were occupied at approximately 18km along each track. Dynamics/Hydrography/Ocean currents/Oceanography/Oceans/Predictions/Stations/Data reduction/Graphs/Temperature/Salinity/Bathythermograph data/Optoma Program/OPTOMA Ocean Prediction Through Observation Modeling and Analysis/California Current/NTIS.

1623. BYSHEV VI. TEMPORAL VARIABILITY OF CIRCULATION IN THE NORTHEASTERN PACIFIC OCEAN. OCEANOLOGY, 11(2): 177-182, NOV. 1971 1971

UNKNOWN.

PACIFIC OCEAN NORTH/CALIFORNIA CURRENT/CIRCULATION WATER/TEMPORAL VARIATIONS/SURFACE MOTION/WIND TRANSPORT/ALASKA CURRENT/OceanAbstracts.

1624. Bennett V, DePaolo DJ. Tectonic implications of Nd isotopes in the Pelona, Rand, Orocochia and Catalina schists, Southern California. 95th annual meeting, The Geological Society of America. Abstracts with Programs - Geological Society of America 1982;14(7):442

Address: Univ. Calif., Dep. Earth and Space Sci., Los Angeles, CA
Conference: 95th annual meeting, The Geological Society of America. New Orleans, LA, Oct. 18-21, 1982.
isotopes/neodymium/tectonics/Nd-144 Nd-143/Pelona Schist/Rand Schist/Orocochia Schist/Catalina Schist/geochemistry/Precambrian/San Andreas Fault/Garlock Fault/Chocolate Mountains
Schist/Mesozoic/Phanerozoic/Cenozoic/displacements/metasedimentary rocks/metabasalt/metaigneous rocks/partial melting/Santa Catalina Island/San Gabriel Mountains/structural geology.

1625. Power JH. A model of the drift of northern anchovy, *Engraulis mordax*, larvae in the California Current. FISH. BULL 1986;84(3):585-603. The drift of northern anchovy, *Engraulis mordax*, larvae in the California Current to unfavorable offshore areas may be an important factor contributing to larval mortality, and hence it may affect recruitment and subsequent adult population size. A simulation model based on a finite-difference approximation to the advection-diffusion equation was developed to aid in the study of larval anchovy drift. Offshore transport was minimal in most simulations. Simulations of drift starting from the location of peak spawning showed strongest seasonal effects, with currents during the season of peak northern anchovy spawning (March) resulting in reduced offshore dispersal when compared with currents at other times of the year.

fish larvae/drift/*Engraulis mordax*/INE/California Current/models/finite difference method/ASFA.

1626. Howell DG, McLean H, Vedder JG. Cenozoic tectonism on Santa Cruz Island. Am. Assoc. Pet. Geol., Pac. Sect., Misc. Publ. (24). Aspects of the geol. hist. of the Calif. Cont. Borderland. 1976:p.392-416

U. S. Geol. Surv., Menlo Park, Calif., United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present).
California/structural geology/tectonics/evolution/southeast/Channel Islands/Santa Cruz Island/Santa Cruz Island Fault/Cenozoic/United States/faults/GEOREF.

1627. Pepin P. Influence of alternative prey abundance on pelagic fish predation of larval fish: A model. CAN. J. FISH. AQUAT. SCI 1987;44(1):222-227. In this model of predation on larval fish by pelagic fish, the author postulates that variations in the abundance of the more numerous alternative prey population can determine the time required by a predator to attain its maximum ration. The model predicts that larval fish mortality should be a direct function of the abundance of their predator scaled relative to alternative prey abundance. A test of the model using data from the California Current reveals that mortality of larval northern anchovy (*Engraulis mordax*) shows a significant relationship with the predator-to-prey ratio (pelagic fish biomass/zooplankton biomass). Other possible interpretations of this result and problems of model parameterization are discussed.

prey selection/fish larvae/food
availability/prey/abundance/predation/Pisces/*Engraulis mordax*/models/INE/California Current/marine fish/mathematical models/pelagic environment/larvae/CSA Life Sciences Collection.

1628. Renaud PG. Wind Forcing Experiments in the California Current System. Master's thesis [dissertation]. ; 1986.

Performer: Naval Postgraduate School, Monterey, CA

A high-resolution, multi-level, primitive equation ocean model is used to examine the response of an idealized, flat-bottom, oceanic regime off northern California to steady, equatorward, local wind-forcing during the upwelling season. The model has open boundaries on all but the eastern coastal boundary on which either free-slip or zero-slip boundary conditions are imposed. Time-invariant winds, either with or without a component of wind stress curl, are used as model forcing to spin-up a classical two-dimensional, upwelling-induced coastal jet and undercurrent. Since no eddies are generated, a stability analysis of the mean flow is conducted which explores both the necessary conditions of mixed (barotropic and baroclinic) instability, through calculations of potential vorticity, and the sufficient conditions for baroclinic instability, through an application of a simple two-layer stability model. Comparisons of model results with observations of the coastal jet in the California Current System indicate that the location and the horizontal and vertical current shear associated with the model coastal jet compare favorably with observations; however the modeled jet is stronger, deeper and wider than the observed jet. Finally, the inclusion of wind stress curl and the zero-slip boundary condition are demonstrated to be important elements in model simulations of the coastal jet.

Boundaries/Coastal

regions/Computations/Equations/Invariance/Mathematical models/Mean/North

Direction/Oceans/Seasons/Simulation/Stability/Stratification/Stresses/Time/Upwelling/Jet flow/Vortices/Ocean bottom/Water flow/Directional/Shear stresses/Theses/Ocean currents/Ocean models/Wind/Boundary Currents/Wind Stress Curl/Wind Forcing/Barotropic Instability/Baroclinic Instability/Primitive Equations/California Current/NTIS.

1629. Le Boeuf BJ, Condit R, Reiter J. Parental investment and the secondary sex ratio in northern elephant seals. BEHAV. ECOL. SOCIOBIOL 1989;VOL. 25, NO. 2:pp. 109-117

Dep. Biol., Univ. California, Santa Cruz, CA 95064, USA.

Data on northern elephant seals, *Mirounga angustirostris*, bearing on sex ratio theory were collected at Ano Nuevo, California, and other Californian and Mexican Islands, during 1967-1988. The mass of males exceeded that of females by 7-8% at birth and at weaning. The sex ratio was biased to males at birth (51.2%) and was near unity at weaning (49.6% males). The sex ratio varied as a function of maternal age or maternal mass only in 6-year-old females, who produced significantly more males. Although sons cost more to rear in energetic terms than daughters, and mothers were more successful weaning the latter, the sex of the pup reared exerted no significant effect on the mother's reproductive performance the following year or on her subsequent survival. These data suggest that parents invest equally in sons and daughters when investment is measured in terms of future reproduction and provide no support for the theory of adaptive shifts in sex ratio.

parental behavior/sex ratio/*Mirounga angustirostris*/reproductive behavior/bioenergetics/marine mammals/INE, USA, California/ISE, Mexico/Oceanic Abstracts.

1630. MALONE TC. DIURNAL RHYTHMS IN NETPLANKTON AND NANNOPLANKTON ASSIMILATION RATIOS. MARINE BIOLOGY, BERLIN, 10(4): 284-289, SEPT. 1971 1971 UNKNOWN.

CHLOROPHYLL A/PHOTOSYNTHESIS/NANNOPLANKTON/CALIFORNIA CURRENT/ASSIMILATION/ASSIMILATION RATIOS/NETPLANKTON/DIURNAL RHYTHMS/OceanAbstracts.

1631. Benson III JA. Physical disturbance, competition for space, and the epibiotic community attached to the brown alga, *Cystoseira neglecta* [dissertation]. Los Angeles, California, USA: University of California; 1984. 176.

Factors affecting the distribution and diversity of algal and invertebrate epibionts on *Cystoseira neglecta* at Santa Catalina Island, California were investigated. The most important factors included surface area and longevity of the substrate plant, epibiont overgrowth abilities, and spatial heterogeneity of physical disturbance. Observations of tagged *C. neglecta* in the field and of collected plants revealed that stipes grew only 3.3 cm/yr and without a consistent seasonal pattern. Branch growth, branch shedding, reproduction, and plant mortality were strongly seasonal. Branches grew rapidly in winter, producing receptacles and approximately 10 times more surface area per plant than during summer. Most plants did not become reproductive until they were at least 3 years old. Branch loss and plant mortality were most frequent during summer and fall. Maximum lifespan probably exceeds 10 years. Competition for space among epibionts was investigated by observing the overgrowth interactions of colonies or individuals encrusting *C. neglecta* collected in the study site. The pattern of relative overgrowth success among species was largely hierarchical. No competitive networks were found. The pattern was not strictly hierarchical, however, since some species pairs were classified as "competitive equivalents", and overgrowth success sometimes varied between habitats subject to low and high disturbance. This latter finding suggested the large potential importance of small-scale habitat heterogeneity in overgrowth interactions. Analysis of epibiont distribution, abundance, and diversity on collected *C. neglecta* indicated that branch growth and physical disturbance had substantial effects on epibiont community structure. The most important physical disturbance was the abrasion caused by mutual lashing of plants exposed to surge. Field experimental manipulations of abrasion levels demonstrated that, in the presence of a dominant competitor, increasing abrasion can produce an increase, then a decrease, in epibiont species richness. These results support the general relevance of the intermediate disturbance hypothesis to communities of sessile organisms. epibionts/overgrowth/physical disturbance/competition for space/competitive networks/dominant competitor/species richness/intermediate disturbance hypothesis/*Cystoseira neglecta*/marine biology/botany/phyecology.

1632. Atkinson CA. Discrete-time difference model for simulating interacting fish population dynamics. FISH. BULL 1986;84(3):535-548. The dynamics of interacting fish populations are modeled using a coupled set of discrete-time difference equations. The basic equations describe predator-prey and competitive relationships analagous to the first-order expressions used in standard differential equation models. Population births and aging are represented using a modified Leslie matrix. A spatial representation is also incorporated and consists of a number of separate compartments, each containing interacting population groups which can be interchanged between compartments during a given time period. The potential applicability of the discretetime formulation is demonstrated via a simulation of the multispecies fish populations within the California Current during the sardine population collapse of 1930-60. population dynamics/mathematical models/Pisces/discrete-time difference model/ASFA.

1633. Howell DG. Inferred Eocene and Miocene cross sections of the southern California Borderland. Am. Assoc. Pet. Geol., Pac. Sect., Misc. Publ. (24). Aspects of the geol. hist. of the Calif. Cont. Borderland. 1976:p.363-364 U. S. Geol. Surv., Menlo Park, Calif., United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present).
California/tectonophysics/crust/Eocene/Miocene/southwest/coastal/offshore/Catalina Ridge/Patton Ridge/United States/geologic history/tectonics/volcanism/structure/upper Eocene/middle Miocene/oceanic/GEOREF.

1634. Cheok GS, Stone WC (Performer: National Bureau of Standards (NEL), Gaithersburg, MD. Center for Building Technology. Funder: National Science Foundation, Washington, DC. Funder: Federal Highway Administration, Washington, DC. Funder: California State Dept. of Transportation, Sacramento.) Behavior of 1/6-Scale Model Bridge Columns Subjected to Cyclic Inelastic Loading. ; 1986. Report No.: NBSIR863494. 292p. Sponsored by National Science Foundation, Washington, DC., Federal Highway Administration, Washington, DC., and California State Dept. of Transportation, Sacramento. PC A13/MF A01.
Circular, spirally reinforced concrete bridge columns were subjected to cyclic inelastic loading in the laboratory. The bridge columns were one-sixth scale models of prototype columns designed in accordance with current California Department of Transportation specifications. A total of six models were tested; three were constructed with microconcrete, and three with ready-mix concrete using pea gravel. Variables included the aspect ratio, magnitude of axial load, and the use of microconcrete versus ready-mix. The models were subjected to slow reversed cyclic loading with the axial load held constant. Results from the tests are presented in the form of energy absorption, load-displacement curves, longitudinal steel strains, and displacement profiles. Comparisons of the ultimate moment capacities, measured displacement ductilities, plastic hinge lengths, and the failure mode for the six models are discussed. Comparisons with previous studies are presented. A series of graphics-based computer programs are discussed. Source code is provided.
Cyclic loads/Elastic properties/Model tests/Reinforced concrete/Ready mixed concrete/Gravel/Aspect ratio/Axial stress/Computer programs/Energy absorption/Displacement/Strains/Graphs Charts/Columns Support/Bridges Structures/Microconcrete/Computer graphics/NTIS.

1635. Miller JH, Lynch JF, Chiu CS. Preliminary results from the 1988 Monterey Bay Acoustic Tomography Experiment. 117. Meet. of the Acoustical Society of AmericaJ. ACOUST. SOC. AM. (SUPPL. 1989;VOL. 85, NO. suppl. 1:p. S18 Dep. Electr. Comp. Eng., Code 62Mr, Nav. Postgrad. Sch., Monterey, CA 93943, USA. An ocean acoustic tomography experiment was held 12-16 December 1988 near Monterey, California. The objectives of this experiment were to test a tomographic system to analyze the effects of ocean surface waves, internal waves, and complex three-dimensional bathymetry on long-range acoustic propagation. An acoustic source with a center frequency of 224 Hz and source level of 177 dB was placed on a seamount 30 km off Point Sur. Seven modified sonobuoys (with anchor, bottom-mounted hydrophones, large capacity batteries, and large floats) were placed in Monterey Bay to receive the acoustic signals at ranges of 35 to 60 km from the source. The sonobuoy rf signals were received, demodulated, and the acoustic data were recorded on shore. Oceanographic measurements were taken (for comparison with the acoustically derived results) with a surface wave frequency-directional spectra buoy, surface wave frequency

spectra buoys, CTD yo-yo's for internal wave spectra, ADCP, and conventional hydrographic survey for sound-speed profiles. Preliminary analyses and comparison of the acoustic and oceanographic measurements are presented. acoustic tomography/INE, USA, California, Monterey Bay/surface water waves/internal waves/bathymetry/sound propagation/bottom topography effects/sound sources/sonobuoys/wave spectra/Oceanic Abstracts.

1636. LASKER R. LABORATORY STUDIES OF PREDATION BY MARINE COPEPODS ON FISH LARVAE. U.S. NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION. NATIONAL MARINE FISHERIES SERVICE. FISHERY BULLETIN, 69(3): 655-667, JULY 1971 1971 UNKNOWN. COPEPODS/CALIFORNIA CURRENT/FISH LARVAE/PREDATION/OceanAbstracts.

1637. Benson MR. A demographic study of *Dictyopteris undulata* Holmes (Dictyotales: Phaeophyta) at Santa Catalina Island, California, USA. *Phycologia* 1986;25(4):448-454
Address: DEP. BIOL. SCI., UNIV. SOUTHERN CALIF., LOS ANGELES, CALIF. 90007. The demography of *Dictyopteris undulata* Holmes was studied between 1979 and 1982 at Isthmus Reef, Santa Catalina Island, California (USA), at depths ranging from 4.6 to 10.7 m below mean lower low water. Maximum density of plants of taggable size (6 cm) occurred at about 6.1 m. Maximum plant height increased significantly with depth. The species was an annual. Reproductive plants were first observed 6-8 months after recruitment and were most abundant in autumn. Once plants became reproductive, they lived for an average of 1.7 months. Recruitment was most common in winter and early spring. Recruitment varied significantly with depth, reaching a maximum at 6.1-7.6 m, essentially the same depth as maximum density. The plants were recruited into cleared spaces; once they became established, vegetative reproduction seemed to be an important means by which the population was maintained. Plants at the deepest depth studied (10.7 m) had the highest survival rate. Plant loss was due either to detachment of the holdfast from the substrate or to breaking of the stipe. Plants could recover from extensive damage by regrowth from the midribs. plant density/reproduction/survival rate/regrowth/water depth/abundance/life history/recruitment/growth/demography/*Dictyopteris undulata*/Isthmus Reef/Santa Catalina Island/marine biology/phycology/botany.

1638. Chow TJ, Orphan V, Rainbridge A, Bruland K, Martin J. Southern California baseline study and analysis (1975/1976). Volume 3. Principal investigator work element reports. Report sections 4.1-4.4, 5.1, 5.2; book 10. 1978;:474. crude-oil/ecology/marine biology/water pollution/Southern California Bight/Eganhouse/chemical oceanography/hydrocarbons/metals/concentration composition/aquatic plants/aquatic animals/abundance/distribution property/chromatographic analysis/Bray/algae/spermatophytes/anthropogenic/anderson/MINERALS MANAGEMENT SERVICE.

1639. Dohl TP, Bonnell ML, Ford RG. Distribution and abundance of common dolphin, *Delphinus delphis*, in the Southern California Bight: A quantitative assessment based upon aerial transect data. *FISH. BULL* 1986;84(2):333-343. On 35 aerial transect surveys of the Southern California Bight, 157 sightings of common dolphin, *Delphinus delphis*, schools were observed and mapped for distributional analysis. Mean seasonal population estimates were 15,448 for winter-spring and 57,270 for summer-autumn. During the warmer water months, the common dolphin population expands its use of the Southern California Bight. They enter from the south,

apparently following the major undersea ridges and escarpments, and flow though the Southern California Bight in a generalized counterclockwise fashion. Observational evidence suggests that there is mixing the both the nearshore and pelagic forms of this species in the offshore waters over the Santa Rosa-Cortes Ridge and Patton Escarpment.

abundance/distribution records/aerial surveys/Delphinus delphis/ISE/ California Bight/ASFA.

1640. Jones DL, Rangin C, Blake MCJ. The four Jurassic belts of northern California and their significance to the geology of the southern California Borderland. Am. Assoc. Pet. Geol., Pac. Sect., Misc. Publ. (24). Aspects of the geol. hist. of the Calif. Cont. Borderland. 1976:p.343-362

U. S. Geol. Surv., Menlo Park, Calif., United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present).

California/tectonophysics/plate

tectonics/Mesozoic/north/south/Mexico/Baja

California/Jurassic/United States/structural

complexes/evolution/continental margin/island

arcs/collision/subduction/faults/transform/rotation/subduction

zones/Cretaceous/tectonics/belts/GEOREF.

1641. Kaplan IR (Performer: California Univ., Los Angeles.

Inst. of Geophysics and Planetary Physics.

Funder: Department of Energy, Washington, DC.) Distribution and

Fate of Biogenic and Petroleum Derived Substances in Marine

Sediments: Final Report. ; 1986. Report No.: DOEEV70134T10. 16p.

Portions of this document are illegible in microfiche products. PC A02/MF A01 Contract: AS0376EV70134.

The studies were aimed at a better understanding of the processes occurring at the sediment-water interface, the carbon budget in the ocean, the flux of the light elements, and the diagenetic changes of the sedimentary components. Recent research focused on environmental problems relating to anthropogenic pollution of the southern California Bight as a result of petroleum exploration and production and shelf edge exchange processes and transport of carbon in the Atlantic shelf, slope and the rise. Inorganic geochemical, organic geochemical and stable isotopic mass spectrometer studies conducted to achieve the above-mentioned goals have resulted in the development of several techniques for the study of e.g., trace, elements by atomic absorption spectroscopy; gases through separation on vacuum lines and identification by gas chromatography; stable isotopes by use of dual-collecting mass spectrometers on specially-prepared environmental samples and characterization of several organic compounds by gas chromatography and mass spectrometry after optimized sample preparations. (ERA citation 12:009983). Atlantic Ocean/Carbon Cycle/Diagenesis/Environmental Transport/Hydrocarbons/Pacific Ocean/Research Programs/Sediment Water Interfaces/Continental Shelf/Sediments/ERDA/520200/ERDA/580500/NTIS.

1642. Barber R. Deep ocean research using computer

controlled ROVs. SEA TECHNOL 1989;VOL. 30, NO. 8:pp. 47-49

Monterey Bay Aquarium, Cannery Row, Monterey, CA, USA.

Waters of California's Monterey Bay--reaching to 6,000 feet deep--

are a perfect setting for study of the deep-sea environment and

biota. The institute is taking advantage of this environment and

adding computer technology with dedication to studying the

physical, chemical, geological and biological dynamics of Monterey

Bay, Monterey Canyon, and the contiguous ocean waters. A network of

Hewlett-Packard computers forms the backbone of the research

efforts. The elaborate system begins on the ROV itself--a Model ATP-1850 from International Submarine Engineering--and an HP Vectra personal computer that controls the onboard camera. oceanography/fiber optics/remote control/oceanographic equipment/unmanned vehicles/underwater equipment/computers/automation/INE, California, Monterey/Oceanic Abstracts.

1643. SMITH PE. SEASONAL AND GEOGRAPHIC CHARACTERISTICS OF FISHERY RESOURCES: CALIFORNIA CURRENT REGION - VII. PACIFIC SARDINE. COMMERCIAL FISHERIES REVIEW, 33(10): 7-11, OCT. 1971 1971 UNKNOWN. SARDINES/SARDINOPS/GEOGRAPHIC DISTRIBUTION/FISHERIES RESOURCES/CALIFORNIA CURRENT/SEASONAL CHARACTERISTICS/S/CAERULEUS/PACIFIC SARDINES/OceanAbstracts.

1644. Bentz AP, Jadamec JR, Hiltabrand RR, Anderson CP, Hendrick MS. Feasibility studies for identification of Santa Barbara natural seep and platform oils. Final Report. : Coast Guard Research and Development Center, Groton, CT. CGR/DC-11/84; CG-D-28-84; 1984. 78.

The objective of this project was to "develop a capability to identify an oil spill source (seep or specific well) in the Santa Barbara area". Samples of available natural seeps, as well as a series of samples from various platforms representing numerous producing zones, were examined very thoroughly using state-of-the-art analytical techniques. We demonstrated that oils from natural seeps could be distinguished from platform oils by any of several methods in addition to infrared which was proposed in 1975. Owing to the relatively uniform composition of oils found in the Santa Barbara Channel area, coupled with intermixing due to thrust faults in the area and variation in composition with time of sampling, even the most sophisticated instrumentation and pattern recognition algorithms available were unable to distinguish individual wells, platforms or zones.

Chemical analysis/Oil wells/Seepage/Pattern recognition/Infrared spectroscopy/Ultraviolet spectroscopy/Gas chromatography/Sampling/Mass spectroscopy/Sites/Comparison/Feasibility/Platforms/Oil spills/Natural emissions/High performance liquid chromatography/Santa Barbara Channel/Chemistry/Physical Chemistry/Environmental Pollution/Analytical Chemistry/petroleum/water quality/resource management.

1645. Chow TJ, Earl JL, Reed JH. Barium content of marine sediments near drilling sites: A potential pollution indicator. Mar. Pollut. Bull. 1978;9(4):97-99. Barium/Sediments/Water pollution/Offshore operations/REISH/Pacific Ocean/California Coast/Chemical pollutants/anderson/Southern California Bight/pollutant indicators/ANTHROPOGENIC/USA/oil well/gas well/hickey/physical oceanography/egonhouse/geochemistry/chemical oceanography/barium sediments/pollution/MINERALS MANAGEMENT SERVICE.

1646. Chow TJ, Holm-Hansen O, Orphan V. Year II. Intertidal study of the Southern California Bight (1976/77). Trace metal analyses of sediment and biota, microbial biomass, and master bibliography. Sections 3.1-4.1, 4.2. Prep. for U.S. Dep. Interior, Minerals Management Service, Pacific OCS Region, Los Angeles, Ca. Prep. by Science Applications, Inc., La Jolla, CA. 1978;III:34. MINERALS MANAGEMENT SERVICE.

1647. Christensen N, Gallegos A. On the response of the nearshore current to the wind during upwelling. Presented at:

Joint Oceanographic Assembly, Edinburgh (UK), 13 Sep 1976 1976;
ISE/Mexico/Baja California/geostrophic currents/coastal
zone/Hood/ecosystem/anthropogenic/anderson/MINERALS MANAGEMENT
SERVICE.

1648. Chu EW. The distribution, abundance, diet, and fat
accumulation patterns of sooty shearwaters *Puffinus griseus* in the
California current. Dissertation, Univ. of Calif., Santa Cruz
1982;:112.
biological oceanography/Algae/spermatophytes/Bray/Murray./MINERALS
MANAGEMENT SERVICE.

1649. Wittmann P, Colton MC, Rendine JJ, Mooers CNK.
Hydrographic data from the OPTOMA program OPTOMA 18, 31 October and
2 November 1985. REP. U.S. NAV. POSTGRAD. SCH 1985;
The OPTOMA (Ocean Prediction Through Observation, Modeling and
Analysis) program seeks to understand the mesoscale (fronts,
eddies, and jets) variability and dynamics of the California
Current System and to determine the scientific limits to practical
mesoscale ocean forecasting. To help carry out the aims of this
project, a series of cruises and P3 flights has been planned in two
subdomains, NOCAL and CENCAL. Bathythermographic data were acquired
with shallow (300 m) and deep (700 m) AXBT's which were deployed
from a Navy P3 aircraft. hydrographic data/bathythermographic
data/INE/California Current/ASFA.

1650. Vedder JG, Howell DG. Review of the distribution and
tectonic implications of Miocene debris from the Catalina Schist,
California Continental Borderland and adjacent coastal areas. Am.
Assoc. Pet. Geol., Pac. Sect., Misc. Publ. (24). Aspects of the
geol. hist. of the Calif. Cont. Borderland. 1976:p.326 U. S. Geol.
Surv., Menlo Park, Calif., United-States Analytic; Serial B;
Bibliography and Index of Geology (1969-present).
Catalina Schist/San Onofre Breccia/California/sedimentary
petrology/sedimentary rocks/clastic
rocks/terrigenous/Miocene/southwest/coastal/Santa Monica
Mountains/Long Beach/Oceanside/Channel Islands/Santa Cruz
Island/Santa Rosa Island/Anacapa Island/offshore/Patton Ridge/Santa
Rosa Cortes Ridge/United States/paleogeography/faults/plate
tectonics/middle Miocene/upper
Miocene/distribution/Mexico/Tijuana/provenance/displacements/San
Andreas Fault/effects/sedimentation/GEOREF.

1651. Baber D, Coblenz B. Density, home range, habitat use,
and reproduction in feral pigs on Santa Catalina Island. J. MAMMAL
1986;67(3):512-525. A feral pig population on Santa Catalina
Island, California, was studied for 17 months beginning in July
1980. Density was estimated to be 21 to 34 pigs/km super(2). Dry
season home ranges determined from radio-telemetry data were small
and differed significantly between boars and sows. During the dry
season, pigs preferred cool moist canyon bottoms, the result of
both a physiological need for free water and behavioral responses
to high environmental temperatures. Patterns of utilization during
the wet season appeared to be primarily a function of food
availability. Seasonality in time of birth was evident, with
piglets born in winter and spring (1980) or spring and summer
(1981). Litter size as measured by fetal counts was 5.00 plus or
minus 0.36 and sows averaged 0.86 plus or minus 0.17 litters over
a 12-month period.
USA/California/Santa Catalina Island/Sus scrofa/feral
populations/population density/habitat utilization/reproduction/CSA
Life Sciences Collection.

1652. Swartz RC, Cole FA, Schults DW, DeBen WA. Ecological Changes in the Southern California Bight Near a Large Sewage Outfall: Benthic Conditions in 1980 and 1983. Mar. Ecol. Prog. Ser. 1986;31:p.1-13

Performer: Environmental Research Lab.-Narragansett, Newport, OR.
Mark O. Hatfield Marine Science Center.

The structure of the macrobenthic community, sediment toxicity, and sediment contamination changed greatly between 1980 and 1983 along a pollution gradient from the Los Angeles County Sanitation Districts' (LACSD) sewage outfalls on the Palos Verdes Shelf, California, USA to a reference site in northern Santa Monica Bay. Stimulation of the species richness, biomass, and density of the benthos along the 60 m contour 5 to 11 km from the outfalls was significantly reduced in 1983 when compared to 1980. Stations 1 to 3 km from the outfalls in 1980 were occupied by a depauperate fauna strongly dominated by the opportunistic polychaete *Capitella* spp. In 1983 species richness and biomass significantly increased close to the outfalls, and *Capitella* spp. was much less abundant. There was no significant toxicity associated with any sediment from the Shelf in 1983.

Toxicity/Sediments/Worms/Biomass/Crustacea/Recovery/Storms/Palos Verdes Shelf/California/Reprints/Outfall sewers/Sewage disposal/Ecology/Benthos/Water pollution/NTIS.

1653. Matrai PA. Determination of sulfur in ocean particulates by combustion-fluorescence. MAR. CHEM 1989;VOL. 26, NO. 3:pp. 227-238 Rosenstiel Sch. Mar. and Atmos. Sci., Div. Mar. and Atmos. Chem., 4600 Rickenbacker Causeway, Miami, FL 33149-1098, USA.

A method is described for the determination of organic sulfur at the sub-microgram level in particulate matter present in marine waters. Particulate matter is first collected on filters and combusted at high temperature in an argon-oxygen atmosphere, converting all sulfur-containing compounds to sulfur dioxide. Sulfur is subsequently detected by exposure of the resulting sulfur dioxide to UV light; this produces a fluorescent emission which is then quantified. The detection limit of the method is 0.01 $\mu\text{g S}$ and the precision is 4-11%, depending on the sample concentration. Using this procedure, organic sulfur was determined in suspended matter collected in the Southern California Bight.

chemical oceanography/chemical analysis/suspended particulate matter/ analytical techniques/organic compounds/sulfur compounds/fluorescence spectroscopy/methodology/organic sulfur/OCEANIC ABSTRACTS.

1654. AHLSTROM EH. REMARKABLE MOVEMENTS OF OIL GLOBULES IN EGGS OF BATHYLAGID SMELTS DURING EMBRYONIC DEVELOPMENT. MARINE BIOLOGICAL ASSOCIATION OF INDIA. JOURNAL, 11(1-2): 206-217, JUNE-DEC. 1969 1969

UNKNOWN.

BATHYLAGUS/SMELTS/CALIFORNIA
CURRENT/EMBRYOLOGY/EGGS/LEUROGLOSSUS/GULF OF CALIFORNIA/OIL GLOBULES/L/STILBIUS/B/WESETHI/OceanAbstracts.

1655. Berelson WM, Hammond DE, Fuller C. Radon-222 profiles in California borderland basins; models of basin water mixing and the flux of radon from basin sediments. American Geophysical Union; 1981 fall meeting. Eos, Transactions, American Geophysical Union 1981;62(45):894

Address: Univ. South. Calif., Dep. Geol. Sci., Los Angeles, CA
Conference: American Geophysical Union; 1981 fall meeting San Francisco, CA, Dec. 7-11, 1981. isotopes/radon/radium/sediments/sea water/marine

sediments/processes/Rn-222/Ra-226/diffusion/continental
borderland/radioactive isotopes/mixing/geochemical
profiles/sediment-water interface/Santa Barbara Basin/Channel
Islands/San Nicolas Basin/geology/chemistry/geochemistry.

1656. Mendelsohn S. Project execution plan for OTEC (ocean thermal energy conversion) current study. REP. U.S. NAV. FACIL. ENG. COMMAND CHESAPEAKE DIV 1978; As part of the Ocean Thermal Energy Conversion (OTEC) project the contractor being sponsored by the Department of Energy, Deep Oil Technology, Incorporated the contractor is conducting a verification test for the OTEC Cold Water Pipe during November and December 1978. The test is being conducted from the Deep Oil X-1 platform to: 1) test the analytical methods used to design the OTEC Cold Water Pipe; and 2) evaluate the performance of the Cold Water Pipe in the open sea. The work is being carried out off the coast of California on the seaward side of Santa Catalina Island in about 1,000 feet of water. The Cold Water Pipe tests will consist of supporting an instrumented steel pipe five feet in diameter and up to 800 feet long from the Deep Oil X-1. The dynamic behavior of the pipe will be measured for various sea conditions, platform motions, pipe length, and pipe supporting means.
data acquisition/OTEC plants/oceanographic data/experimental research/INE/USA/California/ASFA.

1657. Stuart CJ. Source terrane of the San Onofre Breccia; preliminary notes. Am. Assoc. Pet. Geol., Pac. Sect., Misc. Publ. (24). Aspects of the geol. hist. of the Calif. Cont. Borderland. 1976:p.309
Cont. Oil Co., Explor. Res. Div., Ponca City, Okla., United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present). San Diego County/Orange County/San Onofre Breccia/California/sedimentary petrology/sedimentary rocks/clastic rocks/terrigenous/breccia/Miocene/southwest/Channel Islands/Santa Cruz Island/Santa Catalina Island/Oceanside/Laguna Beach/conglomerate/clasts/petrography/lithofacies/provenance/United States/GEOREF.

1658. Wittmann PA, Kelley EA, Mooers CNK (Performer: Naval Postgraduate School, Monterey, CA). Hydrographic Data from the OPTOMA (Ocean Prediction Through Observations, Modeling and Analysis) Program: OPTOMA16, 20 May - 23 June 1985. Rept. for Oct 82-Aug 85. ; 1985. Report No.: NPS6885023. 133p. The OPTOMA (Ocean Prediction Through Observations, Modeling and Analysis) Program, seeks to understand the mesoscale (fronts, eddies, and jets) variability and dynamics of the California Current System and to determine the scientific limits to practical mesoscale ocean forecasting. To help carry out the aims of this project, a series of cruises has been planned in two subdomains off Northern and Central California. Data acquired during Leg MI, Leg MII and Leg A include expendable bathythermographic data and current temperature density data profiles. Bucket surface temperature and water samples for salinity were taken at most CTD stations. These surface values were used for calibration purposes as well as contributions to the data base. Leg A also acquired continuous 2m thermosalinograph measurements, continuous meteorological data such as atmospheric pressure at a height of 2m and wind speed and direction at a height of 20m, and acoustic Doppler velocity data. Keywords: California Current System; Physical Oceanography; Dynamic Oceanography. Acoustic data/Acoustic velocity/Acoustic waves/Doppler effect/Surface temperature/California/Meteorological data/Dynamics/Barometric pressure/Data bases/Oceans/Salinity/Oceanographic

data/Collection/Planning/Bathythermograph data/Ocean surface/Predictions/Coastal regions/Limitations/Density/Profiles/Temperature/Wind velocity/Surfaces/Value/Sampling/Water/Ocean currents/Oceanography/OPTOMA Project/Ocean Prediction/California Current/NTIS.

1659. Boekelheide RJ, Ainley DG. Age, resource availability, and breeding effort in Brandt's cormorant. AUK 1989;VOL. 106, NO. 3:pp. 389-401 Point Reyes Bird Obs., 4990 Shoreline Highw., Stinson Beach, CA 94924, USA. The authors gathered life-history data on banded Brandt's Cormorants (*Phalacrocorax penicillatus*) at Southeast Farallon Island, California, from 1972 to 1984, and documented breeding performance as affected by age and annual variation in food availability. Females bred at a younger age than males, but did not live as long. Birds of both sexes that bred at least once bred the same number of years. Mate fidelity was low (9%) because of poor synchrony in the arrival of mates and low site fidelity by females. Prior breeding experience had little influence on reproductive success. The most successful individuals fledged 10-20 chicks over their lifetime, and averaged 2.5 chicks/breeding year over four to eight years. Cormorants experienced significant interannual differences in food availability. food availability/*Phalacrocorax penicillatus*/biological age/breeding/INE, USA, California, Farallon I/Oceanic Abstracts.

1660. SMITH PE. SEASONAL AND GEOGRAPHIC CHARACTERISTICS OF FISHERY RESOURCES. COMMERCIAL FISHERIES REVIEW, 33(7-8): 40-43, JULY-AUG. 1971 UNKNOWN. ROCKFISHES/FISHERIES RESOURCES/CALIFORNIA CURRENT/SEASONAL AND GEOGRAPHIC CHARACTERISTICS/OceanAbstracts.

1661. Boveng P, DeMaster DP, Stewart BS. Dynamic response analysis. 3. A consistency filter and application to four northern elephant seal colonies. MAR. MAMM. SCI 1988;4(3):210-222. Dynamic response analysis, a technique for determining stock size relative to the maximum net productivity level (MNPL), was applied to northern elephant seal populations from the South Farallon Islands, Ano Nuevo Island, San Nicolas Island and San Miguel Island. Pup counts were used as indices of population size. The application of dynamic response analysis presented here involved some methodological innovations. The authors present a moving interval method which involves calculating separate dynamic response analyses for intervals of various lengths ranging from four counts to the total number available for the colony. population dynamics/productivity/USA/California/stock assessment/marine mammals/Mirounga angustirostris/pups/INE/USA/California/dynamic response analysis/ASFA.

1662. McLean H, Crowe BM, Howell DG. Source of Blanca Formation volcanoclastic rocks and strike slip faulting on Santa Cruz Island, California. Am. Assoc. Pet. Geol., Pac. Sect., Misc. Publ. (24). Aspects of the geol. hist. of the Calif. Cont. Borderland. 1976:p.294-308 U. S. Geol. Surv., Menlo Park, Calif., United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present). Blanca Formation/California/sedimentary petrology/sedimentary rocks/clastic rocks/terrigenous/Miocene/southwest/Channel Islands/Santa Cruz Island/United States/provenance/pyroclastics/clasts/petrography/faults/displacements/strike slip/effects/GEOREF.

1663. Sherman K. Measurement strategies for monitoring and forecasting variability in large marine ecosystems. VARIABILITY AND MANAGEMENT OF LARGE MARINE ECOSYSTEMS.; 1986; pp. 203-235; AAAS SELECT. SYMP. SER.; no. 99 Significant effort is underway aimed at providing a scientific basis for the management and conservation of living resources within seven LMEs--the Insular Pacific, Eastern Bering sea, Gulf of Alaska California Current, Gulf of Mexico, Southeast Atlantic Shelf, and Northeast Atlantic Shelf. In each of the LMEs three resource assessment strategies have been implemented to monitor variability and forecast abundance of resource population: (1) utilization of yield statistics for estimating population trends, (2) yield-independent surveys of adult and early-life stages on mesoscale spatial (20-100 km) and temporal (weeks-months) sampling frequencies, and (3) process-oriented studies of ecosystem structure and function leading to improved resource forecasts.

ecosystems/marine resources/resource management/environment management/methodology/environmental monitoring/measuring techniques/marine ecosystems/variability/CSA Life Sciences Collection.

1664. Colton MC, Mooers CNK (Performer: Naval Postgraduate School, Monterey, CA). OPTOMA (Ocean Prediction Through Observations, Modeling, and Analysis) Program Interim Report. The Airborne Ocean Thermal Structure Mapping Project. Rept. for Feb 83-Feb 85. ; 1985. Report No.: NPS6885008. 106p. The Ocean Prediction Through Observation, Modeling and Analysis (OPTOMA) Program goals are to develop an ocean descriptive predictive system for studying and forecasting the evolution of ocean mesoscale features and the California Current System. Attainment of these goals requires the establishment of a broad-base ocean observing and monitoring system that includes, hydrographic research cruises, moored arrays, and remotely sensed data, etc. To forecast the evolution of the oceanic flow field, the observing system must include a means of obtaining real-time, synoptic maps for the initialization and verification of the dynamic model(s) used. P3 flights to deploy airborne expendable bathythermographs are a clear choice for frequent mappings. Since Feb. 1983 six OPTOMA missions have been flown. A total of 325 AXBTs have been successfully deployed off the northern and central California coasts. Data analysis reinforce recent discoveries about the character of the California Current System: the current regime is highly variable in nature and is comprised of cool anomalies, mesoscale eddies, 'squirts' and jets, current filaments and fronts. An airborne digital data acquisition system, built around an HP9816 microprocessor and a Sippican MK9 digitizing unit, digitizes the AXBT audio signal, then stores the profiles on diskette.

California/Coastal regions/Data processing/Filaments/Arrays/Mooring/Oceans/Predictions/Anomalies/Cooling/Dynamics/Models/Monitoring/North Direction/Flow fields/Oceanographic data/Bathythermograph data/Collection/Airborne/Planning/Maps/Synoptic meteorology/Ocean currents/Oceanography/OPTOMA Project/Ocean prediction/California current/NTIS.

1665. Nelson DA. Gull predation on Cassin's auklet varies with the lunar cycle. AUK 1989;VOL. 106, NO. 3:pp. 495-497 Rockefeller Univ., Field Res. Cent., Box 38B, RR2, Tyrrel Rd., Millbrook, NY 12545, USA. predation/Ptychoramphus aleuticus/Laridae/circadian rhythms/INE, USA, California, Farallon I./environmental effects/Oceanic Abstracts.

1666. SEIBERT DLR. BREEDING IN AN OCEANIC POPULATION OF

PLEURONCODES PLANIPES (CRUSTACEA, GALATHEIDAE). PACIFIC SCIENCE, 25(3): 426-428, JULY 1971 1971 UNKNOWN.
CRABS/BREEDING/PLEURONCODES/CALIFORNIA
CURRENT/P/PLANIPES/OceanAbstracts.

1667. Clarke SH,J, Field ME, Linker FI, Wagner HG.
Environmental geology of selected areas of the southern California continental borderland. Open File Rep. No. OF-75-596. Prep. for U.S. Dep. Interior, Minerals Management Service, Pacific OCS Region, Los Angeles, CA. Prep. by U.S. Geological Survey, Menlo Park, CA 1975;:82.
MINERALS MANAGEMENT SERVICE.

1668. Clarke SH,J, Greene HG, Field ME, Lee WHD.
Reconnaissance geology and geologic hazards of selected areas of the southern California continental borderland. Open File Rep. 83-62. Prep. for U.S. Dep. Interior, Minerals Management Service, Pacific OCS Region, Los Angeles, CA. Prep. by U.S. Geological Survey, Menlo Park, CA 1983;
MINERALS MANAGEMENT SERVICE.

1669. Howell DG, McLean H. Middle Miocene paleogeography, Santa Cruz and Santa Rosa islands. Am. Assoc. Pet. Geol., Pac. Sect., Misc. Publ. (24). Aspects of the geol. hist. of the Calif. Cont. Borderland. 1976:p.266-293 U. S. Geol. Surv., Menlo Park, Calif., United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present).
California/sedimentary petrology/sedimentary rocks/clastic rocks/terrigenous/Miocene/southwest/Channel Islands/Santa Cruz Island/Santa Rosa Island/United States/paleogeography/transport/middle Miocene/pyroclastics/conglomerate/sandstone/siltstone/lithofacies /massive/unsorted/bedding/graded bedding/paleocurrents/provenance/sedimentation/turbidity currents/traction currents/GEOREF.

1670. MacCall A. Changes in the biomass of the California Current ecosystem. VARIABILITY AND MANAGEMENT OF LARGE MARINE ECOSYSTEMS.; 1986; pp. 33-54; AAAS SELECT. SYMP. SER.; no. 99
California Current pelagic fishes have been monitored for 30 to 50 years, and a paleosedimentary record extends back 200 to 2000 years. Large natural fluctuations in abundance occur at all time scales. Overharvest of sardines removed a major component of the ecosystem; the extent to which it was replaced by other species is not clear. Large predatory fishes have declined in abundance due to exploitation. Pinnipeds were depleted in the last century, but now are abundant and are increasing rapidly. Seabird reproductive success is closely related to availability of small forage fish such as anchovy. Despite a wealth of scientific information, species interactions are poorly understood, and are difficult to separate from independent differential responses to varying environmental conditions. The biological basis of fishery management is likely to remain single-species models in the foreseeable future. Ecosystem management requires coordinated consideration of both fished and non-fished species, but faces conflicting jurisdictions and other institutional difficulties.
ecological balance/ecosystem management/marine fisheries/Pacific Ocean/ California Current/biomass/environmental changes/marine ecosystems/INE/ California Current/ISE/California Current/environmental conditions/changes/CSA Life Sciences Collection.

1671. Kozloff P (Performer: National Marine Fisheries

Service, Seattle, WA. Northwest and Alaska Fisheries Center.) Fur Seal Investigations, 1983. Technical memo. ; 1985. Report No.: NOAATMNMFSFNWC78. 84p.

See also PB85-186047. PC A05/MF A01.

Northern fur seal, *Callorhinus ursinus*, research in 1983 was conducted on the Pribilof Islands and Bogoslof Island in Alaska and on San Miguel Island and nearby Castle Rock, California. Estimates made of the number of pups born in 1983 on the Pribilof Islands indicate a continuing decline in the number of northern fur seals there. Censuses of juvenile males on the hauling grounds of St. George Island from 1978 to 1983 show a general decline in their numbers.

San Miguel Island/Bering Sea/Populations/Breeding/Census/Bogoslof Island/Seals Mammals/Pribilof Islands/North Pacific Ocean/Fur seals/*Callorhinus ursinus*/NTIS.

1672. Stephens JS,, Singer M, Targgart L. Notes on the first record of the orangethroat pikeblenny, *Chaenopsis alepidota* (Gilbert), in mainland California. CALIF. FISH GAME 1989;VOL. 75, NO. 3:pp. 180-183

Vantuna Res. Group, Occidental Coll., Los Angeles, CA 90041, USA.

The authors report the presence of the orangethroat pikeblenny, *Chaenopsis alepidota*, in King Harbor, Redondo Beach, which is the first record from a mainland California location. This blenny occurs as two presumably disjunct populations, one in the Gulf of California, *C. a. alepidota*, and one known from Catalina and Anacapa Islands, *C. a. californiensis*. At Catalina Island, *Chaenopsis alepidota* inhabits *Chaetopterus*-like tubes in quiet sand flats. In the 1960's populations were present in many beaches on the leeward side of Catalina Island at depths about 10 m. The only record of this fish from Anacapa Island is a photo. One explanation for the absence of the species on mainland California is that the protected, clean, shallow sand flat habitat required does not occur there since the coast is regularly encroached upon by winter Pacific storm waves. new records/horizontal distribution/habitat/*Chaenopsis alepidota*/IN E, USA, California/Oceanic Abstracts.

1673. Beyer LA. Offshore Southern California. H.W. Oliver.

Interpretation of the gravity map of California and its continental margin. Bulletin -California, Division of Mines and Geology 205.

; 1980. 8-15. Address: U. S. Geol. Surv., Menlo Park, CA.

oceanography/tectonophysics/geophysical surveys/crust/gravity surveys/continental shelf/Santa Cruz Basin/observations/Bouguer anomalies/free-air anomalies/mantle/Neogene/Tertiary/Cenozoic/Santa Cruz Basin/Santa Barbara Channel/geology/solid earth geophysics.

1674. Fang CM. Sea surface current estimates off central California as derived from enhanced AVHRR (advanced very high resolution radiometer) infrared images. 1987;

A technique is presented which uses an interactive computer program to estimate sea surface current velocities from the displacement of sea surface temperature (SST) patterns apparent in enhanced sequential infrared images obtained from the NOAA-6 Advanced Very High Resolution Radiometer. This technique was applied to the surface currents of the California Current System using IR image data from 27 and 28 April 1981. This technique, which uses enhanced pseudocolor gradient imagery, produced more current vectors than an earlier technique developed by O'Hara (1987) which used unenhanced gray scale imagery.

satellite sensing/image enhancement/infrared imagery/surface temperature/surface currents/INE/California Current/ASFA.

1675. Minch JA, Gibson KN, Peterson GL. Clast populations in Sespe and Poway conglomerates and their possible bearing on the tectonics of the southern California Borderland. Am. Assoc. Pet. Geol., Pac. Sect., Misc. Publ. (24). Aspects of the geol. hist. of the Calif. Cont. Borderland. 1976:p.256-265 Saddleback Coll., Mission Viejo, Calif., United-States; San Diego State Univ., San Diego, United States Analytic; Serial B; Bibliography and Index of Geology (1969-present).

San Diego County/San Bernardino County/Sespe Formation/Poway Group/California/sedimentary petrology/sedimentary rocks/clastic rocks/terrigenous/conglomerate/southwest/Santa Ana Mountains/San Diego/clasts/petrography/interpretation/provenance/Eocene/United States/GEOREF.

1676. Cross J. Fin erosion among fishes collected near a southern California municipal wastewater outfall (1971-82). FISH. BULL., STATE CALIF., FISH GAME COMM 1985;83(2):195-206.

In the Southern California Bight fin erosion is most frequently encountered among fishes collected near municipal wastewater outfalls. This paper presents an analysis of the trends in the incidence of fin erosion among fishes collected by otter trawls near Los Angeles from 1971 through 1982. About 24% of the 122 species of fish and 9% of the more than 170,000 individuals collected had the disease. Flatfish (Pleuronectidae, Bothidae, and Cynoglossidae) and rockfish (Scorpaenidae) accounted for 66% of the affected species and 99% of the affected individuals. Dover sole (Pleuronectidae: *Microstomus pacificus*) accounted for 89% of the affected individuals. The incidence of fin erosion was highest close to the outfalls and declined with increasing distance. The number of species with the disease declined from 1971 to 1982. The incidence of the disease also declined in two of the three most affected species (Dover sole and rex sole, *Glyptocephalus zachirus*).

sewage outfalls/wastewater treatment/pollution effects/fins/erosion/USA/California/outfalls/fish/California/wastewater discharges/Pisces/ISE/California Bight/CSA Life Sciences Collection.

1677. Wittmann PA, Kelley EA, Mooers CNK (Performer: Naval Postgraduate School, Monterey, CA). Hydrographic Data from the OPTOMA Program, OPTOMA17: OPTOMA17 P, 21 July 1985, OPTOMA17 Leg DI, 10-22 August 1985, OPTOMA17 Leg DII, 23 August-5 September 1985. Rept. for Oct 82-Sep 85. ; 1985. Report No.: NPS6885026. 133p.

The OPTOMA (Ocean Prediction Through Observations, Modeling and Analysis) Program seeks to understand the mesoscale (fronts, eddies, and jets) variability and dynamics of the California Current System and to determine the scientific limits to practical mesoscale ocean forecasting. To help carry out the aims of this project, a series of cruises has been planned in two subdomains, NOCAL and CENCAL. The two cruises and one AXBT flight comprising OPTOMA17 were undertaken in the USNS DE STEIGUER and a Reserve Patrol Wing P3B aircraft. Hydrographic data were acquired off the coast of California in an area which covered and extended the NOCAL region. On each of these cruises, hydrographic stations were occupied at approximately 19 km along the track. For the AXBT flight, the along-track station spacing varied between about 28 km and about 46 km. Data acquired during Legs DI and DII include XBT and CTD profiles; whereas data acquired during Leg P are AXBT profiles. Bucket surface temperatures were taken at all CTD stations. A rosette sampler was used to acquire deep salinity samples. These salinity samples were used for calibration purposes as well as contributions to the data base.

Conductivity/Density/Ocean surface/Fronts Oceanography/Eddies Fluid mechanics/Ocean models/Forecasting/Surface temperature/California/Data bases/Dynamics/Hydrography/Stations/Oceans/Predictions/Calibration/Salinity/Sampling/Coastal regions/Samplers/Oceanographic data/Predictions/Ocean currents/North Pacific ocean/Bathythermograph data/OPTOMA project/California current/NTIS.

1678. COX JL. DDT RESIDUES IN SEAWATER AND PARTICULATE MATTER IN THE CALIFORNIA CURRENT SYSTEM. U.S. NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION. NATIONAL MARINE FISHERIES SERVICE. FISHERY BULLETIN, 69(2): 443-450, APRIL 1971 1971 UNKNOWN. CALIFORNIA CURRENT/PARTICULATE MATTER/DDT RESIDUES/OceanAbstracts.

1679. Cleveland MN, Casey RE. Radiolarian indices of physical and chemical oceanographic phenomena in Recent sediments of the Southern California Continental Borderland. Siliceous Microfossil and Microplankton of the Monterey Formation and Modern Analogs. Univ. of San Diego, Mar. Stud. Program, San Diego, CA (USA). Field Trip Guidebook - Pacific Section, Society of Economic Paleontologists and Mineralogists Vol. 45 1986;:21-30. California/radiolarians/ecology/algal flora/oceanography/diatom flora/observations /continental margin/California ContinentalBorderland/North American Pacific/species diversity/marine sediments/anaerobicenvironment/biocenoses/California Current/El Niño/ocean currents/Southern California/Hickey/physical oceanography/MINERALS MANAGEMENT SERVICE.

1680. Coale KH, Bruland KW. Thorium-234-uranium-238 disequilibria within the California current. Limnol. Oceanogr. 1985;30(1):22-33. eganhouse/geochemistry and chemical oceanography/zooplankton/primary production/scavenging/grazing/particle residence time/thorium-234/uranium-238/MINERALS MANAGEMENT SERVICE.

1681. Neighbors MA. Triacylglycerols and wax esters in the lipids of deep midwater teleost fishes of the Southern California Bight. MAR. BIOL 1988;98(1):15-22. Total lipid contents and the proportions of triacylglycerols and wax esters were examined in 23 species of deep-sea fishes collected between 1977 and 1980 in the Santa Catalina, San Clemente and San Pedro Basins off Southern California, USA. Mean total lipid content ranged from < 1 to 22% of wet weight. Triacylglycerols accounted for 1 to 91% of total lipids present and were more abundant than wax esters in the lipids of all but a single species. Wax ester contents ranged from 0 to 24% of total lipids but in 20 species were < 10% of the lipids. Lipids, largely in the form of triacylglycerols, may be important in the buoyancy of three species with lipid contents > 10% of wet weight. Two of these species also possess inflated swimbladders. waxes/esters/lipids/depth/Teleostei/buoyancy/INE/USA/California/A SFA.

1682. McLean H, Howell DG, Vedder JG. Miocene strata on Santa Cruz and Santa Rosa islands; a reflection of tectonic events in the southern California Borderland. Am. Assoc. Pet. Geol., Pac. Sect., Misc. Publ. (24). Aspects of the geol. hist. of the Calif. Cont. Borderland. 1976:p.241-253 U. S. Geol. Surv., Menlo Park, Calif., United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present). Vaqueros Formation/San Onofre Breccia/Rincon Formation/Blanca

Formation/Monterey
Formation/California/stratigraphy/Miocene/sedimentary
rocks/southwest/Channel Islands/Santa Cruz Island/Santa Rosa
Island/clastic
rocks/terrigenous/breccia/conglomerate/sandstone/mudstone/lithofa
cies/clasts/pe
trography/lithostratigraphy/correlation/provenance/United
States/tectonics/evolution/uplifts/folds/effects/GEOREF.

1683. Kenyon NH, Masson DG (Performer: Institute of
Oceanographic Sciences, Wormley (England)). MV FARNELLA Cruises
1/84-4/84: 26 April - 15 August 1984. GLORIA Studies of the
Exclusive Economic Zone off the Western United States between 30
deg 30 min and 48 deg 30 min see N. ; 1985. Report No.: CRUISE174.
29p.

See also PB84-110600. PC E05/MF E05.
EEZ-SCAN was a co-operative research program between the United
States Geological Survey (USGS) and the Institute of Oceanographic
Sciences (IOS). The major aim of the program was to undertake a
reconnaissance survey of the entire United States exclusive
economic zone (EEZ) adjacent to the western United States using the
long-range sidescan sonar, GLORIA. In addition to GLORIA data,
single-channel airgun seismic reflection profiles, 3.5 kHz and 10
kHz high-resolution profiles and magnetic anomaly profiles were
continuously collected during the program. Specific objectives of
Leg 1 were to: Obtain overlapping sidescan sonar coverage from the
US-Mexican Border. Survey as much of the bathymetrically-complex
southern California Continental Borderland as possible.
Sonar detection/Bathymetry/Depth/Seismic reflection/Profiles/North
Pacific Ocean/Oregon/Washington State/Magnetic
anomalies/Oceanographic surveys/Oceanographic data/Exclusive
economic zone/Gloria vessel/Foreign technology/NTIS.

1684. Salzman JE. Scientists as advocates: The Point Reyes
Bird Observatory and gill netting in central California. CONSERV.
BIOL 1989;VOL. 3, NO. 2:pp. 170-180
68 Francis Ave., Cambridge, MA 02138, USA.
Scientists and scientific organizations can play singularly
important roles as advocates in the public resolution of
conservation disputes. One scientific organization, the Point Reyes
Bird Observatory, was instrumental in resolving an environmental
controversy in the early 1980s over the use of gill nets off
central California. The gill-net fishery was killing thousands of
birds annually. The Point Reyes Bird Observatory's use of its
scientific data facilitated negotiation and formed the basis for
the threat of litigation. These efforts spurred enforcement of
federal wildlife legislation and helped forge a permanent solution
acceptable to state and federal environmental agencies,
conservation groups, and local fishermen.
mortality/Aves/gillnets/INE, USA, California/nature conservation/e
nvironmental legislation/Oceanic Abstracts.

1685. SMITH PE. SEASONAL AND GEOGRAPHIC CHARACTERISTICS OF
FISHERY RESOURCES. CALIFORNIA CURRENT REGION - III. PACIFIC HAKE.
COMMERCIAL FISHERIES REVIEW, 32(7): 41-44, JULY 1970 1970
UNKNOWN.
FISHERIES RESOURCES/MERLUCCIUS/HAKES/CALIFORNIA CURRENT/
ZOOGEOGRAPHY/M/PRODUCTUS/SEASONAL VARIATIONS/OceanAbstracts.

1686. Bilodeau BJ, Haug GA, Thurston SP. Oil and gas
developments in West Coast in 1985. Am. Assoc. Pet. Geol. Bull.
1986;70(10):1303-1314 Address: Chevron USA, Inc., 6001 Bollinger

Canyon Rd., San Ramon, CA 94583-2398, USA.

Drilling activity in the West Coast region in 1985 maintained the brisk 1984 level, the number of wells drilled decreasing by only 2%. Exploration efforts continued at the pace of the previous year with 265 exploratory wells drilled in 1985, 4 less than in 1984. Exploration offshore California continued to decline as development plans progressed for the nearly 2 billion bbl of oil discovered in recent years. Three new platforms were launched in 1985, and 13 others are planned for the Santa Maria and Santa Barbara Channel offshore areas. The Monterey Formation continued to be a hot exploration target, with 4 of the 12 exploratory wells drilled in 1985 each testing combined rates of more than 3,700 b/d of 8-16 degree oil. Drilling in Oregon and Washington continued its active trend with 25 wells drilled in the 2 states in 1985, 5 more than 1984.

oil and gas exploration/drilling/energy sources/Monterey Formation/petroleum/natural gas/geothermal energy/offshore/onshore/exploration/production/enhanced recovery/West Coast of the United States/Santa Maria Channel/Santa Barbara Channel/Western United States/California/Oregon/Washington/San Joaquin Basin/The Geysers/Imperial Valley/Sacramento Basin/Coso Hot Springs KGRA/Casa Diablo Hot Springs/petroleum/economic geology/energy sources.

1687. Titov VB. New data on the California branch of the North Equatorial Current. DOKL. AN S.S.S.R 1988;299(4):985-988. Results of the first instrumental survey of the Californian branch of North Equatorial current made during the 11th cruise of the R/V Vityaz in April 1986 are given. Current and temperature were measured at 10 independent anchor stations along 119 degree W between 10 and 14 degree 30'N at 50, 150, 300, 500 and 1000m at 15 min intervals for 18 days. Vertical current structure was investigated at 1500, 2000, 2500, 3000 and 3500 m at the entire depth of 4000 m. Actual data on the transfer of mass, heat, and salts through the above meridional section are tabled. The direct measurements revealed comparatively low current velocities, which conforms with geostrophic calculations whereas the width and depth of the current propagation proved to be higher than those from indirect estimates. water currents/current measurement/ISE/California Current/ASFA.

1688. Hill DJ. Geology of the Jurassic basement rocks, Santa Cruz Island, California, and correlation with other Mesozoic basement terranes in California. Am. Assoc. Pet. Geol., Pac. Sect., Misc. Publ. (24). Aspects of the geol. hist. of the Calif. Cont. Borderland. 1976:p.16-46
Univ. Calif., Santa Barbara, Calif., United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present).
Santa Cruz Island Schist/Willows Plutonic Complex/California/petrology/igneous rocks/metamorphic rocks/Santa Cruz Island/Jurassic/United States/basement/upper Jurassic/Alamos Pluton/metasedimentary/metaplutonic/facies/textures/spilite/keratophyre/quartz keratophyre/gabbro/ultramafic family/microdiorite/leucotonalite/dikes/complexes/mineral assemblages/genesis/interpretation/GEOREF.

1689. Smith R, Dustan P, Au D, Baker K, Dunlap E. Distribution of cetaceans and sea-surface chlorophyll concentration in the California Current. MAR. BIOL 1986;91(3):385-402. A census of marine mammals was conducted off the coast of California (USA) in 1979-1980. The distribution of sea-surface chlorophyll was determined at the same time by onboard fluorometry and by remote sensing using the Coastal Zone Color Scanner on the

Nimbus-7 satellite. Comparisons of species and chlorophyll distributions indicate that marine mammals are not randomly distributed with respect to chlorophyll. It is suggested that oceanic chlorophyll may be used as a habitat descriptor for selected marine mammals, and that remote sensing will provide complementary data useful in the interpretation of observed distribution patterns of marine mammals and in the estimation of their abundance. California Current/chlorophylls/productivity/population levels/habitat preferences/Cetacea/CSA Life Sciences Collection.

1690. Dixon R (Performer: Pacific Missile Test Center, Point Mugu, CA). Tidal and Lunar Data for Point Mugu, San Nicholas Island, and the Barking Sands Area during 1986. Annual rept. ; 1985. Report No.: PMTCTP00035. 40p. Basic lunar and tidal data for Point Mugu, San Nicolas Island, and the Barking Sands Area during 1986 are provided. The data presented are (1) tidal data, (2) times of moonrise and moonset, (3) times of lunar phases, and (4) times of sunrise and sunset. Keywords: Barking Sands, Hawaii; Lunar data; Point Mugu, California; San Nicolas Island, California; Tide tables.

California/Hawaii/Moon/Phase/Sunrise/Sunset/Tables Data/Tides/Santa barbara islands/Ocean tides/Point Mugu/San Nicolas Island/Barking Sands/Moonrise/Moonset/NTIS.

1691. Spiesberger JL, Bushong PJ, Metzger KJ, Birdsall TG. Ocean acoustic tomography: Estimating the acoustic travel time with phase. IEEE J. OCEAN. ENG 1989;VOL. 14, NO. 1:pp. 108-119 Woods Hole Oceanogr. Inst., Woods Hole, MA 02543, USA. Continuous acoustic transmissions (133 Hz, 60 ms resolution) between a bottom-mounted source near Oahu, Hawaii, and a bottom-mounted receiver at 4000 km range near the coast of northern California are recorded during a 5-day interval in 1983. An acoustic method, based on cross correlation, is derived to estimate the change in the average acoustic phase (travel time) to a precision of about 0.018 cycles (135 μ s) every 2 min. The new travel-time estimator is applied to the measurements to examine some of the fluctuations of the Pacific. acoustic tomography/sound transmission/sound velocity/ray paths/periodic variations/INE, USA, California/ISE, Hawaii, Oahu/Oceanic Abstracts.

1692. Blanc TV. Data base for the May 1979 marine surface layer micrometeorological experiment at San Nicolas Island, California. : NTIS, Springfield, VA; 1982. Unknown. Address: Naval Res. Lab., Washington, D.C., USA. One hundred thirty-six hours of gradient (profile) and bulk aerodynamic measurements of momentum, moisture, and sensible heat flux, accompanied by determinations of stability, drag coefficient, roughness length, and sky radiation were made in the marine atmospheric surface layer over the Pacific Ocean from an upwind, low-profile promontory of San Nicolas Island, California. Over a 10-day period a wide variety of meteorological and oceanographic conditions were observed. The micro-meteorological observations were accompanied by 80 hours of aerosol size distribution observations of particles ranging from 0.3 to 14 micrometers in radius, 171 hourly measurements of upwind wave period and height, 59 hourly measurements of atmospheric radon (^{222}Rn), and typically twice daily high resolution radiosonde measurements for determining the height of the marine inversion. The data includes measurement error values for the various flux and stability related parameters. data bases/meteorology/oceanography/aerosols/radon/atmospheric conditions/San Nicolas Island/meteorology/atmospheric sciences.

1693. Colebrook JM. Annual fluctuations in biomass of taxonomic groups of zooplankton in the California Current, 1955-59. U.S. Fish. Wildl. Serv. Fish. Bull. 1977;75(2):357-368. Pieper/Dawson/Zooplankton/Text/MINERALS MANAGEMENT SERVICE.

1694. Alvarino A. Spadella pimukatharos , a new benthic chaetognath from Santa Catalina Island, California. PROC. BIOL. SOC. WASH 1987;100(1):125-133. Spadella pimukatharos is described and compared with closely related species Spadella legazpichessi , S. nana , and S. schizoptera . These species are related in part by the structure of the adhesive digital organs. The substratum apparently preferred by S. pimukatharos is a sediment rich in fragments of coralline algae. new species/Spadella pimukatharos/animal morphology/INE/USA/California/ Santa Catalina Island/taxonomy/ASFA.

1695. Fisher RV, Charlton DW. Mid Miocene Blanca Formation, Santa Cruz Island, California. Am. Assoc. Pet. Geol., Pac. Sect., Misc. Publ. (24). Aspects of the geol. hist. of the Calif. Cont. Borderland. 1976:p.228-240 Univ. Calif., Santa Barbara, Calif., United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present). Blanca Formation County/California/stratigraphy/Miocene/igneous rocks/pyroclastics and glasses/sedimentary rocks/southwest/Channel Islands/Santa Cruz Island/Near Point/Bowes Point/Sierra Blanca/United States/thickness/Blanca Formation/clastic rocks/terrigenous/pyroclastics/tuff/breccia/sandstone/conglomerate/clasts/petrography/andesite/dacite/environmental analysis/marine/shallow/provenance/ash flow/tephra/GEOREF.

1696. Driessen P. Offshore oil platforms: An invaluable ecological resource. OCEANS '86 CONFERENCE RECORD: SCIENCE-ENGINEERING-ADVENTURE. VOL. 2. DATA MANAGEMENT, INSTRUMENTATION AND ECONOMICS.; 1986; pp. 516-521; OCEANS '86 Hard substrates created by oil platforms in the Gulf of Mexico and Santa Barbara Channel provide a significant portion of the hard bottom habitat that is essential for the encrusting organisms that form the base of a complex food web. These substrates, the platforms' high profile and open structure, and their creation of excellent habitats and breeding grounds from the sea floor through the splash zone expand the numbers, diversity and range of many desirable fish, shellfish and other organisms. artificial reefs/offshore structures/utilization/risks/risk assessment/oil and gas industry/ecological evaluation/industrial sites/CSA Life Sciences Collection.

1697. Culver RL (Performer: Scripps Institution of Oceanography, La Jolla, CA. Marine Physical Lab.) Infrasonic Ambient Ocean Noise Spectra from Freely Drifting Sensors. Summary rept. ; 1985. Report No.: MPLU5285, SIOREF8522. 51p. Self-contained Swallow Floats can record very low frequency (VLF) ambient ocean noise over extended periods of time. The autonomous buoys measure and record the components of particle velocity in the 1-10 Hz band. They can be ballasted to neutral buoyancy at a desired depth. The buoys generate and receive high frequency acoustic signals which may be used to determine their relative positions. The deployment of several of these units forms a freely drifting array of sensors. Individual element time series may be combined coherently off-line using a beamformer, e.g., the MPL dynamic Beamformer. The Swallow float design minimizes self-noise which can limit accurate ambient ocean noise measurements. The floats drift freely and are not subject to flow noise or cable

strumming. They measure particle velocity and are therefore insensitive to variations in local pressure. MPL has conducted Swallow float deployments annually since 1982. The 1982 deployment tested only the acoustic positioning system. Between 12 and 14 July 1983, three Swallow floats were deployed at a location approximately 50 miles west of San Diego, California and southeast of San Clemente Island (32°N, 118°W). Sea state during the deployment varied between 1 and 2. Water depth was approximately 1900 meters. Two of the floats deployed to a depth of about 1400 meters and the third deployed to the bottom. Measurements recorded by float 3 which deployed to 1400 meters have been analyzed and results are reported in this thesis. Beam forming/Buoys/Deployment/Depth/Detectors/Drift/Dynamics/Floats/Measurement/Noise/Oceans/Particles/Parts/Position Location/Sea states/Theses/Time series analysis/Velocity/Very low frequency/Water/Oceanographic data/Acoustic arrays/Ambient noise/NTIS.

1698. Stewart JG. Maintenance of a balanced, shifting boundary between the seagrass *Phyllospadix* and algal turf. *AQUAT. BOT* 1989;VOL. 33, NO. 3-4:pp. 223-241 A-002, Scripps Inst. Oceanogr., Univ. California, La Jolla, CA 92093, USA. A dense mat of algal turf covers much of the rocky mid-intertidal substrate on beaches in southern California. Beds of *Phyllospadix* dominate the lower part of the intertidal zone. The study was designed to identify processes that result in this distribution pattern. To evaluate the role of direct plant/plant interactions, changes in the position of the border were measured in undisturbed vegetation and in clearings between two dominant taxa, *P. torreyi* S. Watson and *Corallina pinnatifolia* (Manza) Daws. Recovery of the substrate in clearings within the bed was monitored. Growth rates for prostrate and erect portions of each of the taxa were determined. *Corallina* and *Phyllospadix* share certain morphological and life history properties that are adaptive to seasonal weather patterns and the effects of sand movement on these intertidal platform beaches; each has distinct advantages on short or longer time scales within the boundary zone where one form replaces the other at a discrete border. *Phyllospadix*/algae/community structure/intertidal environment/INE, USA, California/habitat selection/interspecific relationships/Oceanic Abstracts.

1699. SMITH PE. SEASONAL AND GEOGRAPHIC CHARACTERISTICS OF FISHERY RESOURCES. CALIFORNIA CURRENT REGION - I. JACK MACKEREL. *COMMERCIAL FISHERIES REVIEW*, 32(5):27-31, MAY 1970 1970 UNKNOWN. MACKERELS/FISHERIES RESOURCES/CALIFORNIA CURRENT/ZOOGEOGRAPHY/SEASONAL VARIATIONS/OceanAbstracts.

1700. Blanc TV. Report and analysis of the May 1979 marine surface layer micrometeorological experiment at San Nicolas Island, California. Final Report. : Naval Research Lab., Washington, DC. NRL-8363; 1981. 150. One hundred thirty-six hours of profile and bulk measurements of momentum, moisture, and sensible heat flux, accompanied by determinations of stability, were made in the marine atmospheric surface layer over the Pacific Ocean from an upwind, low-profile promontory of San Nicolas Island, California, at 33 deg North latitude and 120 deg West longitude. A review of previous marine surface layer profile measurements is presented, and the need for additional high wind speed flux measurements is demonstrated. Extensive analysis of the San Nicolas Island data revealed that the measurements were made upwind and above the internal boundary layer formed by the island. Additionally, a

generalized technique was developed for correcting the wind-profile modification induced by the inherent change in elevation associated with many beaches. A comparison with previous profile measurements determined that earlier experimenters had overestimated the accuracy of their humidity measurements and that it was impractical to introduce buoyancy into the stability equation. An analysis performed to determine the relative magnitude of the flux and stability measurement errors associated with both the profile and bulk methods determined that the errors were typically in excess of 100%. Recommendations for future bulk method measurements are presented, and a simple two level bulk method is proposed. An extensive bibliography is given, and the topic of horizontal homogeneity of the marine boundary layer is discussed.

Marine meteorology/Micrometeorology/Meteorological data/Pacific Ocean/Ocean surface/Profiles/Oceanographic data/Air water interactions/Surface temperature/Wind direction/Wind velocity/San Nicolas Island/atmospheric sciences/meteorology/physical oceanography.

1701. Monagna PA, Bauer JE, Toal J, Hardin D, Spies RB. Temporal variability and the relationship between benthic meiofaunal and microbial populations of a natural coastal petroleum seep. J. MAR. RES 1987;45(3):761-789. Previous studies of the Isla Vista petroleum seep in the Santa Barbara Channel found much higher abundances of macrofauna and concentrations of adenosine triphosphate (ATP) in sediments near petroleum seepage compared to those from nonseep areas. To further assess the possible effect of petroleum on organisms at the base of benthic food webs, population abundances of meiobenthos and their suspected microbial food (bacteria and diatoms) were measured biweekly for one year at three stations with differing petroleum exposure. Determinations of suspended particulate matter and the abundance and gut contents of juvenile fishes were also made at seep and nonseep stations. oil seepages/food webs/meiobenthos/microorganisms/meiofauna/benthos/population dynamics/marine microorganisms/USA/California/Santa Barbara Channel/petroleum/bacteria/Bacillariophyceae/abundance/INE/Santa Barbara Channel/temporal variations/seeps/ASFA.

1702. Higgins RE. Major element chemistry of the Cenozoic volcanic rocks in the Los Angeles Basin and vicinity. Am. Assoc. Pet. Geol., Pac. Sect., Misc. Publ. (24). Aspects of the geol. hist. of the Calif. Cont. Borderland. 1976:p.216-227 Cent. Wash. State Coll., Wash., United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present). Los Angeles County/California/geochemistry/major elements/igneous rocks/volcanic/southwest/Los Angeles Basin/Santa Monica/Santa Monica Mountains/Los Angeles/Glendora/Santa Cruz Island/basalt/dacite/andesite/interpretation/plate tectonics/subduction zones/Miocene/subduction/United States/GEOREF.

1703. Wittmann PA, Colton MC, Rendine JJ, Mooers CNK (Performer: Naval Postgraduate School, Monterey, CA). Hydrographic Data from the OPTOMA Program OPTOMA18 31 October and 2 November 1985. Progress rept. Oct 85-Jan 86. ; 1985. Report No.: NPS6886001. 49p.

The OPTOMA (Ocean Prediction Through Observation, Modeling and Analysis) Program seeks to understand the mesoscale (fronts, eddies, and jets) variability and dynamics of the California Current System and to determine the scientific limits to practical mesoscale ocean forecasting. To help carry out the aims of this project, a series of cruises and P3 flights has been planned in two subdomains, NOCAL and CENCAL. Bathythermographic data were acquired

with shallow (300m) and deep (700m) AXBT's which were deployed from a Navy P3 aircraft.

Oceanography/California/Hydrography/Limitations/Dynamics/Oceans/Predictions/Bathymograph data/Ocean currents/OPTOMA project/NTIS.

1704. Hubbard DM, Dugan JE. Northern occurrence of two estuarine crabs: The fiddler crab, *Uca crenulata*, and the burrowing crab, *Malacoplax californiensis*. CALIF. FISH GAME 1989;VOL. 75, NO. 1:pp. 55-57

Mar. Sci. Inst., Univ. California, Santa Barbara, CA 93106, USA. A male fiddler crab, *Uca crenulata*, was found in Goleta Slough, approximately 2 km E of the University of California, Santa Barbara campus, on 17 July 1986. The fiddler crab was found in the upper intertidal zone of the small estuary, in a muddy area vegetated with pickleweed. *Salicornia* sp. in *U. crenulata* is the only species of fiddler crab reported from California. *U. crenulata* has previously been reported as far north as Playa del Rey, Los Angeles County. One male burrowing crab, *Malacoplax californiensis*, was collected on the Morro Bay mud flat during an early morning minus tide, several hundred meters S of the Morro Bay State Park. The crab was collected in shallow water in a muddy area with patches of eelgrass, *Zostera* sp., and ghost shrimp, *Callinassa californiensis*, burrows. *M. californiensis* is an intertidal to subtidal inhabitant of bays and protected water in southern California and Baja California. *M. californiensis* was previously reported as far north as Mugu Lagoon, Ventura County. The northern extensions of these species may be the result of larval transport and recruitment associated with nearshore currents during the El Niño events of 1982 and 1983. The distances between previous northernmost occurrences and those reported here are about 130 km for *U. crenulata* and 230 km for *M. californiensis*.
distribution records/geographical distribution/*Uca crenulata*/*Malacoplax californiensis*/biogeography/INE, USA, California/INE, USA, California, Santa Barbara/INE, USA, California, Morro Bay/estuaries/Oceanic Abstracts.

1705. Blanc TV. Micrometeorological data for the 1978 Cooperative Experiment for West Coast Oceanography and Meteorology (CEWCOM-78) at San Nicolas Island, California. Volume I. Introduction and May 9-15 Data. Interim rept. : Naval Research Lab Washington DC. NRL-MR-3871-VOL-1; 1978. 384. Note: See also Volume 2, AD-A061 113.

A detailed presentation and explanation of the Naval Research Laboratory's approximately 440 micrometeorological data runs taken in the marine surface layer of San Nicolas Island during the May 1978 Cooperative Experiment for West Coast Oceanography and Meteorology (CEWCOM-78) is presented.

Micrometeorology/Marine meteorology/Meteorological data/Oceanographic data/Surface waters/Towers/Collecting methods/Meteorological instruments/Data displays/Computer printouts/Ocean surface/San Nicolas Island/ Atmospheric Sciences/Meteorology.

1706. Middaugh DP, Hemmer MJ. Reproductive ecology of the tidewater silverside, *Menidia peninsulae* (Pisces: Atherinidae) from Santa Rosa Island, Florida. COPEIA. 1987;(3):727-732.

The reproductive ecology of the tidewater silverside, *Menidia peninsulae*, was studied during 1982-83 along the shoreline of Santa Rosa Island, Florida. Adult *Menidia* were observed at low tide spawning on a red alga, *Ceramium byssoideum*. Pinfish, *Lagodon rhomboides*, were noted preying upon newly spawned *Menidia* eggs. The annual reproductive cycle of *M. peninsulae* extended from Feb.-

July with the highest spawning activity during March-June at water temperatures of 16.7-30.8 C. Spawning and subsequent hatching of larvae may have occurred in periodic pulses throughout the spring and early summer.

USA/Florida/Santa Rosa Island/reproduction/spawning/reproductive cycle/Menidia peninsulæ/seasonal variations/ASW/USA/Florida/Santa Rosa I./ASFA.

1707. Crowe BM, McLean H, Howell DG, Higgins RE. Petrography and major element chemistry of the Santa Cruz Island volcanics. Am. Assoc. Pet. Geol., Pac. Sect., Misc. Publ. (24). Aspects of the geol. hist. of the Calif. Cont. Borderland. 1976:p.196-215
U. S. Geol. Surv., Menlo Park, Calif., United-States; Cent. Wash. State Coll., Wash., United States Analytic; Serial B; Bibliography and Index of Geology (1969-present).
California/petrology/igneous rocks/volcanic/Miocene/southwest/Santa Cruz Island/basalt/andesite/dacite/lava flows/flow breccia/pyroclastics/petrography/geochemistry/major elements/magnesia/iron/silica/alumina/potash/titanium/abundance/ratios/GEOREF.

1708. Fishery Bulletin 1986;84(1)
Performer: National Marine Fisheries Service, Seattle, WA
Young jack mackerel, *Trachurus symmetricus*, living offshore are starving while those living nearshore are healthy. These results for sea-caught jack mackerel were determined by using histological and morphological criteria that reliably diagnosed the viability of laboratory-raised jack mackerel. Both the histological and morphological indices indicated that 350 km offshore about 70% of the first-feeding jack mackerel were starving. In contrast, 12% of the fish collected near islands and banks were starving. In both habitats, mortality rates decreased to zero for jack mackerel at 2 weeks of age. The accuracy of the techniques for prediction of the nutritional state of wild larvae is discussed and evaluated.
Mortality/Hypoxia/Dolphins
Mammals/Eggs/Estuaries/Lobsters/Exposure/Organic compounds/Metals/Clams/Salmon/North Atlantic Ocean/Florida/Ecology/Zooplankton/California current/Crabs/Fishes/Marine fishes/Fisheries/Announcement bulletins/*Trachurus symmetricus*/Quahog/NTIS.

1709. Alldredge AL, Gotschalk CC. Direct observations of the mass flocculation of diatom blooms: Characteristics, settling velocities and formation of diatom aggregates. DEEP-SEA RES 1989;VOL. 36, NO. 2A:pp. 159-171 Dep. Biol. Sci., Univ. California, Santa Barbara, CA 93106, USA. Blooms of chain-forming marine diatoms were observed in the process of aggregating into centimeter-sized flocs of marine snow in surface waters of the Santa Barbara Channel, California. These aggregates were composed of a rich assemblage of living, actively photosynthesizing diatoms dominated by the setose genus *Chaetoceros* and by chain-forming *Nitzschia* spp. Flocculation of one bloom occurred in as little as 24 h, and bloom flocculation apparently was not triggered by nitrogen-limitation. Marine snow of diatom origin was also abundant during spring, summer and early autumn throughout the Southern California Bight, suggesting that diatom flocculation is a seasonally significant source of marine snow. Resting spores rarely occurred within either newly formed or aged diatom flocs. The mean in situ settling velocity (plus or minus S.D.) of newly formed flocs was 117 plus or minus 56 m d super(-1), two orders of magnitude faster than unaggregated *Chaetoceros* .
Chaetoceros/*Nitzschia*/algal blooms/flocculation/seasonal variations/coastal waters/INE, USA, California/Oceanic Abstracts.

1710. ANONYMOUS. PHYSICAL, CHEMICAL, AND BIOLOGICAL DATA:
CRUISE TO-64-1 JUNE 8-28, 1964 AND CRUISE TO-64-2 AUGUST 4-25,
1964. CALIFORNIA. UNIVERSITY. INSTITUTE OF MARINE RESOURCES. IMR
REFERENCE NO. 69-8, 78 PAGES, MARCH 27, 1969 1969
UNKNOWN.
CALIFORNIA CURRENT/TUNAS/OCEANOGRAPHIC DATA/BAJA CALIFORNIA
COAST/CRUISE REPORT/CHEMICAL, PHYSICAL AND BIOLOGICAL
OCEANOGRAPHY/OceanAbstracts.

1711. Blanc TV. Micrometeorological data for the 1978
Cooperative Experiment for West Coast Oceanography and Meteorology
(CEWCOM-78) at San Nicolas Island, California. Interim rept. :
Naval Research Lab Washington DC. NRL-MR-3871-VOL-2; 1978. 554.
Note: See also Volume 1, AD-A061 112.
Micrometeorology/Marine meteorology/Meteorological data/Collecting
methods/Data displays/Computer printouts/Oceanographic data/San
Nicolas Island/Atmospheric Sciences/Meteorology.

1712. Middaugh DP, Hemmer MJ. Influence of environmental
temperature on sex-ratios in the tidewater silverside, *Menidia
peninsulæ* (Pisces: Atherinidae). COPEIA. 1987;(4):958-964.
Sex-ratios of *Menidia peninsulæ* from Santa Rosa Island, Florida
were studied during a 13 mo survey. Monthly samples revealed
significant deviations from the expected sex-ratio of 1:1. During
May-Oct., young-of-year (YOY) females comprised 70-94% of the
individuals collected in the 32.5-62.4 mm standard length (SL)
size-class. These females were the presumptive progeny of
reproduction at cold to cool fluctuating temperatures (14.1-24.2
C), during Feb.-April. In contrast, collections of YOY *Menidia*
during Nov.-April yielded 35-60% females. These individuals were
the presumptive progeny of reproductive activity and sexual
differentiation in May-Aug. at warm fluctuating water temperature
of 23.5-31.5 C. Sex-ratios for combined (13 mo) collections of YOY
were identical (69% females) to sex-ratios in older *Menidia* .
sex ratio/temperature/USA/Florida/Santa Rosa Island/sex
determination/temperature effects/*Menidia*
peninsulæ/ASW/USA/Florida/Santa Rosa Island/ASFA.

1713. Vedder JG, Moore EJ. Paleoenvironmental implications
of fossiliferous Miocene and Pliocene strata on San Clemente
Island, California. Am. Assoc. Pet. Geol., Pac. Sect., Misc. Publ.
(24). Aspects of the geol. hist. of the Calif. Cont. Borderland.
1976:p.107
U. S. Geol. Surv., Menlo Park, Calif., United-States Analytic;
Serial B; Bibliography and Index of Geology (1969-present).
California/stratigraphy/Miocene/Pliocene/southwest/San Clemente
Island/United States/sedimentary rocks/unconformities/igneous
rocks/Invertebrata/geologic
history/Relizian/Luisian/Mohnian/environmental
analysis/calcarenite/conglomerate/sandstone/shale/claystone/pyroc
lastics and glasses/tuff/lapilli/volcanic breccia/faunal
studies/assemblages/Mollusca/Bivalvia/Gastropoda/Brachiopoda/Echi
nodermata/GEOREF.

1714. Smith RL, Pittock G, Fleischbein J, Still R
(Performer: Oregon State Univ., Corvallis. School of Oceanography).
Current Measurements from Moorings off Northern California:
September 1984-July 1985. Data rept. ; 1986. Report No.: DATA121,
REF866. 218p.
Contract: N0001484C0218.
Three deep-sea subsurface moorings, each equipped with five current
meters at depths from 150m below the surface to 200m above the

bottom, were deployed off Northern California from September 1984 to July 1985 as part of the OPTOMA program. The triad of moorings, centered near 38.5 deg N, 125 deg W, had mutual separations of 100 km. Velocity and temperature were recorded at hourly intervals; statistics and various plots of the data time series are presented in this report. Keywords: Ocean currents; Oceanographic data; Physical oceanography; Current meter measurements; California Current System.

California/Measurement/Mooring/Oceanography/Time series analysis/Depth/Measuring instruments/North Direction/Oceanographic data/Subsurface/Deep oceans/North Pacific ocean/Ocean currents/NTIS.

1715. Alabaster JS. The dissolved oxygen and temperature requirements of king salmon, *Oncorhynchus tshawytscha*, in the San Joaquin Delta, California. J. FISH BIOL 1989;VOL. 34, NO. 2:pp. 331-332

1 Granby Rd., Stevenage, Herts. SG1 4AR, UK.

In the years 1964-1967, Hallock et al. (1970) carried out detailed studies of the passage of king salmon (U.S.A. variety of *Oncorhynchus tshawytscha*) upstream through the San Joaquin Delta during September-November using sonic tags; they also recorded concentrations of dissolved oxygen (DO) and water temperature, intermittently, for about 40% of the time during the actual migration of the fish and for rather less of the time during about 2 weeks immediately beforehand. The daily minimum DO and maximum water temperature were 1 multiplied by 1-6.8% mg/l and 14 multiplied by 4-24 multiplied by 4 degree C, respectively, during the tagging period from mid-September to the third week in November, and 4 multiplied by 2-7 multiplied by 2 mg/l and 12 multiplied by 2-20 multiplied by 8 degree C, respectively, when fish were passing through the region of lowest DO from early October to the end of November.

dissolved oxygen/*Oncorhynchus tshawytscha*/anadromous migrations/physicochemical properties/biotelemetry/sonic tags/water temperature/rivers/INE, USA, California, San Joaquin Delta/Oceanic Abstracts.

1716. Blanc TV. Micrometeorological data report for the November 1978 electro-optics meteorology (EOMET) experiment at San Nicolas Island, California. Interim rept. : Naval Research Lab., Washington, DC. NRL-MR-4056; AD-E000 325; 1979. 521. Presented in this report are both the profile and bulk aerodynamic derived micrometeorological data taken in the marine atmospheric surface layer at San Nicolas Island, California, during a five day experiment in November 1978. Thirty-six figures are presented to represent much of the data results in graphic form. A comparison of the profile and bulk derived stability parameters strongly indicated an escarpment phenomenon similar to what had been reported for the Riso, Denmark, site. Although an escarpment induced, height dependent horizontal acceleration of the wind field profile was observed, there was no apparent effect on either the temperature or humidity profile. A suitable wind field escarpment correction for future data taking was left to the next experiment, in which a better quality bulk water temperature measurement essential to the bulk comparison would be available.

Micrometeorology/Marine meteorology/Marine atmospheres/Electrooptics/Meteorological data/Meteorological instruments/Optical properties/Ocean surface/Air water interactions/Coastal regions/Oceanographic data/Surface temperature/Wind velocity/Islands/Atmospheric temperature/Humidity/Infrared radiation/San Nicolas Island/North Pacific Ocean/Atmospheric Sciences/Meteorology.

1717. Cook DO. The occurrence and geologic work of rip currents off southern California. Mar. Geol. 1970;9(3):173-186. California/Marine geology/Hickey/physical oceanography/sedimentary structures/Sedimentation/Sediments/Pacific Ocean/Current markings/Ocean-currents/rip currents/MINERALS MANAGEMENT SERVICE.

1718. Jefferts K. Zoogeography and systematics of cephalopods of the northeastern Pacific Ocean. PUBL. OREG. STATE UNIV. SEA GRANT COLL. PROGRAM 1983; Collections of cephalopods from the northeastern Pacific North of 20 degree N and East of 170 degree E were examined in order to elucidate zoogeographic patterns for the region. Sixty-four species were identified, including two new species to *Gonatus*. The distributions of Subarctic and Transitional (including California Current) species are now fairly well understood. Ten pelagic distributional types are defined for cephalopods in this area; most coincide with water masses or portions or combinations thereof. The relative abundance of cephalopods in the major water mass types is considered, using diversity and evenness statistics. The central water mass is dominated by *Enoploteuthidae*, and the Subarctic by *Gonatidae*. Possible mechanisms for population maintenance are discussed, and consideration is given to speciation processes relative to the observed distributions. The phylogeny of the *Gonatidae* is explored on the basis of primitive vs. derived characters and the observed zoogeographic distribution. It is proposed that the subgenus *Boreoteuthis* be elevated to generic status. biogeography/taxonomy/new species/*Gonatus*/*Boreoteuthis*/Cephalopoda/INE/animal morphology/ASFA.

1719. Vedder JG, Howell DG. Neogene strata of the southern group of Channel Islands, California. Am. Assoc. Pet. Geol., Pac. Sect., Misc. Publ. (24). Aspects of the geol. hist. of the Calif. Cont. Borderland. 1976:p.80 U. S. Geol. Surv., Menlo Park, Calif., United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present). California/stratigraphy/Tertiary/lithostratigraphy/southwest/Channel Islands/Santa Catalina Island/San Clemente Island/Santa Barbara Island/United States/sedimentary rocks/igneous rocks/volcanic/lower Tertiary/Miocene/Pliocene/breccia/conglomerate/shale/tuff/calcare nite/sandstone /petrography/flows/pyroclastics/GEOREF.

1720. Kozloff P (Performer: National Marine Fisheries Service, Seattle, WA. Northwest and Alaska Fisheries Center.) Fur Seal Investigations, 1984. Technical memo. ; 1986. Report No.: NOAATMNMFSFNWC97. 91p. See also PB86-113487. PC A05/MF A01. ;Contents: Population assessment, Pribilof Islands, Alaska; Live pup weights, St. Paul Island, Alaska; Tetracycline marking of northern fur seals, St. Paul Island, Alaska; Behavior and biology, Pribilof Islands, Alaska; Northern fur seal tracking study, Bering Sea; Northern fur seal survey, Bogoslof Island, Alaska; Population and behavioral studies, San Miguel Island, California. Marine biology/Populations/Assessments/Animal behavior/Marking/Harvesting/Tables Data/Seals Mammals/Alaska/NTIS.

1721. Lea RN, Duffy JM, Wilson KC. The Cortez angelfish, *Pomacanthus zonipectus*, recorded from Southern California. CALIF. FISH GAME 1989;VOL. 75, NO. 1:pp. 45-47 Mar. Res. Lab.--Garnite Canyon, Coast Rt., Monterey CA 93940, USA. The Cortez angelfish, *Pomacanthus zonipectus* (Gill), was originally described from a single specimen taken by Captain John M. Dow off

"San Salvador" (= El Salvador) in the 1850's. Between March 1984 and October 1986, three Cortez angelfish were observed (one of which was collected) at three different localities off southern California. The observations support the hypothesis that Cortez angelfish can occur as expatriates off southern California during certain oceanographic conditions.
distribution records/geographical
distribution/biogeography/Pomacant hus zonipectus/INE, USA,
California/Oceanic Abstracts.

1722. AHLSTROM EH. DEVELOPMENT OF LANTERNFISHES (FAMILY MYCTOPHIDAE) IN THE CALIFORNIA CURRENT. PART I. SPECIES WITH NARROW-EYED LARVAE. LOS ANGELES COUNTY MUSEUM, LOS ANGELES. BULLETIN : SCIENCE O. 7, FEB. 25, 1970 1970:150 PAGES
LANTERNFISHES/CALIFORNIA CURRENT/EYES/LARVAE
DEVELOPMENT/ABUNDANCE/SPECIES CHARACTERISTICS/DISTRIBUTION/ EYE SHAPE/OceanAbstracts.

1723. Blanc TV. The data base for the May 1979 marine surface layer micrometeorological experiment at San Nicolas Island, California. Final Report. : Naval Research Lab., Washington, DC. NRL-MR-4713; 1982. 631. One hundred thirty-six hours of gradient (profile) and bulk aerodynamic measurements of momentum, moisture, and sensible heat flux, accompanied by determinations of stability, drag coefficient, roughness length, and sky radiation were made in the marine atmospheric surface layer over the Pacific Ocean from an upwind, low-profile promontory of San Nicolas Island, California. Over a 10-day period a wide variety of meteorological and oceanographic conditions were observed in which 30-minute average wind speeds ranged from 2 to 17 m/s, air-water temperature difference from -2.1 to +0.6 C, dew point-water temperature differences from -7.5 to -2.0 C, and Richardson number stabilities from -2.7 to +0.1. Subsequently, 10% of the data were acquired under stable atmospheric conditions and 15% at wind speeds in excess of 12 m/s. The micro-meteorological observations were accompanied by 80 hours of aerosol size distribution observations of particles ranging from 0.3 to 14 micrometers in radius, 171 hourly measurements of upwind wave period and height, 59 hourly measurements of atmospheric radon (^{222}Rn), and typically twice daily high resolution radiosonde measurements for determining the height of the marine inversion. The data includes measurement error values for the various flux and stability related parameters. Meteorological data/Ocean surface/Troposphere/Layers/Marine meteorology/Micrometeorology/Aerodynamics/Aerosols/Ocean waves/Radon/Temperature inversion/Marine surface layer/San Nicolas Island/Meteorology/atmospheric sciences.

1724. Johnson J, Hardin D, Spies R. An investigation of the effects of discharged drilling fluids from exploratory drilling on hard bottom communities in the western Santa Barbara Channel. OCEANS '85 PROCEEDINGS: OCEAN ENGINEERING AND THE ENVIRONMENT. 1985;2:1094-1103.
A pioneering investigation of the effects of discharged drilling fluids on hard bottom communities was carried out at depths of 51.8 to 64 m using the manned submersible, Nekton GAMMA. The authors report on the first three surveys conducted for: reconnaissance and site selection; documenting pre-drilling conditions; and post-drilling impacts. A dose-response design, utilizing 10 stations at varying distances from the well site was used to interpret post-drilling ecological changes - in order for observed changes to be attributed to drilling, they had to correlate with measured doses of drilling fluids, as determined by analysis of Barium in particle traps.

drilling/fluids/ecology/pollution/water pollution/industrial waste disposal/offshore structures/benthos/oil pollution/drilling fluids/oil and gas exploration/pollution effects/INE/Santa Barbara Channel/ASFA.

1725. Arnal RE. Miocene paleobathymetric changes of the Santa Rosa Cortes Ridge area, California Continental Borderland. Am. Assoc. Pet. Geol., Pac. Sect., Misc. Publ. (24). Aspects of the geol. hist. of the Calif. Cont. Borderland. 1976:p.60-79
U. S. Geol. Surv., Menlo Park, Calif., United-States Analytic; Serial Foraminifera, Miocene. B; Bibliography and Index of Geology (1969-present).
California/stratigraphy/Miocene/paleogeography/offshore/Santa Rosa Cortes Ridge/continental shelf/United States/Pacific Ocean/uplifts/subsidence/evolution/vertical tectonics/foraminifera/lower Miocene/middle Miocene/Mohnian/paleoecology/assemblages/salt marshes/estuaries/sublittoral/inner/outer/bathyal/abyssal/interpretation/bathymetry/maps/tectonics/rates/GEOREF.

1726. Seelig WN (Performer: Naval Facilities Engineering Command, Washington, DC. Chesapeake Div.) Preliminary Analysis of SOAR Cable Landing Sites at San Clemente Island. ; 1984. Report No.: CHESNAVFACFP018413. 63p. The SOAR permanent underwater range is now in the preliminary design stage for an area west of San Clements Island. The purposes of this report are to: (1) summarize environmental data available for the area around the island, (2) identify and analyze potentially useful cable landing sites using available data; and (3) recommend promising methods of landing the cables at the various sites. The 4 sites examined re ranked from best to worst as: Seal Cove, West Cove, Eel Point and North Wilson Cove. The ranking process considered wave climate, wave forces on the cables, local hydrography and topography, construction conditions, the offshore profiles, track and the distance from the site to the range. Two passes of armor are required to protect the cables. Tentative lengths of this armoring are recommended. Detailed sub-bottom and hydrographic studies need to be performed at Seal Cove and West Cove to determine if 3 feet or more of sand is available offshore in water depths greater than 75 feet. If so, the amount of armor required could be reduced and significant cost savings could result. A swim-by of Eel Point is recommended to determine if this site warrants further consideration. The cable landing area in Seal Cove should be examined to determine if there are any special problems with this area. Surf and runup conditions in Seal and West Coves should be examined during a major storm to determine if any unusual hydraulic conditions are present.
Keywords: SOAR(Southern California Acoustic Array); Santa Barbara Islands.

Shores/West
Direction/Construction/Environments/Hydrography/Offshore/Profiles /Armor/Landing fields/Costs/Savings/Hydraulic equipment/Range Distance/Underwater/Storms/Topography/Depth/Water/Inlets Waterways/Sites/Surf/Waves/North pacific ocean/Naval shore facilities/Underwater equipment/Inshore areas/Bays/Sand/Santa Barbara Islands/Transmission lines/Electric cables/Acoustic ranges/SOAR Southern California Acoustic Range/San Clemente Island/NTIS.

1727. Plant R. A northern range extension for the thornback, *Platyrhinoidis triseriata*. CALIF. FISH GAME 1989;VOL. 75, NO. 1:p. 54
475 Vision Rd., Inverness, CA 94937, USA.
The thornback, *Platyrhinoidis triseriata* , is listed as having a

range extending from Thurloe Head, Baja California, Mexico, to San Francisco, California and is considered rare north of Point Conception, California. On 3 May 1988, Antoine Venghiatis caught a thornback while fishing from shore with hook-and-line in Tomales Bay, approximately one nautical mile northwest of Inverness, California. Fishing depth did not exceed 3 m. This specimen is catalogued at the California Academy of Sciences (CAS 63193) and represents a northern extension for the species. On 7 June 1988 a second thornback was taken and released from a gill net operated by Frank Spenger in ca. 6 m of water opposite Heart's Desire Beach, Tomales Bay. Of additional interest was the capture of a total of 20 thornbacks between 22-26 April 1988 by the commercial trawlers Romance and Pacific sun during three separate tows of a pair trawl near Pacifica, California, (just south of San Francisco). The above information indicates that the thornback may not be as rare north of Point Conception as previously thought.

distribution records/geographical

distribution/biogeography/Platyryhi/OCEANIC ABSTRACTS.

1728. Blevins RW, Donnelly HL, Stadter JT, Weiss RO, Perez y Perez L. At-sea test of a large diameter steel, cold water pipe. : Johns Hopkins Univ., Laurel, MD. Applied Physics Lab. DOE/ET/20342-T8; 1979. 20. ((Sponsored by Department of Energy, Washington, DC.)).

Note: Portions are illegible in microfiche products.

During December 1978 and January 1979, a series of tests were conducted off Santa Catalina Island, California, on a large-diameter steel pipe. The pipe was 5 ft (1.52 m) in diameter and made up in 20-ft (6.10 m) sections to obtain a total length up to 500 ft (152.4 m). Deep Oil Technology's X-1 semi-submersible platform was used to support the pipe through a gimbal joint and the platform was moored with spring buoys in 1000 ft (304.8 m) of water. The objectives were to evaluate the at-sea performance of various configurations and to use the test results to verify or improve existing time and frequency domain analyses of cold-water pipes for Ocean Thermal Energy Conversion (OTEC) plants. The configurations tested were platform alone; platform with 120-ft (36.58 m) pipe, with 300-ft (91.44 m) pipe, with 500-ft (152.4 m) pipe and with 384-ft (117.0 m) pipe including a U-joint at 162 ft (49.38 m). The results of the analyses indicate that the frequency locations of the spectral peaks are generally well predicted, but comparison of the peak values is in poorer agreement.

Ocean Thermal Power Plants/Acceleration/Bending/Experimental Data/Frequency Analysis/Offshore

Platforms/Performance/Pipes/Spectra/Steels/Stresses/Santa Catalina Island/Mechanical/Industrial/Civil/Marine/Engineering.

1729. Sherman K. Large marine ecosystems as global units for recruitment experiments. ICES; COPENHAGEN (DENMARK); ICES COUNCIL MEETING 1987 (COLLECTED PAPERS) 1987;

On a global basis, the LME's represent geographically distinct units for the conservation and management of fisheries resources for which the observations in the ocean by the International Geosphere and Biosphere Program of the Int. Council of Scientific Unions will be most useful. Within several of the LME's, hypotheses thought to be controlling recruitment variability are under investigation. They include the Oyashio/Kuroshio Current, California Current, the Eastern Bering Sea, the Gulf of Alaska, the Humboldt Current, and Peru Current ecosystems in the Pacific rim area, and the Northeast U.S. Continental Shelf, Southeast U.S. Continental Shelf, the Gulf of Mexico, the Scotian Shelf, Norwegian Sea/Barents Sea, North Sea, the Iberian Coastal and the Benguela Current ecosystems in the Atlantic rim area. Within the LME's

recruitment studies are focused on upwelling, frontal zones, continental shelf systems, and pelagic systems.
recruitment/ichthyoplankton surveys/commercial species/ASFA.

1730. Mattinson JM, Hill DJ. Age of plutonic basement rocks, Santa Cruz Island, California. Am. Assoc. Pet. Geol., Pac. Sect., Misc. Publ. (24). Aspects of the geol. hist. of the Calif. Cont. Borderland. 1976:p.53-58 Univ. Calif., Dep. Geol. Sci., Santa Barbara, Calif., United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present). Willows Complex/Alamos Pluton/California/geochronology/absolute age/Jurassic/southeast/Santa Cruz Island/dates/minerals/zircon/hornblende/diorite/keratophyre/K/Ar/Pb/Pb/United States/basement/igneous rocks/age/GEOREF.

1731. Cooper K (Performer: Naval Facilities Engineering Command, Washington, DC. Chesapeake Div.) Project Execution Plan for the Near Shore Survey SOCAL ASW (Southern California Anti-Submarine Warfare) Range. ; 1985. Report No.: CHESNAVFACFP01858. 52p.

The Southern California Acoustic Range (SOAR) is designed to provide a 100 sq mi antisubmarine warfare training range in 4500 feet of sea water west of San Clemente Island. SOAR will provide accurate tracking of air, surface and submerged targets. This project plan is a working document that details the mobilization, execution and demobilization of an underwater survey of the near shore area of SOAR. The purpose of the survey is to provide geotechnical and environment data for the shore landing for underwater cables. Survey results will provide (a) a basis for environmental factors required for cable design; (b) geophysical data for cable location; (c) data necessary for the Naval Ocean System Center to support an environmental impact statement, and (d) provide the near shore portion of the total range survey. The survey will be conducted in two parts: (a) a diver cable inspection of two existing cables; and (b) an hydrographic survey of bathymetry, sub-bottom profile, side-scan sonar and current meter data. Antisubmarine warfare/Training/Cables/Position Location/Environments/Geophysics/Bathymetry/Hydrographic surveying/Mobilization/Inshore areas/Divers/Inspection/Environmental impact statements/Navy/Oceans/Surveys/Planning/Landing/Shores/Antisubmarine warfare/California/South Direction/Tracking/Underwater/Sea water/Underwater targets/Underwater equipment/North pacific ocean/Santa barbara islands/Naval shore facilities/Transmission lines/Electric cables/Acoustic ranges/SOAR Southern California Acoustic Range/Shore Survey/NTIS.

1732. Warnock N. Piracy by ring-billed gulls on dunlin. WILSON BULL 1989;VOL. 101, NO. 1:pp. 96-97
4990 Shoreline Highw., Stinson Beach, CA 94970, USA.
On 16 December 1987, the author observed Ring-billed Gulls (*Larus delawarensis*) and Black-bellied Plovers (*Pluvialis squatarola*) pirating Dunlin (*Calidris alpina*) during a heavy rain at Bolinas Lagoon, California. During my observations, the Dunlin appeared to be searching specifically for arrow gobies (*Clevelandia los*). Fish being captured and eaten were generally equal to or less than the length of the Dunlin's culmen (mean culmen = 37.9 plus or minus 2.7 mm (SD)). Often Dunlin had difficulty swallowing the fish, and this facilitated kleptoparasitism. Dunlin lost 16 (44%) of the 36 fish they captured during 26 attempts by the kleptoparasites.
kleptoparasitism/*Pluvialis squatarola*/*Calidris alpina*/*Larus delawarensis*/INE, USA, California, Bolinas Lagoon/feeding behavior/ecological associations/Oceanic Abstracts.

1733. CHEKOTILLO KA. FEATURES OF THE CIRCULATION OF INTERMEDIATE WATERS IN THE NORTH PACIFIC. OCEANOGRAPHIC RESEARCH BY THE VITYAZ IN THE NORTH PACIFIC UNDER THE I.G.Y. PROGRAM. SYSOEV, N.N., ED., NATIONAL SCIENCE FOUNDATION, SPECIAL FOREIGN CURRENCY SCIENCE INFORMATION PROGRAM. PP.110-119. 1969. NO ABS., 3 FIGS., 2 TABLES, 9 REFS., 3 IN RUSS 1969
UNKNOWN.
PACIFIC OCEAN NORTH/SALINITY/TOPOGRAPHY/WATER TRANSPORT/TEMPERATURES/CIRCULATION/CALIFORNIA CURRENT/INTERMEDIATE WATERS/VITYAZ 29TH VOYAGE/OceanAbstracts.

1734. Napp JM. Primary productivity maxima in the Southern California Bight: Distribution, predicted depth and nutritional content. OCEANOL. ACTA 1987;10(3):329-337.
Primary productivity maxima are hypothesized to be sites of enhanced grazing activity by particle-capturing zooplankton. In the Southern California Bight, the vertical distribution of primary productivity is stratified to a high but variable degree, while the vertical distributions of microplankton biomass are less stratified and seasonally more variable. In general, the primary productivity maxima are shallower than the particulate carbon maxima, which are shallower than the chlorophyll a maxima. The distances separating these features are not constant throughout the year. The carbon to nitrogen ratio of the particulate matter, one index of the nutritional content for particle-grazing zooplankton, was only slightly different between the primary productivity and chlorophyll a maxima. primary production/phytoplankton/biomass/plant nutrition/vertical distribution/INE/USA/California/Southern California Bight/ASFA.

1735. Platt JP. The significance of the Catalina Schist in the history of the southern California Borderland. Am. Assoc. Pet. Geol., Pac. Sect., Misc. Publ. (24). Aspects of the geol. hist. of the Calif. Cont. Borderland. 1976:p.47-52 Analytic; Serial B; Bibliography and Index of Geology (1969-present). Catalina Schist/California/structural geology/tectonics/southwest/Santa Catalina Island/structure/basement/structural complexes/Mesozoic/United States/GEOREF.

1736. Miller S, Davis W. Insects associated with the flowers of two species of Malacothrix (Asteraceae) on San Miguel Island, California. PSYCHE (CAMB., MASS.) 1985;92(4):547-556.
The insects associated with Malacothrix incana (Nutt.) T. & G. and M. implicata Eastwood on San Miguel Island were sampled as part of a general analysis of hybridization between the two species on the island. On San Miguel Island, M. incana is widely distributed on unstabilized and stabilized sand dunes on slopes near the ocean or on sandy substrate on the upper surfaces of the island including the slopes of San Miguel Peak and Green Mountain.
community structure/species composition/Malacothrix incana/Malacothrix implicata/Insecta/USA/California/San Miguel Island/association/CSA Life Sciences Collection.

1737. Cooper KR, Thornton JA (Performer: Naval Facilities Engineering Command, Washington, DC. Chesapeake Div.) Project Documentation Report, Southern California ASW Range (SOAR) Survey. ; 1985. Report No.: CHESNAVFACFP08528. 111p. The Southern California ASW Range (SOAR) Phase 1B will provide a 100 square mile Anti-Submarine Warfare Training Range in 4,500 feet of seawater west of San Clemente Island, California. An underwater survey of the near shore area of SOAR was conducted in April and May of 1985. The survey was to provide geotechnical and environmental data for

the shore landing of underwater cables to be installed in 1987 (SOAR Phase 1B). The survey was conducted in two parts; (a) A diver conducted cable inspection of two existing cables and geotechnical data gathering in the near shore area, (b) A hydrographic survey including bathymetry, sub-bottom profile, side scan sonar and current meter data. Both portions of the survey confirmed the presence of two sand covered channels adjacent to West Cove Beach, the proposed cable landing site. They offer potentially good shore landing cable routes to the eastern portion of the survey area where sand thicknesses exceed 60 feet. The western part of the survey area in about 200-300 FSW where sand thicknesses are relatively thin should be avoided although dynamic wave-induced motion of the cable should not be a problem at this depth. The survey provided a good image of the bottom and sub-bottom physical characteristics of the area permitting the development of a cable route to deepwater that provides maximum cable protection. The results of the survey also provide data necessary for cable design and nearshore protection requirements.

Antisubmarine warfare/California/Dynamics/Environments/Hydrographic surveying/Naval shore facilities/Images/Inspection/Landing/Bottom/Cables/Santa barbara islands/Measuring instruments/Motion/Physical properties/Protection/Requirements/Sand/Scanning sonar/Sea water/Acoustic ranges/Side looking sonar/Surveys/Thickness/Training/Underwater/Underwater equipment/Waves/Shores/Inshore areas/Ocean bottom/San Clemente Island/SOAR Southern California Acoustic Range/Underwater cables/Cable landing areas/NTIS.

1738. AHLSTROM EH. MESOPELAGIC AND BATHYPELAGIC FISHES IN THE CALIFORNIA CURRENT REGION. CALIFORNIA CURRENT SYSTEM- THEIR FLUCTUATING MAGNITUDE DISTRIBUTION AND SUSCEPTIBILITY TO USE FOR THE BENEFIT OF THE STATE OF CALIFORNIA. SYMPOSIUM. PAPERS. MESSERSMITH, J.D., ED. HELD IN LAKE ARROWHEAD, CALIF., DEC.11-12,1967. SPONSORED BY THE STATE OF C 1969 UNKNOWN.
CALIFORNIA CURRENT/MESOPELAGIC FISHES/FISHES/ABUNDANCE/SPECIES COMPOSITION/OceanAbstracts.

1739. Bodkin JL, Jameson RJ, Van Blaricom GR. Pup production, abundance, and breeding distribution of northern elephant seals on San Nicolas Island, winter 1981. Calif. Fish Game 1985;71(1):53-55
Address: USFWS, Denver Wildl. Res. Cent., Piedras Blancas Field Stn., P.O. Box 70, San Simeon, CA 93452.
A major breeding colony of northern elephant seals (*Mirounga angustirostris*) occurs on San Nicolas Island, California. Due to commercial hunting, elephant seals were extinct on San Nicolas Island by the end of the 19th century. Subsequent recovery of the population has been well documented. Census data collected since 1949 indicate that the colony has been growing rapidly in numbers after breeding began again in the late 1940's. In summary, the colony of northern elephant seals on San Nicolas Island continues to grow exponentially. In recent years, pup production has increased most rapidly at the west end of the breeding area. Although the length of the breeding area has approximately tripled since 1971, many beaches which appear suitable for pupping remain unused. The authors feel that population growth should continue and that expansion of breeding areas will also continue as current breeding beaches become saturated.
population growth/breeding sites/abundance/exponential growth/breeding biology/population structure/colonies/population

dynamics/pup production/northern elephant seals/Mirounga angustirostris/San Nicolas Island/marine biology/mammalogy.

1740. Simons TR. The role of research in developing resource management tools at Gulf Islands National Seashore. PROCEEDINGS OF TENTH NATIONAL CONFERENCE. ESTUARINE AND COASTAL MANAGEMENT: TOOLS OF THE TRADE. NEW ORLEANS, LOUISIANA, 12-15 OCTOBER 1986. VOLUME 2. 1987;2:793-798.

Gulf Islands National Seashore is comprised of approximately 57,000 hectares of barrier islands and their adjacent waters in northwest Florida and coastal Mississippi. Established in 1971, the seashore stretches from West Ship Island in Mississippi, 240 kilometers east to the middle of Santa Rosa Island in Florida. The park's resources range from remote wilderness barrier islands with very limited visitation, to readily accessible recreational beaches and historic sites visited by several million people each year. The undeveloped portions of the Seashore represent the best example of an undisturbed barrier island ecosystem remaining in the Gulf of Mexico. Research efforts at the Seashore are aimed at providing park resource managers with the information and tools required to carry out their difficult and often contradictory responsibilities of preserving park resources for public use.

refuges/resource management/nature conservation/barrier islands/Gulf I./ Natl. Seashore/research and development/research programs/ASW/USA/Gulf Islands Natl. Seashore/ASFA.

1741. Stadum CJ, Susuki T. The discovery of marine Pliocene strata on San Clemente Island, California. Geol. Soc. Am., Abstr. Programs. Cordilleran Section, 72nd annual meeting. 1976;8(3):p.411 Huntington Beach High Sch., Huntington Beach, Calif., United States; Univ. Calif., United States Analytic; Serial; Abstract Faunal evidence including foraminifera. B; Bibliography and Index of Geology (1969-present).

Orange County/San Diego Formation/Fernando Formation/Monterey Formation/sedimentary rocks/clastic rocks/terrigenous/sandstone/biogenic/conglomerate/fossiliferous/marine/lithostratigraphy/correlation/occurrence/thickness/lithology/Pliocene/California/San Clemente Island/United States/sedimentation/biostratigraphy/Mollusca/Brachiopoda/foraminifera/Bryozoa/ Invertebrata/faunal studies/assemblages/Bivalvia/Pecten/Chlamys/Laqueus/sedimentary petrology/southwest/San Diego/GEOREF.

1742. Stewart B, Yochem P. Northern elephant seals breeding at Santa Rosa Island, California. J. MAMMAL 1986;67(2):402-403. Northern elephant seals (*Mirounga angustirostris*) began a well documented increase following termination of commercial harvests in the late nineteenth century. This population growth was accompanied by an expansion of the breeding range northward from the surviving remnant population at Isla de Guadalupe. The authors observed two newborn elephant seal pups, each in the company of an adult female, at the southwestern tip of Santa Rosa Island (SRI). These seals were still present on 4 February but the females had departed prior to 22 February, when they observed only the two weaned pups. This is the first record of elephant seals breeding at SRI.

sexual reproduction/breeding sites/USA/California/Santa Rosa Island/new records/*Mirounga angustirostris*/geographical distribution/INE/USA/ California/Santa Rosa I./CSA Life Sciences Collection.

1743. Cooper K, Jones T (Performer: Naval Facilities Engineering Command, Washington, DC. Chesapeake Div.) Project

Execution Plan for the Installation of the SOCAL Acoustic Range (SOAR). ; 1984. Report No.: CHESNAVFACFP01844. 72p. The Southern California Acoustic Range (SOAR) is designed to provide a 100 square mile Anti Submarine Warfare training range in 4000 feet of sea water west of San Clemente Island, California. SAR will provide accurate tracking of air, surface and submerged targets. This plan is a working document that details the mobilization, execution and demobilization of the underwater portion of the SOAR project. The overall scenario of the project is to accomplish the following; (a) Prefabrication and assemble project materials at NOSC, San Diego; (b) Conduct training near Coronado beach; (c) Mobilize the OCP SEACON and UCT-2 personnel and equipment at West Cove, San Clemente Island; (d) Land the SSL cable and deploy the SSL system at sea; (e) Land the WQC cable and deploy the WQC transducer at sea; (f) Conduct a complete as-built survey (g) Demobilize SEACON and return all equipments and (h) Prepare a detail completion report. Naval training/Antisubmarine warfare/Aerial targets/Surface targets/Installation/Naval planning/Deep oceans/Inlets Waterways/West Direction/Prefabrication/Sea water/Underwater targets/Documents/California/Mobilization/Scenarios/South Direction/Tracking/Acoustic ranges/SOAR/ SOCAL Acoustic Range/NTIS.

1744. ORCUTT HG. BOTTOMFISH RESOURCES OF THE CALIFORNIA CURRENT SYSTEM. CALIFORNIA CURRENT SYSTEM- THEIR FLUCTUATING MAGNITUDE, DISTRIBUTION AND SUSCEPTIBILITY TO USE FOR THE BENEFIT OF THE STATE OF CALIFORNIA. SYMPOSIUM. PAPERS. MESSERSMITH, J.D., ED. HELD IN LAKE ARROWHEAD, CALIF., DEC.11-12,1967. SPONSORED BY THE STATE OF 1969 UNKNOWN. MOLLUSKS/TRAWL FISHERIES/FISHES/SHELLFISH/CALIFORNIA CURRENT/BOTTOMFISH/OceanAbstracts.

1745. Bogaert BM. An aftershock study of the Santa Barbara earthquake of August 13, 1978 [dissertation]. Santa Barbara, CA: University of California; 1984. 55. Address: Univ. of California, Santa Barbara, CA. seismology/faults/earthquakes/displacements/aftershocks/reverse faults/Santa Barbara earthquake, 1978/arrays/focal mechanism/continental shelf/Transverse Ranges/decollement/mechanics/Santa Barbara County/Santa Barbara Channel/ geology/geophysics/seismology.

1746. Cox JL. Uptake, assimilation, and loss of DDT residues by *Euphausia pacifica*, a Euphausiid shrimp. U.S. Natl. Mar. Fish. Serv. Fish. Bull. 1971;69(3):627-633. euphausia/shrimps/pesticide residues/california current/ddt/pacifica/zooplankton/Pieper/MINERALS MANAGEMENT SERVICE.

1747. Smith DL, Normark WR. Deformation and patterns of sedimentation, South San Clemente Basin, California Borderland. Mar. Geol. 1976;22(3):p.175 Univ. Fla., Dep. Geol., Gainesville, Fla., United-States; Univ. Minn., United States Analytic; Serial B; Bibliography and Index of Geology (1969-present). Pacific Ocean/oceanography/sedimentation/seismic surveys/California Borderland/San Clemente Basin/San Diego Trough/marine geology/United States/California/continental borderland/rates/controls/tectonics/structural controls/sediments/turbidite/deposition/patterns/geophysical surveys/reflection/marine/continental shelf/GEOREF.

1748. Shaw WJ, Borrmann S, Fellbaum S, Skupniewicz CE,

Vaucher CA (Performer: Naval Postgraduate School, Monterey, CA).
Sodar, Rawinsonde, and Surface Layer Measurements at a Coastal
Site. Part 2. SCCCAMP (South Central Coast Aerometric Monitoring
Project) Data Report. Technical rept. Jul 85-May 86. ; 1986. Report
No.: NPS6386001. 107p.

This report presents data gathered by the Naval Postgraduate School
(NPS) during the South Central Coast Aerometric Monitoring Project
(SCCCAMP) in September and October of 1985. The data are from a
triaxial monostatic doppler acoustic sounder and a 20-meter
meteorological tower which were located at the Ellwood pier near
Goleta, California and from rawinsondes launched from the R/V
Acania in the Santa Barbara Channel. Keywords include: Boundary
layer, Doppler Acoustic Sounder, and Rawinsonde.

Acoustics/Boundary layer/California/Coastal regions/Doppler
systems/Layers/Measurement/Piers/Radiosondes/Sites/Surfaces/Wind
velocity/Atmospheric sounding/Marine atmospheres/Meteorological
data/SCCCAMP South Central Coast Cooperative Aerometric Monitoring
Project/R/V Acania Vessel/NTIS.

1749. LONGHURST AR. PELAGIC INVERTEBRATE RESOURCES OF THE
CALIFORNIA CURRENT. CALIFORNIA CURRENT SYSTEM- THEIR FLUCTUATING
MAGNITUDE, DISTRIBUTION AND SUSCEPTIBILITY TO USE FOR THE BENEFIT
OF THE STATE OF CALIFORNIA. SYMPOSIUM. PAPERS. MESSERSMITH, J.D.,
ED. HELD IN LAKE ARROWHEAD, CALIF., DEC.11-12,1967. SPONSORED BY
THE STATE OF 1969
UNKNOWN.

SQUIDS/CRABS/CEPHALOPODS/RESOURCE DEVELOPMENT/CALIFORNIA
CURRENT/OceanAbstracts.

1750. Bogaert B, Prothero W, Reichle M. Aftershocks of the
Santa Barbara earthquake of August 13, 1978. American Geophysical
Union; 1981 fall meeting. Eos, Transactions, American Geophysical
Union 1981;62(45):1042 Address: Woodward-Clyde Consult., San
Francisco, CA, USA; Univ. Calif. at Santa Barbara Conference:
American Geophysical Union; 1981 fall meeting. San Francisco, CA,
Dec. 7-11, 1981.

seismicity/earthquakes/refraction/Santa Barbara earthquake,
1978/magnitude/seismographs/epicenters/focus/distribution/faults/
swarms/focal mechanism/Santa Barbara
Channel/geology/geophysics/seismology.

1751. Crabbs DE. Analysis of ocean current meter records
obtained from a 1975 deployment off the Farallon Islands,
California. Final report. 1983;:67. Hickey/physical
oceanography/radioactive wastes/waste disposal/ocean
currents/measurement/ocean bottom/sites/flow velocity/tables
data/coasts/farallon islands/sediment transport/California/north
Pacific Ocean/MINERALS MANAGEMENT SERVICE.

1752. Robles JM, Marinone SG. Seasonal and interannual
thermohaline variability in the Guaymas Basin of the Gulf of
California. CONT. SHELF RES 1987;7(7):715-733.

Sea surface temperature increases from about 16 degree C in
February-March to 31 degree C in August. An additional effect is a
deepening of the winter pycnocline down about 200 m, compared to
the usual depth of < 100 m. In summer, this effect is not as clear
as in winter, due to the strong stratification. The effects of the
very strong 1982-1983 and 1957-1958 ENSO episodes may have lasted
for one and two years, respectively. It is argued that during an
ENSO event the Transition Water of the California Current meet and
mix near the Gulf entrance with the Tropical Surface Water of the
Costa Rica Coastal Current.

thermohaline circulation/temperature data/salinity data/seasonal

variations/annual variations/ISE/California Gulf/Guaymas Basin/ASFA.

1753. Stapor FWJ. Shoreline changes between Phillips Inlet and Pensacola Inlet, Northwest Florida Coast. Gulf Coast Assoc. Geol. Soc., Trans. 25. Technical papers and abstracts, Gulf Coast Sect. of S.E.P.M.. 1975:p.373 S.C. Wildlife Mar. Resour. Dep., Charleston, S.C., United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present).
Escambia County/Florida/geomorphology/shore features/shorelines/west/Santa Rosa Island/Pensacola Inlet/Phillips Inlet/changes/erosion/Holocene/modern/North America/United States/Gulf Coastal Plain/GEOREF.

1754. Wittmann PA, Mooers CN (Performer: Naval Postgraduate School, Monterey, CA). Hydrographic Data from the OPTOMA (Ocean Prediction through Observation, Modeling and Analysis) Program OPTOMA19, 8-13 February 1986. Progress rept. Oct 85-Mar 86. ; 1986. Report No.: NPS6886003. 40p.

The OPTOMA (Ocean Prediction Through Observation, Modeling and Analysis) Program seeks to understand the mesoscale (fronts, eddies, and jets) variability and dynamics of the California Current System and to determine the scientific limits to practical mesoscale ocean forecasting. The cruise OPTOMA19 was undertaken in Feb. 1986 and covered a domain 240 km square centered 190 km off the coast from Pt. Arena. This report presents the hydrographic data which were acquired during the period 8 to 13 February. The cruise track consisted of alongshore transects. Data acquired during OPTOMA19 include XBT and CTD profiles. Wind velocity, air temperature, dew point, and 2 meter thermosalinograph measurements were recorded every 2 minutes. Keywords: Ocean currents.

Sea water/Atmospheric temperature/California/Dew point/Dynamics/Hydrography/Limitations/Oceans/Predictions/Wind velocity/Ocean models/Bathythermograph data/Temperature/Electrical conductivity/Density/Winter/Salinity/Oceanographic data/Ocean currents/OPTOMA Project/California current/NTIS.

1755. SETTE OE. A PERSPECTIVE OF A MULTI-SPECIES FISHERY. CALIFORNIA CURRENT SYSTEM- THEIR FLUCTUATING MAGNITUDE, DISTRIBUTION AND SUSCEPTIBILITY TO USE FOR THE BENEFIT OF THE STATE OF CALIFORNIA. SYMPOSIUM. PAPERS. MESSERSMITH, J.D., ED. HELD IN LAKE ARROWHEAD, CALIF., DEC.11-12,1967. SPONSORED BY THE STATE OF 1969

UNKNOWN.

RESOURCE MANAGEMENT/RESOURCE DEVELOPMENT/CALIFORNIA CURRENT/FISHERIES/PROBLEMS/SOLUTIONS/MULTI-SPECIES FISHERY/OceanAbstracts.

1756. Craven DB, Jahnke RA, Carlucci AF. Fine-scale vertical distributions of microbial biomass and activity in California borderland sediments. Deep-Sea Res. 1986;33:379-390.
text/chemical oceanography/Eganhouse/Venkatesan/MINERALS MANAGEMENT SERVICE.

1757. Sukhov VF, Golin'ko AI. Heat budget in the eastern boundary current areas of the Northern Hemisphere. METEOROL. GIDROL. 1987;(3):72-81. Currents and seasonal variability of water temperature, external heat budget and thermal conditions in the upper 200 m layer in the Canary and California current systems are considered. The relationship between heat budget and water dynamics has been established. The highest interyear variations in the heat content were recorded in the areas between 20 and 4-5 degree N and in the narrow band north of 20 degree N. The absolute heat content was higher in the Canary than in the California Current system.

eastern boundary currents/heat budget/water temperature/upper ocean/Northern Hemisphere/ASFA.

1758. Kaplan IR, Doose PR. Organic precursors for biological methane production in nature. Geol. Soc. Am., Abstr. Programs. 1975;7(7):p.1138 Univ. Calif. Los Ang., Los Ang., Calif., United-States Analytic; Serial; Abstract B; Bibliography and Index of Geology (1969-present). Pacific Ocean/geochemistry/organic materials/sediments/Santa Barbara Basin/valeric acid/formic acid/methane/genesis/biogenic/diagenesis/anaerobic/GEOREF.

1759. Fishery Bulletin 1986;84(2)
Performer: National Marine Fisheries Service, Seattle, WA
Contents: Copepodids and adults of *Leptinogaster major*, a poecilostomatoid copepod living in *Mya arenaria* and other marine bivalve mollusks; Reproductive biology of female spotted dolphins, *Stenella attenuata*, from the eastern tropical Pacific; Chinook salmon, *Oncorhynchus tshawytscha*, spawning escapement based on multiple mark-recapture of carcasses; The distribution of the humpback whale, *Megaptera novaeangliae*, on Georges Bank and in the Gulf of Maine in relation to densities of the sand eel, *Ammodytes americanus*; Seabirds near an Oregon estuarine salmon hatchery in 1982 and during the 1983 El Nino; Development and evaluation of methodologies for assessing and monitoring the abundance of widow rockfish, *Sebastes entomelas*; Population and fishery characteristics of gulf menhaden, *Brevoortia patronus*; Length-weight relationships of blue, *Paralithodes platypus*, and golden, *Lithodes aequispina*, king crabs parasitized by the rhizocephalan, *Briarosaccus callosus* Boschma. Distribution and abundance of common dolphin, *Delphinus delphis*, in the Southern California Bight; Cetacean high-use habitats of the northeast United States continental shelf; Sounds from Bryde, *Balaenoptera edeni*, and finback, *B. physalus*, whales in the Gulf of California. Cetaceae/Ecology/Birds/Whales/Reproduction Biology/Seals Mammals/Crabs/Dolphins Mammals/Populations/Abundance/Pacific Ocean/California Gulf/Alaska/Fishes/Marine fishes/Fisheries/Announcement bulletins/Habitats/El Nino/NTIS.

1760. HOWARD GV. VIEWS CONCERNING USE OF THE LIVING RESOURCES OF THE CALIFORNIA CURRENT. CALIFORNIA CURRENT SYSTEM-THEIR FLUCTUATING MAGNITUDE, DISTRIBUTION AND SUSCEPTIBILITY TO USE FOR THE BENEFIT OF THE STATE OF CALIFORNIA. SYMPOSIUM. PAPERS. MESSERSMITH, J.D., ED. HELD IN LAKE ARROWHEAD, CALIF., DEC.11-12,1967. SPONSORED BY THE STATE OF 1969 UNKNOWN. CALIFORNIA CURRENT/RESOURCE DEVELOPMENT/FISHERIES/SOLUTIONS/LEGAL, ECONOMIC, TECHNOLOGICAL, AND SOCIOLOGICAL PROBLEMS/OceanAbstracts.

1761. Boucher G. Digital processing and quantitative analysis of single-channel high resolution seismic reflection data. Eos (Am. Geophys. Union, Trans.) 1979;60(18):286
Address: U. S. Geol. Surv., Menlo Park, Calif. Conference: American Geophysical Union; 1979 spring annual meeting. Washington, D.C., May 28-June 1, 1979. automatic data processing/geophysical methods/sedimentation/geophysical surveys/seismic methods/transport/seismic surveys/digital techniques/interpretation/marine transport/ocean circulation/nearshore environment/quantitative methods/single-channel methods/high-resolution methods/reflection methods/Santa Barbara Channel/applied geophysics/geology.

1762. Schmitt RJ. Indirect interactions between prey:

Apparent competition, predator aggregation, and habitat segregation. *ECOLOGY* 1987;68(6):1887-1897. Field experiments were performed to explore the nature of indirect interactions between two groups of ecologically distinct prey that occur on subtidal rocky reefs at Santa Catalina Island, California. Mobile gastropods and sessile bivalves (mostly *Chama arcana*) share a common set of invertebrate predators (lobster *Panulirus interruptus*, cephalopod *Octopus bimaculatus*, and whilk *Kelletia kelletii*). The gastropods principally occur on cobble reefs and less commonly on high-relief reefs. Sessile bivalves and other species of favored prey are common on high-relief reefs and are rare or absent in cobble arcs. The density of each predator species is greatest in high-relief areas containing abundant favored prey. The density of predators within a cobble reef, although low overall, was found to be positively correlated with density of gastropods. Thus each group of prey was negatively affected by the presence of the other because each alternative prey increased the local density of predators.

USA/California/Santa Catalina Island/predator-prey interactions/competition/aggregation/habitat utilization/intertidal environment/predation/interspecific relationships/predators/Mollusca/population density/correlation/INE/USA/California/Santa Catalina Island/rocky shores/prey density/ASFA.

1763. Drever JI, Murphy JD. Non influence of anion exchange on the chloride and sulfate contents of interstitial waters in marine sediments. *Geol. Soc. Am., Abstr. Programs*. 1974;6(7):p.1034 Univ. Wyo., Geol. Dep., Laramie, Wyo., United-States Analytic; Serial; Abstract B; Bibliography and Index of Geology (1969-present).

California/geochemistry/chloride/sulfate/pore water/sediments/offshore/San Pedro Basin/Santa Barbara Basin/Mexico/Rio Ameca/composition/variations/relation/mineral composition/ion exchange/marine/Holocene/modern/United States/GEOREF.

1764. Pinkel R (Performer: Scripps Institution of Oceanography, La Jolla, CA. Marine Physical Lab.) Wavenumber Frequency Spectrum of Upper Ocean Shear. Summary rept. ; 1985. Report No.: MPLU4284. 21p. Pub. in *Jnl. of Physical Oceanography*, v15 n11 p1453-1469 Nov 85. Sponsored in part by Contract N00014-79-C-0472. PC A02/MF A01 Contracts: N0001480C0220, N0001482K0147.

In May 1980 an 18-day sequence of oceanic velocity profiles was obtained off the coast of Southern California. Measurements were made using a pair of Doppler sonars mounted on the research platform FLIP and angled downward 45 deg. The profiles extend to a depth of 600 m. Depth resolution is approximately 30 m. From these profiles the vertical wavenumber-frequency spectrum of the oceanic shear field, $\Phi(\kappa, \omega)$ is identical with $(\frac{\partial u}{\partial z})^2 / d(\kappa, \omega)$ is estimated. The shear spectrum is resolved between vertical wavenumbers 1/530 and 1/28 cpm. It is band-limited in wavenumber in the frequency region encompassing near-inertial waves and semidiurnal tides. Motions of vertical wavelength between 100 and 300 m have the greatest spectral density. As frequency increases, the band of most energetic motion shifts to ever higher wavenumbers. At frequencies above 8 cpd only the low-wavenumber side of the energetic band can be resolved by the sonars. The wavenumber dependence here appears blue. It is unlikely that the high-frequency, high-wavenumber shear is a result of linear internal wave activity. The shear spectrum is not consistent with previous estimates of the spectrum of isotherm vertical

displacement if linear internal wave scaling is used. The vertical displacement spectrum becomes progressively more red (low-mode dominated) with increasing frequency while the shear spectrum becomes progressively more blue. In ignorance of the dynamics of these motions, it is unwise to use internal wave (WKB) scaling to describe the vertical variation of the shear field.
Ocean tides/Velocity/Shear properties/Inertia/Displacement/Vertical orientation/Water flow/Sea water/Ocean currents/Doppler sonar/Reprints/Ocean waves/Internal waves/Frequency spectrum/Vertical wavenumber/Semidurnal tides/Oceanic shear fields/Upper ocean shear/California current/Shear spectrum/NTIS.

1765. CROSBY G. PACIFIC DEEPWATER DRILLING TECHNIQUES PERFECTED. PETROLEUM ENGINEER. DALLAS, TEX., 41(2) :65-70, NOV. 1969 1969

UNKNOWN.

OFFSHORE DRILLING/SANTA BARBARA CHANNEL/DRILLING/DRILLING EQUIPMENT/ MOORINGS/OCEANIC ABSTRACTS.

1766. VALDES S. MARINE BASINS OFF THE COAST OF VENEZUELA. BULLETIN OF MARINE SCIENCE 1969;19(1, P.1-17, MARCH 1969. ABS., SP. SUM., 12 FIGS., 1 TABLE, 22 REFS. GRANT- NSF GP-5012)

UNKNOWN.

SEDIMENTS/VENEZUELA/OCEAN BASINS/TOPOGRAPHY/SOUTHERN CALIFORNIA BORDERLAND/CONTINENTAL BORDERLAND/COMPARISONS/OceanAbstracts.

1767. Soutar A, Isaacs JD. The inference of climatic conditions for California and the northeastern Pacific from the varved sediment record. Pac. Sci. Congr., Rec. Proc. 1975;13 Vol. 1:p.266

Univ. Calif., San Diego, Calif., United-States Analytic; Serial; Abstract B; Bibliography and Index of Geology (1969-present).

sedimentary structures/planar bedding

structures/varves/interpretation/climate/precipitation/temperature/vari-ations/P acific Ocean/northeast/United

States/California/Santa Barbara Basin/sedimentary petrology/GEOREF.

1768. (Performer: California Univ., Santa Cruz. Center for Marine Studies. Funder: Minerals Management Service, Los Angeles, CA. Pacific OCS Region.) Marine Mammals and Seabirds of Central and Northern California, 1980-1983: Executive Summary. Final rept. ; 1983. Report No.: MMS840041. 35p.

See also PB85-183861. PC A03/MF A01 Contract: DI1412000129090.

This volume summarizes the findings of a three-year study of marine mammal and seabird distribution, abundance, and seasonality. The marine fauna of central and northern California includes at least 102 species of seabirds, 21 species of cetaceans, 5 species of pinnipeds, and the sea otter. Seabird density in central and northern California is seasonally great, and more similar in magnitude to the Gulf of Alaska and the Bering Sea than to the Southern California Bight. Aerial surveys/Dolphins Mammals/Spatial distribution/Abundance/Whales/Seasonal variations/Offshore drilling/Crude oil/Natural gas/Animal

ecology/California/Sites/Animal migrations/Mammals/Seals

Mammals/Birds/Water pollution/Outer continental shelves/NTIS.

1769. HARDWICK JE. REVIEW OF THE PELAGIC WET FISHERIES DURING THE 1966-67 SEASON. CALIFORNIA COOPERATIVE OCEANIC FISHERIES INVESTIGATIONS. REPORTS 1968;12, P.22-23, MAY 1,1968. NO ABS., 5 TABLES, NO REFS

UNKNOWN.

PELAGIC FISHES/CATCH STATISTICS/FISHERIES/CALIFORNIA CURRENT/REVIEW/OceanAbstracts.

1770. Bray RN, Ebeling AW. Food, activity, and habitat of three "picker-type" microcarnivorous fishes in the kelp forests off Santa Barbara, California. Fish. Bull. U.S. 1975;73:815-829
feeding behavior/foraging behavior/kelp forests/fishes/Santa Barbara Channel/marine biology/ecology/ichthyology.

1771. Crouch JK. Neogene tectonic evolution of the California borderland and western Transverse Ranges. Geol. Soc. Am. Bull. 1979;90:338-345. introduction/MINERALS MANAGEMENT SERVICE.

1772. Crouch JK. Northwest margin of the California continental borderland: Marine geology and tectonic evolution. Am. Assoc. Pet. Geol. Bull. 1981;64:191-218.
introduction/MINERALS MANAGEMENT SERVICE.

1773. Swartz RC, Cole FA, Schults DW, DeBen WA. Ecological changes in the Southern California Bight near a large sewage outfall: Benthic conditions in 1980 and 1983. MAR. ECOL. (PROG. SER.) 1986;31(1):1-13.
The structure of the macrobenthic community, sediment toxicity, and sediment contamination changed greatly between 1980 and 1983 along a pollution gradient from the Los Angeles County Sanitation Districts' (LACSD) sewage outfalls on the Palos Verdes Shelf, California, USA to a reference site in northern Santa Monica Bay. Stimulation of the species richness, biomass, and density of the benthos along the 60 m contour 5 to 11 km from the outfalls was significantly reduced in 1983 when compared to 1980. Stations 1 to 3 km from the outfalls in 1980 were occupied by a depauperate fauna strongly dominated by the opportunistic polychaete *Capitella* spp. In 1983 species richness and biomass significantly increased close to the outfalls, *Capitella* spp. was much less abundant. Sediment contamination by most measured chemicals and parameters of organic enrichment decreased on the Palos Verdes Shelf, but not at the reference station, between 1980 and 1983. marine pollution/outfalls/pollution effects/zoobenthos/*Capitella*/*Parvilucina tenuisculpta*/*Tharyx*/community composition/INE/USA/ California/Palos Verde Shelf/ASFA.

1774. Warme JE. Geologic exploration of southern California basins and bank margins; results using manned submersible. Am. Assoc. Pet. Geol., Bull. AAPG-SEPM annual meeting. 1976;60(4):p.732
Rice Univ., Dep. Geol., Houston, Tex., United-States Analytic; Serial; Abstract B; Bibliography and Index of Geology (1969-present).
Pacific Ocean/oceanography/ocean floors/exploration/north/United States/California/San Diego Trough/Santa Cruz Basin/marine geology/submersibles/sediments/cores/troughs/basins/banks/margins /GEOREF.

1775. Dohl TP (Performer: California Univ., Santa Cruz. Center for Marine Studies. Funder: Minerals Management Service, Los Angeles, CA. Pacific OCS Region.) Marine Mammals and Seabirds of Central and Northern California, 1980-1983: Synthesis of Findings. Final rept. ; 1983. Report No.: MMS840042. 248p.

See also PB85-183820. PC A11/MF A01 Contract: DI1412000129090.
This volume summarizes the findings of a three-year study of marine mammal and seabird distribution, abundance, and seasonality. The marine fauna of central and northern California includes at least 102 species of seabirds, 21 species of cetaceans, 5 species of pinnipeds, and the sea otter. Seabird density in central and

northern California is seasonally very great, and more similar in magnitude to the Gulf of Alaska and the Bering Sea than to the Southern California Bight. The authors estimate that seabirds number almost 6.5 million when maximally abundant. Autumn is the season of greatest marine mammal abundance, with an estimated population of more than 200,000 animals. Numbers progressively decrease, on a seasonal basis, until an annual minimum of approximately 110,000 animals is reached in summer.
Abundance/Spatial distribution/Alaska Gulf/Bering Sea/Cetacea/Whales/Birds/Seals Mammals/Marine biology/Ecology/North Pacific Ocean/Water pollution/Outer continental shelves/Habitats/NTIS.

1776. Briggs KT, Lewis DB, Tyler WB, Hunt Jr. GL. Brown Pelicans *Pelecanus occidentalis* in Southern California, USA: habitat use and environmental fluctuations. *Condor* 1981;83(1):1-15
Address: CENTER FOR COASTAL MARINE STUDIES, UNIVERSITY OF CALIFORNIA, SANTA CRUZ, CALIFORNIA 95064.
The population size, distribution and habitat affinities of brown pelicans (*P. occidentalis*) were investigated during 1975-1978 using monthly aerial, ship and ground surveys throughout the southern California bight. Pelican numbers are lowest during spring, when most birds are found near the small nesting colonies at Anacapa Island and Islas Los Coronados. The annual post-breeding migration from Mexican colonies augments the local population during summer and autumn; estimated peak populations of 65,000-94,000 birds occurred in Sept. and Oct. Throughout autumn and early winter pelicans regularly occurred as far offshore as Cortes Bank, 75 km seaward from the nearest island and 175 km off the mainland. Adults predominated offshore and near the California Channel Islands all year, but immature birds outnumbered adults along the mainland shore during autumn and winter. Brown pelicans occurred at sea in highest densities in areas of shallow, warm water within .apprx. 30 km of shore. During Aug. and Dec., migrating birds showed no discernible affinity for particular sets of environmental conditions. The distribution of spawning northern anchovies, the principal prey of brown pelicans during the nesting season, was not a good indicator of bird density distribution. The effects of a 2-yr warming trend on pelican numbers are discussed.
habitat use/environmental fluctuations/anchovy population size/size distribution/seasonal migration/breeding biology/warming trend/population levels/distribution/habitat preferences/population number/habitat selection/Brown Pelican/*Pelecanus occidentalis*/California Channel Islands/Anacapa Island/Islas Los Coronados/Coronados Islands/Cortes Bank terrestrial biology/ornithology.

1777. Crowell JC. Implication of crustal stretching and shortening of coastal Ventura Basin, California. Aspects of the Geological History of the California Continental Borderland. *Am. Assoc. Pet. Geol. Misc. Publ.* 1976;24:365-382.
introduction/MINERALS MANAGEMENT SERVICE.

1778. Jones GF, Thompson BE. The ecology of *Adontorhina cyclia* Berry (1947) (*Bivalvia*: *Thyasiridae*) on the Southern California Borderland. *INT. REV. GESAMT. HYDROBIOL* 1986;71(5):687-700.
Adontorhina cyclia Berry, 1947 is widely distributed on the continental borderland of southern California. It is a faunal element in every major habitat type including two of the outer deep basins, Santa Cruz Basin and San Nicolas Basin. On the mainland shelf it is discontinuously distributed from Point Conception to the US/Mexican Border. The depth distribution of *Adontorhina*

reflects the fact that it inhabits both topographic highs and some of the deep basins of the borderland. Its depth range is from 11.6 to 1,886.0 meters. While *Adontorhina* is able to inhabit a wide range of sediment types, from 1.5 to 8.1 mean phi, it was primarily collected from locations where sediments ranged from 3 to 5 mean phi. A diverse array of macrofaunal taxa is associated with *Adontorhina*. The numerically dominant taxa varied from habitat to habitat.

distribution records/vertical distribution/ecological associations/*Adontorhina* cycilia/sediment texture/INE/USA/California/ASFA.

1779. O' NTJ. Source identification of beach tars within southern California borderland. *Am. Assoc. Pet. Geol., Bull.* AAPG-SEPM annual meeting. 1976;60(4):p.704
Univ. South. Calif., Dep. Geol. Sci., Los Ang., Calif., United-States Analytic; Serial; Abstract B; Bibliography and Index of Geology (1969-present). California/geochemistry/organic materials/tar/beaches/south/continental borderland/hydrocarbons/sources/identification/tracer experiments/asphaltene/evaluation/applications/environmental geology/pollution/petroleum/reservoir rocks/United States/GEOREF.

1780. Mueller J. Optical variability in the eastern North Pacific Ocean as measured by the NIMBUS-7 coastal zone color scanner. *PROCEEDINGS OF THE PACIFIC CONGRESS ON MARINE TECHNOLOGY, HONOLULU, HAWAII, APRIL 24-27, 1984.*; 1984; pp. OST2/11-12
Sequences of Nimbus-7 Coastal Zone Color Scanner (CZCS) images have been processed to map bio-optical variability in the eastern North Pacific Ocean. Phytoplankton pigment concentrations (chlorophyll-a plus phaeopigments-a) and $k(490)$ (the vector irradiance attenuation coefficient at a wavelength of 490 nm) were calculated from the radiances measure in cloud free portions of each available CZCS image. These parameters were then mapped onto a Mercator grid extending from 28 N to 42 N and from 117 W to 143 W at a nominal resolution of 5 km. Emphasis was placed on Oct and Nov of 1979 and 1982 as part of the analysis phase of the ONR sponsored Optical Dynamics Experiment (ODEX). The objective of the ODEX program is to develop a 1-dimensional model for predicting optical propagation in the upper ocean away from coastal current systems. A strong optical front separates turbid coastal water from transparent offshore water at a location near the base of the continental slope. Along the zonal transect at 35 N, this front is clearly visible near 123 W in CZCX-derived optical depth. In the offshore continuation of the 35 N transect, the Acania's CTD profiles clearly indicated that the water masses between the optical front of 123 W and beyond 130 W have temperature-salinity characteristics associated with the California Current System. Vertical profiles of in situ optical properties also varied systematically over the zonal t/satellite sensing/photosynthetic pigments/phytoplankton/water masses/water currents/CTD observations/image processing/remote sensing/satellites/oceanography/chlorophylls/marine environment/INE/California Current/variability 35 N./NIMBUS-7/CSA Life Sciences Collection.

1781. Kozloff P (Performer: National Marine Fisheries Service, Seattle, WA. Northwest and Alaska Fisheries Center.) Fur Seal Investigations, 1982. Technical memo. ; 1985. Report No.: NOAATMNMFSFNC71. 136p.
Research on the northern fur seal, *Callorhinus ursinus*, in 1982 was conducted on the Pribilof Islands, Alaska; on San Miguel Island, California, and nearby Castle Rock; and in the Bering Sea. An estimate was made of the number of pups born in 1982 on St. Paul

Island, Alaska, including the sizes of the 1940, 1977 and 1978 year classes. Studies in 1982 showed that the majority of net fragments in which fur seals become entangled have a stretched mesh size of about 20-25 cm. A study of juvenile survival (birth-age 2 yr) on the Pribilof Islands concluded that survival on land is somewhat higher on St. George than on St. Paul. Pup production at both Adams Cove (1,029) on San Miguel Island and nearby Castle Rock (680) was greater in 1982 than in any previous year. Dietary studies based on the principal prey species of fur seals and the relative abundance of fish-squid resources suggest that fur seals are opportunistic feeders. Chlorinated hydrocarbons were found in the tissues of northern fur seals from St. Paul Island. San Miguel Island/Bering Sea/Populations/Nets/Survival/Animal behavior/Growth/Chlorohydrocarbons/Tissues Biology/Bioassay/Spatial distribution/Mortality/Isotopic labeling/Diets/Seals Mammals/Pribilof Islands/North Pacific Ocean/Fur seals/Ecosystems/Tracer studies/Callorhinus ursinus/NTIS.

1782. Cullen JJ. Chlorophyll maximum layers of the Southern California Bight and mechanisms of their formation and maintenance. Dissertation, Univ. of Calif., San Diego 1980;:152. chlorophyll phytoplankton/zooplankton/Pieper/chlorophylls/biological studies/plankton/phyto/Biological/oceanography/algae/spermatophytes/Bray Murray Hardy/phytoplankton/MINERALS MANAGEMENT SERVICE.

1783. Cullen JJ, Eppley RW. Chlorophyll maximum layers of the Southern California Bight and possible mechanisms of their formation and maintenance. Research on the marine food chain, prog. rep. Inst. Mar. Res., Univ. Calif., San Diego 1980;:133-164. MINERALS MANAGEMENT SERVICE.

1784. Cullen JJ, Eppley RW. Chlorophyll maximum layers of the Southern California USA Bight and possible mechanisms of their formation and maintenance. Oceanol. Acta. 1981;4(1):23-32. phytoplankton/biomass/primary production/light/TEXT/algae/spermatophytes/Bray/Hardy/phytoplankton/primary productivity/chlorophyll/layers/southern california bight/MINERALS MANAGEMENT SERVICE.

1785. Cullen JJ, Renger EH. Continuous measurement of the 3-3 4 di chlorophenyl-1 1-dimethyl urea induced fluorescence response of natural phytoplankton populations. Mar. Biol. (Berl) 1979;53(1):13-20. metabolic drug/southern california bight/usa/chlorophyll a/photosynthetic efficiency/off shore nutrients/Algae/spermatophytes/Bray/Hardy phytoplankton/TEXT/MINERALS MANAGEMENT SERVICE.

1786. Field ME. Shallow structure of northern Santa Rosa Cortes Ridge, southern California continental borderland. Am. Assoc. Pet. Geol., Bull. AAPG-SEPM annual meeting. 1976;60(4):p.670-671 U. S. Geol. Surv., Menlo Park, Calif., United-States Analytic; Serial; Abstract B; Bibliography and Index of Geology (1969-present). Los Angeles County/California/oceanography/continental shelf/seismic surveys/sediments/south/Santa Barbara Islands/Santa Rosa Cortes Ridge/United States/continental borderland/structure/shallow/sedimentation/transport/sedimentary structures/slump structures/marine geology/Pacific Ocean/geophysical surveys/reflection/marine/faults/bottom features/soft sediment deformation/tectonics/GEOREF.

1787. Miller S, Miller P. Beetles of Santa Barbara Island, California (Coleoptera). ENTOMOLOGY OF THE CALIFORNIA CHANNEL ISLANDS: PROCEEDINGS OF THE FIRST SYMPOSIUM.; 1985; pp. 121-136 USA/California/Channel Island/Coleoptera/geographical distribution/check lists/CSA Life Sciences Collection.

1788. Hauksson E, Teng T, Henyey TL, McRaney JK, Hsu L (Performer: University of Southern California, Los Angeles. Geophysics Lab. Funder: Geological Survey, Reston, VA.) Earthquake Hazard Research in the Los Angeles Basin and Its Offshore Area (October 1, 1983 to September 30, 1984). Technical rept. ; 1985. Report No.: TR851. 44p.

Contract: DI1408000121858.

The Geophysics Laboratory at the University of Southern California is conducting a comprehensive investigation of seismicity in the greater Los Angeles basin and its offshore area under U.S.G.S. Contract No. 14-08-0001-21858. As a part of this investigation, U.S.C. operates a seismic network in the Los Angeles basin area. During the 1984 fiscal year the authors have concentrated on seismotectonic analysis of the seismicity recorded in the Los Angeles Basin during the last 10 years. A comprehensive study of earthquakes along the Newport-Inglewood fault is in progress and the authors report the latest results. The authors are also reanalyzing the January 1, 1979 Malibu earthquake and its aftershocks. A substantial swarm of small earthquakes that occurred in the Santa Barbara channel during 20-25 April 1984 offers new understanding of active tectonics in southern California coastal zone offshore oil fields.

Geological faults/Seismic waves/Tectonics/Channels

Waterways/Coasts/Oil fields/California/Hazards/Earthquakes/Los Angeles Basin/Newport Inglewood fault/NTIS.

1789. DENOYER JM. GEOLOGY, PETROLEUM DEVELOPMENT, AND SEISMICITY OF THE SANTA BARBARA CHANNEL REGION, CALIFORNIA. D. SEISMICITY AND ASSOCIATED EFFECTS, SANTA BARBARA REGION. U.S. GEOLOGICAL SURVEY. WASH., D.C. PROFESSIONAL PAPER NO. 679-D, 47-77, 1969 1969

UNKNOWN.

SANTA BARBARA CHANNEL/CALIFORNIA COAST/EARTHQUAKES/SEISMICITY/NUCLEAR EXPLOSIONS/TSUNAMIS/Oceanic Abstracts.

1790. Brown DH, Norris KS. Observations of captive and wild cetacea. J. Mammalogy 1956;37(3):120-145 behavior/cetaceans/Cetacea/marine biology/mammalogy.

1791. Colton MC, Mooers CNK. OPTOMA (Ocean Prediction Through Observations, Modeling, and Analysis) program interim report. The airborne ocean thermal structure mapping project. REP. U.S. NAV. POSTGRAD. SCH 1985; The Ocean Prediction Through Observation, Modeling and Analysis (OPTOMA) program goals are to develop an ocean descriptive predictive system for studying and forecasting the evolution of ocean mesoscale features and the California Current System. Since Feb. 1983 six OPTOMA missions have been flown. A total of 325 AXBTs have been successfully deployed off the northern and central California coasts. Data analysis reinforce recent discoveries about the character of the California Current System: the current regime is highly variable in nature and is comprised of cool anomalies, mesoscale eddies, "squirts" and jets, current filaments and fronts. An airborne digital data acquisition system, built around an HP9816 microprocessor and a Sippican MK9 digitizing unit, digitizes the AXBT audio signal, then stores the profiles on diskette.

mesoscale features/water circulation/INE/California

Current/prediction/mathematical models/OPTOMA/ASFA.

1792. Davis CC. Observations of circulation and suspended sediment transport over part of southern California borderland from satellite imagery. Am. Assoc. Pet. Geol., Bull. AAPG-SEPM annual meeting. 1976;60(4):p.663 Univ. South. Calif., Los Ang., Calif., United-States Analytic; Serial; Abstract B; Bibliography and Index of Geology (1969-present).

Pacific

Ocean/oceanography/oceans/circulation/sedimentation/continental shelf/United States/California/marine geology/continental borderland/patterns/remote sensing/satellite/Landsat/transport/marine transport/GEOREF.

1793. Nagano C. Distributional notes on the tiger beetles of the California Channel Islands (Coleoptera: Cicindelidae). ENTOMOLOGY OF THE CALIFORNIA CHANNEL ISLANDS: PROCEEDINGS OF THE FIRST SYMPOSIUM.; 1985; pp. 105-112 Tiger beetles are widespread and often abundant predatory insects in littoral habitats.

Cicindela is the only one of the four North American genera in the family Cicindelidae inhabiting the sea coast and Channel Islands of southern California. The first island record of Cicindela was made by Fall (1897) in a treatment of the Coleoptera of the Channel Islands. Freitag (1965) listed a species from Santa Cruz Island in his revision of the Nearctic members of the Cicindela maritima complex. However, a comprehensive survey for island tiger beetles has only been completed recently (Nagano, 1982) in which seven of the islands are reported to harbor five species of Cicindela. The present paper is a review and update of Nagano (1982) with new records and discussions. Cicindelidae/geographical distribution/USA/California/Channel Island/check lists/CSA Life Sciences Collection.

1794. Wittmann PA, Rienecker MM, Kelley EA, Mooers CNK (Performer: Naval Postgraduate School, Monterey, CA). Hydrographic Data from the OPTOMA (Ocean Prediction through Observations, Modeling and Analysis) Program: OPTOMA11, 5 June-5 August 1984. Report for Oct 82-Mar 85. ; 1985. Report No.: NPS6885011. 216p. The six cruises and one aircraft flight comprising OPTOMA11 were undertaken in June, July and August 1984 to sample two subdomains of the California Current. This report presents the hydrographic data, acquired by XBT, AXBT and CTD casts, from the cruises and the flight. Keywords: Temperatures, Salinity, Density, Depth, Profiles, Graphs, and Tables(Data).

North Pacific

Ocean/Depth/Profiles/Temperature/Salinity/Graphs/Tables Data/Oceanographic data/Ocean currents/OPTOMA project/California Current/NTIS.

1795. YENNE KA. GEOLOGY, PETROLEUM DEVELOPMENT, AND SEISMICITY OF THE SANTA BARBARA CHANNEL REGION, CALIFORNIA. B. PETROLEUM. U.S. GEOLOGICAL SURVEY. WASH., D.C. PROFESSIONAL PAPER NO. 679-B, 13-27, 69-77, 1969. DEVELOPMENT IN THE REGION OF THE SANTA BARBARA CHANNEL 1969

UNKNOWN.

OFFSHORE OPERATIONS/GAS/PETROLEUM/OIL/SANTA BARBARA CHANNEL/OJAI AREA/MONTALVO AREA/POINT CONCEPTION/GOLETA AREA/Oceanic Abstracts.

1796. Brownell RL, Rathbun GB. California sea otter translocation: a status report. Endangered Species Technical Bulletin XIII(4). Washington, D.C. 20204: Department of the Interior, U.S. Fish and Wildlife Service; 1988. 1,6. This paper describes the efforts of the U.S. Fish and Wildlife Service to

translocate sea otters to San Nicolas Island. Capture procedures, censuses, and fate of otters are described.

translocation/endangered species/relocation/Enhydra lutris/California/sea otter/Big Sur/San Nicolas Island/marine biology/mammalogy.

1797. Four additional exploratory oil and gas wells. DATA ANNOUNCE. NGDC WELL LOG DATA 1986; Well logs and auxiliary information for 4 privately drilled test wells are now available for purchase from the National Geophysical Data Center. These data were generated by private companies that drilled exploratory oil and gas wells in areas for which the proprietary terms of the leases have terminated. These wells are in addition to 86 previously advertised wells released to NGDC by the Minerals Management Service, U.S. Department of Interior, for public dissemination. A summary of the types of well logs and auxiliary information now available for these wells is given. oil and gas exploration/offshore operations/oil wells/continental shelves/well logging/INE/Santa Barbara Channel/ASFA.

1798. Platt JP. The petrology, structure, and geologic history of the Catalina Schist terrain, southern California. Calif., Univ., Publ. Geol. Sci. 1976;112 Univ. Calif., United-States Monographic; Serial B; Bibliography and Index of Geology (1969-present). Los Angeles County/Catalina Schist/California/petrology/metamorphic rocks/Mesozoic/south/Santa Catalina Island/metamorphism/P T conditions/greenschist facies/amphibolite facies/schists/mineral assemblages/fabric/composition/data/facies/blueschist facies/plate tectonics/tectonics/structure/folds/faults/thrust/structural analysis/age/convergence/interpretation/petrofabrics/maps/United States/geologic/GEOREF.

1799. Wittman PA, Rienecker MM, Kelley EA, Mooers CNK (Performer: Naval Postgraduate School, Monterey, CA). Hydrographic Data from the OPTOMA (Ocean Prediction Through Observations, Modeling and Analysis) Program: OPTOMA9, 20-25 February 1984, OPTOMASF 3-4 March 1984, OPTOMA10 23-24 April 1984. Rept. for Oct 82-Feb 85. ; 1985. Report No.: NPS6885007. 69p. See also AD-A141 666.

The OPTOMA (Ocean Prediction Through Observations, Modeling and Analysis) Program, a joint Naval Postgraduate School/Harvard program, seeks to understand the mesoscale (fronts, eddies, and jets) variability and dynamics of the California Current System and to determine the scientific limits to practical mesoscale ocean forecasting. To help carry out the aims of this project, a series of cruises has been planned. The cruises OPTOMA9, OPTOMASF, and OPTOMA10 were undertaken to sample subdomains of the California Current System west of Monterey and west of Pt. Arena. This report presents the hydrographic data, acquired by XBT and CTD casts, from the cruises. Keywords: Physical oceanography; Dynamic oceanography. Dynamics/Oceanography/Oceans/Predictions/Fronts Meteorology/Eddies Fluid mechanics/North pacific ocean/Jets/Ocean currents/California Current/OPTOMA project/NTIS.

1800. SCHOELHAMER JE. GEOLOGY, PETROLEUM DEVELOPMENT, AND SEISMICITY OF THE SANTA BARBARA CHANNEL REGION, CALIFORNIA. A. GEOLOGIC FRAMEWORK OF THE SANTA BARBARA CHANNEL REGION. U.S. GEOLOGICAL SURVEY. WASH., D.C. PROFESSIONAL PAPER NO. 679-A, 1-13, 69-77, 1969 1969 UNKNOWN. SEISMICITY/STRATIGRAPHY/SANTA BARBARA CHANNEL/STRUCTURAL GEOLOGY/HISTORICAL GEOLOGY/Oceanic Abstracts.

1801. Brumbaugh RW. Hillslope gullying and related changes, Santa Cruz Island, California [dissertation]. Los Angeles, California, USA: University of California; 1983. 210.

This study examined the multiple processes involved in initiating and shaping the hillslope gully under varied steepland conditions on Santa Cruz Island. Gullies cut into bedrock of steep watersheds are the result of varying influences of rock and soil type, vegetation reduction, and intense rainfall. The vegetation reduction coincides with commencement of sheep grazing in the mid 19th century. Ensuing rapid erosion of the Island's steep slopes in the late 19th century and 20th century is documented by accelerated aggradation of adjacent canyon floors. Intense rainfall influence was documented during the 1977-78 and 1978-80 storm seasons. The 1977-78 storm season is one of the most severe of the century. Hillslope gullies were surveyed on five different watershed types ranging from ungrazed to heavily sheep-grazed sites on three rock types. Propensity for gullying varied with rock type. The most severe gullying occurred where there had been almost complete loss of previously substantial woody cover. Gullying especially was facilitated by mass movement on the disturbed watersheds and locally on fine-grained regoliths prone to soil piping. Gully morphology varied with respect to different rock types. Gully depths were constrained by unweathered bedrock, while width of the gully channel was more dependent on gully depth and gully wall stability. However, on some sites there were no trends or interrelationships among gully dimensions while there were strong interrelationships among the same dimensions in other populations. The type of gully head varied considerably among gully populations demonstrating the process-selective influence of rock type. Three gullies were monitored for 2.5 years, by erosion pins and placement of painted stones on the gully floor between storms. Varying scales of mass movement were found to shape the hillslope gullies rather than fluvial processes. Amelioration of gully erosion occurred in an area recently excluded from sheep-grazing. California/geomorphology/mass movements/erosion features/bedrock/Pacific Coast/Western U.S./United States/channels/classification/grazing/gullying/processes/Santa Cruz Island/Southern California/storms/vegetation /hillslopes/gullying/gullies/sheep grazing/sheep/Santa Cruz Island/geology/geography.

1802. Cox JL. DDT residues in seawater and particulate matter in the California Current system. U.S. Natl. Mar. Fish. Serv. Fish. Bull. 1971;69(2):443-450.
sea water/particulates/pesticide/residues/california/california current/anthropogenic/anderson/reish/Particulate matter/DDT residues/zooplankton/Pieper/text/chemical/oceanography/eganhouse/venkatesan/MIN ERALS MANAGEMENT SERVICE.

1803. Kropfli RA. Airflow characteristics in the marine boundary layer over the Santa Barbara Channel during SCCAMP (South Central Coast Cooperative Aerometric Monitoring Program): Part 1. Summary of dual-Doppler radar observations. NOAA TECH. MEMO 1986; The two NOAA/Wave Propagation Laboratory 3 cm wavelength (X-band) pulsed Doppler radars were used during the South Central Coast Cooperative Aerometric Monitoring Program (SCCAMP) to map the vertically averaged 2-D flow in the marine boundary layer (MBL) over the central and western portions of the Santa Barbara Channel. This is an area that has been poorly documented in the past and received relatively less intensive coverage by other measurement

systems during SCCCAMP. The Doppler radar measurements, therefore, were used to fill a critical gap in the authors understanding of low-level mesoscale flows in the region. remote sensing/climatology/atmospheric boundary layer/radar/INE/Santa Barbara Channel/ASFA.

1804. Barnes RO, Goldberg ED. Methane production and consumption in anoxic marine sediments. Geology (Boulder). 1976;4(5):p.297-300
Scripps Inst. Oceanogr., La Jolla, Calif., United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present). Pacific Ocean/geochemistry/organic materials/methane/sediments/pore water/United States/California/Santa Barbara Basin/hydrocarbons/marine/genesis/anaerobic/consumption/bacteria/sulfate/reduct ion/mechanism/sinks/Holocene/modern/processes/GEOREF.

1805. Wittmann PA, Kelley EA, Mooers CNK (Performer: Naval Postgraduate School, Monterey, CA). Hydrographic Data from the OPTOMA (Ocean Prediction Through Observations, Modeling and Analysis) Program: OPTOMA15, 24 January to 23 February 1985. Rept. for Oct 82-Apr 85. ; 1985. Report No.: NPS6885016. 114p. The two cruises, Leg DI and DII, and one AXBT flight Leg P were undertaken in January and February 1985. This report presents the hydrographic data acquired by XBT, AXBT and CTD casts, from the cruises and the flight. Keywords include: California Current System, Physical Oceanography, Dynamic Oceanography. North Pacific Ocean/Temperature/Salinity/Depth/California/Dynamics/Hydrography/Oceanography/P redictions/Oceanographic data/Bathythermograph data/Ocean currents/California current/Oceanographic cruises/OPTOMA project/NTIS.

1806. Brunk JL, Jokela TA, Wong KM, Nochkin VE. 238-Pu concentrations in the marine environment at San Clemente Island. Health Physics 1981;40(5):643 Plutonium-238/Marine pollution/San Clemente Island/water quality/pollution/resource management.

1807. Ward BB. Nitrogen transformations in the Southern California Bight. DEEP-SEA RES 1987;34(5-6):285-805. Oxidation and assimilation of ammonium and nitrate were measured in profiles from the surface to 1000 m at four stations in the Southern California Bight. Assimilative processes dominated the turnover of these nitrogen compounds in the nutrient depleted photic zone; however, at the bottom of the photic zone, nitrification and assimilation were equally important in the turnover of both compounds. Although ammonium oxidation was strongly inhibited by light in the surface samples, nitrification probably contributed to rapid nitrogen cycling within the photic zone. Assimilation of ammonium and nitrite, integrated over the photic zone, was about 3-fold greater than calculated regenerated production, estimated from super(14)CO sub(2) uptake measurements. Integrated nitrification rates below the photic zone usually exceeded new primary production estimates. marine environment/nitrogen cycle/ammonium/oxidation/nitrification/nitrate/nitrifying bacteria/nutrient uptake/nitrite/phytoplankton/bacteria/Southern California Bight/Pacific Ocean/marine microorganisms/assimilation/ASFA.

1808. Smith KLJ, Rowe G, Clifford CH. Sediment oxygen demand in an outwelling and upwelling area. Tethys. Analyse de l'ecosysteme des 'upwellings'; deuxieme conference.

1974;6(1-2):p.223

Woods Hole Oceanogr. Inst., Woods Hole, Mass., United-States
Analytic; Serial B; Bibliography and Index of Geology (1969-
present).

Atlantic Ocean/oceanography/sediments/New York Bight/Pacific
Ocean/California Current/environmental
analysis/benthonic/effects/pollution/nutrients/enrichment/organic
/utilization/carbon/oxygen/experimental studies/in
situ/Holocene/GEOREF.

1809. (Performer: Jet Propulsion Lab., Pasadena, CA.
Funder: National Aeronautics and Space Administration, Washington,
DC.) Towards a Study of Synoptic-Scale Variability of the
California Current System. ; 1985. Report No.: NAS126175871,
JPLPUB8522, NASACR175871. 43p.
Contract: NAS7918.

A West Coast satellite time series advisory group was established
to consider the scientific rationale for the development of
complete west coast time series of imagery of sea surface
temperature (as derived by the Advanced Very High Resolution
Radiometer on the NOAA polar orbiter, and near-surface
phytoplankton pigment concentrations (as derived by the Coastal
Zone Color Scanner on Nimbus 7). The scientific and data processing
requirements for such time series are also considered. It is
determined that such time series are essential if a number of
scientific questions regarding the synoptic-scale dynamics of the
California Current System are to be addressed. These questions
concern both biological and physical processes.

Environmental monitoring/Forecasting/Marine environments/Ocean
surface/Ocean temperature/Marine biology/Ocean
currents/Oceanographic parameters/Synoptic meteorology/Time series
analysis/NTIS.

1810. Bruno RO, Dean RG, Gable CG. Longshore transport
evaluations at a detached breakwater. Proceedings of the Coastal
Engineering Conference 1981;17:1453-1475
Address: Waterw. Exp. Stn., Chesapeake Bay Model Branch,
Stevensville, MD, USA; Univ. Del., Dep. Civ. Eng., USA Conference:
Seventeenth coastal engineering conference Sydney, Australia, March
23-28, 1980.

sedimentation/ocean waves/transport/breaking
waves/oceanography/marine transport/littoral drift/rates/nearshore
sedimentation/nearshore environment/shorelines/Channel Islands
Harbor/engineering/environmental geology.

1811. Yochem PK, Stewart BS, DeLong RL, DeMaster DP. Diel
haul-out patterns and site fidelity of harbor seals (*Phoca vitulina
richardsi*) on San Miguel Island, California, in autumn. MAR. MAMM.
SCI 1987;3(4):323-332. The authors studied the haul-out patterns
and movements of harbor seals (*Phoca vitulina richardsi*) on San
Miguel Island, California, from 23 October through 6 December 1982
by attaching a radio transmitter to each of 18 seals and monitoring
their presence ashore with continuously scanning receivers. Seals
hauled out at all hours although, on average, the largest
proportion of tagged seals was ashore between 1300 and 1500 h.
Median durations of haul-out bouts of individual seals ranged from
4.7 to 21.8 h; 81% of all haul-out bouts were less than 12 h and 3%
were longer than 24 h. Eighty-one percent of the seals that were
resighted at least twice used only the sites where they were
tagged; two seals used two sites and one seal used three.
USA/California/San Miguel Island/movements/population
levels/activity patterns/diurnal variations/local movements/*Phoca
vitulina*

richardsi/INE/USA/California/San Miguel Island/haul-out
behavior/ASFA.

1812. Hom W, Risebrough RW, Soutar A, Young DR. Deposition
of DDE and polychlorinated biphenyls in dated sediments of the
Santa Barbara Basin. Calif., Univ., Scripps Inst. Oceanogr.,
Contrib. Reprint from Science, Vol. 184, June 14, 1974 1974;44(part
2):p.1492-1494

Univ. Calif., Bodega Mar. Lab., Bodega Bay, Calif., United-States;
Scripps Inst. Oceanogr., United States Analytic; Serial B;
Bibliography and Index of Geology (1969-present).
California/environmental geology/pollution/Santa Barbara
Basin/water/sediments/cores/marine/DDE/biphenyls/polychlorinated/
age/rates/effects/ecosystems/United States/GEOREF.

1813. Colton MC, Mooers CNK. Meteorological Data from the
OPTOMA (Ocean Prediction through Observations, Modeling and
Analysis) Program OPTOMA II, Leg DII. 30 June - 10 July, 1984.
Master's thesis. [dissertation] ; 1985. 79p. Performer: Naval
Postgraduate School, Monterey, CA

The OPTOMA (Ocean Prediction Through Observations, Modeling and
Analysis) Program seeks to understand the mesoscale (front, eddies,
and jets) variability and dynamics of the California Current System
and to determine the scientific limits to practical mesoscale ocean
forecasting. This report presents the meteorological data acquired
by twenty-six radiosondes launched during the hydrographic cruise
OPTOMAll, Leg DII (30 June to 10 July, 1984). To compare the
prevailing atmospheric and oceanic conditions, the radiosonde
potential temperature and specific humidity profiles are plotted
with nearly coincident XBT temperature profiles. Also included are:
1) time series plots of hourly dry-bulb and wet-bulb temperatures
and hourly wind velocities, 2) an AVHRR image, and 3) National
Weather Service surface pressure analyses for the cruise period.
Keywords Radiosonde data; Coastal meteorology; Air/Sea interaction;
Atmospheric boundary layer; Oceanic mixed layer; California current
system.

Atmospheres/Boundary layer/California/Coastal
regions/Dynamics/Humidity/Limitations/Meteorological
data/Meteorology/Oceans/Plotting/Predictions/Profiles/Radiosondes
/Temperature/Time series analysis/Wind velocity/Eddies Fluid
mechanics/Atmospheric temperature/Bathythermograph data/Jet
flow/Barometric pressure/Marine atmospheres/North pacific
ocean/Observation/Forecasting/Air water interactions/Ocean
currents/Marine meteorology/OPTOMA Ocean Prediction Through
Observations Modeling and Analysis/California current/Atmospheric
boundary layer/Mesoscale forecasting/NTIS.

1814. BASYE DE. SANTA BARBARA SPARKLING IN THE WAKE OF
CLEAN-UP JOB. OIL AND GAS JOURNAL 1969;67(34, P. 33-38, AUG. 25,
1969. NO ABS., 4 FIGS., NO REFS) UNKNOWN.
SANTA BARBARA CHANNEL/POLLUTION CONTROL/OIL
POLLUTION/METHODS/RESULTS/ECOLOGICAL EFFECTS/OCEANIC ABSTRACTS.

1815. Bruno RO, Dean RG, Gable CG, Walton JTL. Longshore
Sand Transport Study at Channel Islands Harbor, California. :
Coastal Engineering Research Center, Fort Belvoir, VA. CERC-
TP-81-2; 1981. 50.

A field experiment was conducted to develop correlations between
wave characteristics and longshore sediment transport. The waves
were measured by two near-bottom mounted pressure transducers and
by visual observation when pressure transducers were not in
operation. The average longshore sediment transport rates were
determined from sequential volumetric surveys behind an offshore

breakwater which was regarded as a total trap. The data analyzed encompass a period of 2 years, 1 year after each dredging cycle. Spectral analyses of the pressure gage wave data were conducted and yielded one direction per frequency. The correlations include immersed weight sediment transport rate, I , versus longshore component of wave energy flux at breaking, P sub ls. The most widely used correlation constant, K , in the relationship $I = KP$ sub ls is 0.77. The value determined from the data was $K = 0.98$, based on the P sub ls values directed toward the trap. One feature of this type of trap is the potential for overtrapping if the waves are directed nearly normal to shore.

Sediment

transport/Harbors/California/Beaches/Sand/Profiles/Modification/Variations/Surveys/Ocean waves/Measurement/Longshore sand transport/Channel Islands Harbor/Earth Sciences/Oceanography/Engineering/Marine Geology.

1816. Antonelli GAJ, Lowry MS, DeMaster DP, Fiscus CH. Assessing northern elephant seal feeding habits by stomach lavage. MAR. MAMM. SCI 1987;3(3):308-322. Stomach lavaging was used to study the feeding habits of northern elephant seals (*Mirounga angustirostris*) found on San Miguel Island, California, during the spring of 1984. The stomachs of 57 (96.6%) of the animals lavaged contained identifiable parts of prey. Twenty-nine different food items were identified, 12 of which have not been previously reported as prey of the northern elephant seal: two teleost fish, *Coryphaenoides acrolepis* (Pacific rattail) and another unidentified macrourid; two crustaceans, *Pasiphaea pacifica* (glass shrimp) and *Euphausia* sp.; six squid, *Abraliopsis felis*, *Gronatus berryi*, *Histioteuthis dofleini*, *Cranchia scabra*, *Taonius pavo*, and *Galiteuthis* sp. and two octopi, *Octopus dofleini* and *Octopus rubescens*.

USA/California/San Miguel Island/diets/food organisms/Mirounga angustirostris/INE/USA/California/San Miguel I./ASFA.

1817. Koide M, Griffin JJ, Goldberg ED. Records of plutonium fallout in marine and terrestrial samples. J. Geophys. Res. 1975;80(30):p.4153-4162 Scripps Inst. Oceanogr., La Jolla, Calif., United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present).

plutonium/abundance/sediments/marine/terrestrial/accumulation/sources/transport /wind transport/stream transport/United States/California/south/Mexico/Baja California/North America/geochemistry/Santa Barbara Basin/Soledad Basin/sedimentation/composition/lead/isotopes/comparison/fallout/GEOREF.

1818. Coyer JA. Invertebrate Assemblage Associated with the Giant Kelp, '*Macrocystis pyrifera*' at Santa Catalina Island, California: A General Description with Emphasis on Amphipods, Copepods, Mysids and Shrimps. Journal article. Fishery Bulletin 1984;82(1):p.55-66

Performer: University of Southern California, Los Angeles. Inst. for Marine and Coastal Studies.

Funder: National Oceanic and Atmospheric Administration, Rockville, MD. Office of Sea Grant.

The motile invertebrate assemblage associated with the giant kelp, *Macrocystis pyrifera*, fronds was examined monthly from June 1975 through December 1976, at Santa Catalina Island, California. Replicate samples were collected from each of three vertical zones (canopy (C), middle (M), bottom (B)). The number of species collected from all zones were 114 and ranged from 51 to 75 for any given month. The assemblage displayed three patterns of vertical

stratification within the *Macrocystis* forest: (1) The mean number of species progressively decreased from the bottom to the canopy; (2) more individuals and a greater total biomass were present in the lower zones than in the canopy; and (3) the mean lengths of gammarids, mysids, and shrimps were significantly larger and proportionately greater numbers of large individuals were present in the canopy than in either of the lower zones.

Abundance/Crustacea/Shrimps/Santa Catalina
Island/California/Reprints/Invertebrates/Sea
grasses/Ecology/Kelp/Habitats/*Macrocystis pyrifera*/Plant
canopy/NTIS.

1819. ANONYMOUS. SANTA BARBARA CLEANS UP. OFFSHORE
1969;29(10, P. 86,89, SEPT. 1969. NO ABS., NO REFS)
UNKNOWN.

POLLUTION CONTROL/SANTA BARBARA CHANNEL/CONTAINER SHIPS/OIL
POLLUTION/UNDERWATER TENTS/OCEANIC ABSTRACTS.

1820. Bruno RO, Watts GM, Gable CG. Sediments impounded by
an offshore breakwater. : Coastal Engineering Research Center Fort
Belvoir Va. CERC-REPRINT-78-8; 1978. 20.

The breakwater and entrance jetties for the Channel Islands Harbor
in California form a total littoral barrier to longshore sand
transport. The sand impounded by these structures was monitored by
repetitive bathymetric surveys and systematic surface sand
sampling. This paper discusses patterns of sediment deposition
behind an offshore breakwater. Data collected were studied to
determine if the deposition observed agrees with that predicted
prior to construction. Both the geometry and size distribution of
the deposition sediment are examined. Three dimensional computer
plots are used to illustrate filling patterns. Sediment size and
sorting distribution which occur during filling are investigated.
Analyzed data allows an evaluation of predicted verses actual
filling patterns. Sediment distribution in the impoundment area was
evaluated.

Breakwaters/Sedimentation/Offshore
structures/Sand/Deposits/Filling/Sediments/Sizes
(Dimensions)/Distribution/Computer graphics/Shores/Protection/Ocean
waves/Channel Islands
Harbor/Mechanical/Industrial/Civil/Marine/Engineering.

1821. Benson MR. A demographic study of *Dictyopteris*
undulata Holmes (*Dictyotales*, *Phaeophyta*) at Santa Catalina Island,
California. *PHYCOLOGIA* 1986;25(4):448-454.

The demography of *Dictyopteris undulata* Holmes was studied between
1979 and 1982 at Isthmus Reef, Santa Catalina Island, California
(USA), at depths ranging from 4.6 to 10.7 m below mean lower low
water. Maximum density of plants of taggable size (6 cm) occurred
at about 6.1 m. Maximum plant height increased significantly with
depth. The species was an annual. Reproductive plants were first
observed 6-8 months after recruitment and were most abundant in
autumn. Plants at the deepest depth studied (10.7 m) had the
highest survival rate. Plant loss was due either to detachment of
the holdfast from the substrate or to breakage of the stipe. Plants
could recover from extensive damage by regrowth from the midribs.
demography/reefs/islands/USA/California/USA/California/Santa
Catalina Island/life history/*Dictyopteris*
undulata/autecology/INE/USA/California/ Santa Catalina I./ASFA.

1822. Lee T, Henyey TL. Heat flow through the southern
California borderland. *J. Geophys. Res.* 1975;80(26):p.3733-3743
Univ. South Calif., Los Angeles, Calif., United-States Analytic;
Serial B; Bibliography and Index of Geology (1969-present).

heat flow/United States/California/south/Sierra Nevada/Basin and Range Province/geothermal gradient/conductivity/regional patterns/measurement/data/interpretation/geophysical surveys/GEOREF.

1823. D'Asaro EA. XCP (expendable current profiler), measurements off California in October 1982: Cruise report and preliminary results. Final report. 1984;:33. ocean currents/temperature/Hickey/physical oceanography/north pacific ocean/velocity/horizontal orientation/depth/profiles/MINERALS MANAGEMENT SERVICE.

1824. Weller RA (Performer: Woods Hole Oceanographic Institution, MA). Near Surface Velocity Variability at Inertial and Subinertial Frequencies in the Vicinity of the California Current. Technical rept. ; 1985. Report No.: WHOICONTRIB5632. 16p. Pub. in Jnl. of Physical Oceanography, v15 n4 p372-385 Apr 85. PC A02/MF A01 Contracts: N0001475C0152, N0001476C0197. Observations of the horizontal velocity field in the upper 150 m, made from the Research Platform FLIP as it drifted off the coast of Baja California, were used to examine the variability of the velocity field and its relation to local wind forcing. At subinertial frequencies a spatially varying flow field associated with the California Current System was encountered. In addition, there was low frequency near-surface flow to the right of the wind stress that decayed with depth. At near-inertial frequencies oscillatory motion with an amplitude of up to 40 cm/s was observed. Most of the energy in the near-inertial frequency band was associated with modes with vertical wavelengths large compared to the thickness of the mixed layer. The local wind alone had neither the strength nor the variability needed to directly produce the observed inertial period variability. It is suggested that FLIP encountered regions in which the shear of the quasi-geostrophic flow resulted in localized intensifications of near-inertial motion.

Air water interactions/Oscillation/Inertia/Flow fields/Horizontal orientation/Velocity/Variations/Mixed layer Marine/Pacific Ocean/Shear properties/Mexico/Coastal regions/Reprints/Ocean currents/Wind/California current/Wind driven flow/Baja California/Wind stress/Geostrophic flow/FLIP oceanographic ship/NTIS.

1825. ANONYMOUS. ENGINEERS VERIFY FULL CHANNEL RECOVERY. OIL AND GAS JOURNAL 1969;67(37, P. 51-52, SEPT. 15, 1969. NO ABS., 2 FIGS., NO REFS) UNKNOWN. SANTA BARBARA CHANNEL/POLLUTION/OCEANIC ABSTRACTS.

1826. Davis CC. Observations of circulation and suspended-sediment transport over part of southern California borderland from satellite imagery. Am. Assoc. Pet. Geol. Bull. 1976;60(4):66. Pacific Ocean/oceans/circulation/sedimentation/marine geology/Hickey/physical oceanography/continental shelf/United States/California/continental/borderland/patterns/remote sensing/satellite/Landsat/marine transport/transport/Eganhouse/geochemistry/chemical oceanography/transport/continental shelf/borderland/landsat/MINERALS MANAGEMENT SERVICE.

1827. Cicin-Sain B. Offshore oil development in California: Challenges to governments and to the public interest. PUBL. AFF. REP 1986;27(1-2). The purpose of this paper is to characterize the major challenges to governments and to the public that are posed by the accelerated pace in oil development now taking place offshore

California. In recent years, huge oil discoveries have been made off the South/Central Coast of California in the Santa Barbara Channel and in the Santa Maria Basin. A number of oil development proposals are now being considered by relevant federal, state, and local authorities. The article first characterizes the magnitude of the current oil build-up, placing it in historical perspective. Next, it describes the major issues posed by accelerated development, and the complex of federal, state, and local laws that govern offshore oil extraction. The analysis highlights management dilemmas faced by local authorities in coping with the increase in oil activity.

drilling/oil and gas industry/government
policy/legislation/economic analysis/INE/USA/California/ASFA.

1828. McCaslin JC. Dos Cuadras; nary a ripple since blowout. Oil Gas J. 1976;74(4):p.193
Analytic; Serial B; Bibliography and Index of Geology (1969-present). California/economic geology/petroleum/Santa Barbara Channel/Dos Cuadras/United States/exploration/production/offshore/blowouts/seepage/GEOREF.

1829. Eppley RW (Performer: California Univ., San Diego, La Jolla. Inst. of Marine Resources. Funder: Department of Energy, Washington, DC.) Research on the Marine Food Chain. Final Technical Report. ; 1985. Report No.: DOEER60031T1. 334p. Portions of this document are illegible in microfiche products. PC A15/MF A01 Contract: AS0382ER60031. This final report includes summaries of the Food Chain Research Group's extensive basic research in Southern California Bight waters and on planktonic organisms which are important components of the bight's pelagic food web. Additionally, the report conveys much of the information resulting from biological, chemical and physical oceanographic research by others active in the study of the pelagic realm of the Bight, especially that conducted during the last several decades. Hence, the book is intended to be a comprehensive description and analysis of the pelagic food web form and function in the Bight and of interactions between food web components and the environmental parameters affecting these. It is presented in a style intended to be informative to the layman as well as the scientist interested in the important coastal resources represented by the Southern California Bight. (ERA citation 10:047262).
Baseline Ecology/California/Coastal Waters/Leading Abstract/Plankton/Research Programs/Water Currents/Aquatic Ecosystems/Food Chains/ERDA/520100/NTIS.

1830. FOSS RE. IN THE CASE OF SANTA BARBARA. PART II- THE IMPLICATIONS. OUR SUN. SUN OIL COMPANY 1969;34(2, P. 16-17, SUMMER 1969. NO ABS., NO REFS) UNKNOWN.
OIL POLLUTION/SANTA BARBARA CHANNEL/POLLUTION/INDUSTRY POINT OF VIEW/OCEANIC ABSTRACTS.

1831. Burk RL. Factors affecting 18 O/ 16 O ratios in cellulose [dissertation]. Seattle, Wash.: University of Washington; 1979. 139.
oxygen/isotopes/paleoclimatology/paleobotany/biochemistry indicators/O-18 O-16/ratios/cellulose/carbohydrates/organic materials/tree rings/geochemistry/fractionation/climate temperature/atmospheric precipitation/Holocene/Quaternary/modern Plantae/California/Washington/Alaska/Jefferson County/Pierce County/Santa Barbara County/Destruction Island/Mount Rainier/Barrow Bethel/Santa Maria/ paleontology/paleobotany.

1832. Smith KLJ, Carlucci AF, Jahnke RA, Craven DB. Organic carbon mineralization in the Santa Catalina Basin: Benthic boundary layer metabolism. DEEP-SEA RES 1987;34(2A):185-211.

Organic carbon mineralization rates in the benthic boundary layer (BBL) of the Santa Catalina Basin (1300 m depth) were estimated to identify the primary sites and organisms involved in the turnover of carbon and to compare these rates with the supply of particulate organic matter entering the system from above. Concurrent in situ measurements of macrozooplankton, epibenthic megafauna, and sediment community oxygen consumption, and bacterioplankton and total microbial (microplankton) metabolism were made in November 1984. Pore water and solid phase chemistries, and sediment microbial activity were measured on samples from box cores.

benthic boundary layer/organic carbon/mineralization/metabolism/benthos/Pacific Ocean/Santa Catalina Basin/boundary layers/benthic environment/carbon/organic matter/INE/Santa Catalina Basin/ASFA.

1833. Oil and gas development in the Santa Barbara Channel outer continental shelf off California; final environmental statement; 3 volumes. 1975 U. S. Geological Survey, Reston, Va., United-States Monographic; Report B; Bibliography and Index of Geology (1969-present) U. S. Geol. Surv., Wash., D.C., United States.

California/environmental geology/impact statements/continental shelf/outer shelf/Santa Barbara Channel/oceanography/areal geology/geologic hazards/exploration/petroleum/gas/natural/drilling/maps/United States/GEOREF.

1834. Boynton R, Fallert R (Performer: Economic Research Service, Washington, DC. National Economics Div.) Nationwide Adoption of the California Solids Standards for Fluid Milk Products: Issues and Impacts. Staff rept. ; 1984. Report No.: AGES840816. 53p.

Nationwide adoption of standards similar to the current California standards for fluid milk products would result in increased retail prices for fluid milk products of about 3.5 cents per half gallon (3 percent). The change in standards would generally increase the nutrient content of milk and have positive nutritional benefits for most Americans. The new standards could cause problems for groups with special dietary concerns and would cost an estimated \$5.9 million annually to effectively enforce. Adoption of higher standards could result in somewhat increased sales of butterfat and solids-not-fat in fluid milk products but the magnitude is unclear. In addition, the new standards likely would result in only a small reduction in purchases of dairy products by the Government in surplus periods.

Milk/Prices/Dairy products/Standards/Nutrition/Diets/Solids/Marketing/Law enforcement/California/Milk/Prices/NTIS.

1835. KLAUS RL. IN THE CASE OF SANTA BARBARA. PART I- THE SITUATION. OUR SUN. SUN OIL COMPANY 1969;34(2, P. 3-15, SUMMER 1969. NO ABS., 17 FIGS., NO REFS. SEE ALSO- OI ACCESSION NO. 69-10076)

UNKNOWN.
POLLUTION/OIL POLLUTION/SANTA BARBARA CHANNEL/ECOLOGY/OCEANIC ABSTRACTS.

1836. Sekiguchi H. Essays on recent studies concerning survival of larval fishes in the sea. BULL. JAP. SOC. FISH.

OCEANOGR./SUISAN KAIYO KENKYUKAIHO. 1983;(42):49-50.

Recent studies are reviewed on the survival of the larvae of *Engraulis mordax* in the California Current seen from the relation between successful first feeding and chlorophyll maximum layers. Previous studies which concluded that their main food were eggs and nauplii of copepods are critiqued.
survival/fish larvae/chlorophylls/feeding/food
organisms/Clupeiformes/Engraulis mordax/INE/California
Current/INW/Japan/ASFA.

1837. Truex JN. Santa Monica and Santa Ana mountains; relation to Oligocene Santa Barbara Basin. Am. Assoc. Pet. Geol., Bull. 1976;60(1):p.65-86 THUMS Long Beach Co., Long Beach, Calif., United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present).
Ventura County/Los Angeles County/Orange
County/California/structural
geology/orogeny/tectonics/faults/south/Santa Monica Mountains/Santa Ana Mountains/Santa Barbara Basin/petroleum/United States/Ventura Basin/Los Angeles
Basin/stratigraphy/paleogeography/displacements/Tertiary/Miocene/Luisian/evolut
ion/interpretation/basins/reconstruction/extent/periodicity/GEOREF.

1838. Anderson VC (Performer: Scripps Institution of Oceanography, La Jolla, CA. Marine Physical Lab.) Anomalous Absorption. Management rept. 1 Oct-31 Dec 79. ; 1979. Report No.: MPLU1780. 6p.

PC A02/MF A01 Contract: N0001480C0091, ARPAOrder220.

The primary objective of this program is to observe and correlate in a quantitative manner the anomalous frequency dependent acoustic absorption caused by fish and fish larvae with the type and abundance of the fish and larvae population as determined by net hauls. Such a characterization of the absorption will allow tactical sonar performance prediction to draw on fisheries surveys of regional productivity as a data bank for prediction of anomalous absorption in the mobile passive sonar band. Cooperative support has been offered by the National Bureau of Fisheries for the program by way of ship time on the DAVID STARR JORDAN for deploying and recovering the buoy systems and in collecting and supplying net haul data at the buoy stations during the data collection period. The scope of the program includes the design, fabrication and testing of the automatic data collection buoy system in the first year, followed by a two year program of data collection in the southern California current.

Acoustic absorption/Frequency/Passive sonar/Underwater
acoustics/Ocean currents/North Pacific Ocean/Data
bases/Fisheries/Surveys/Larvae/Population/Anomalies/Fishes/Produc
tivity/Acoustic absorption/Net hauls/California Current/Anomalous
absorption/NTIS.

1839. SEIDEL W. MIDWATER SCHOOL FISH SURVEY OFF THE SOUTHEAST COAST OF THE U.S., USING STANDARD HIGH-FREQUENCY VERTICAL SOUNDER. U.S. BUREAU OF COMMERCIAL FISHERIES. ACOUSTICAL WORKSHOP. ABSTRACT. PROCEEDINGS. PEREYRA, WALTER T., ED. HELD IN SEATTLE, WASH., NOV. 25-27, 1968. P. 31. JAN. 1969. ABS. ONLY 1969 UNKNOWN. FISH SCHOOLS/ACOUSTIC SURVEYS/CALIFORNIA CURRENT/Oceanic Abstracts.

1840. Bush DM, Hall PR,J. Computer-assisted prospect generation in a frontier basin. AAPG annual convention with divisions SEPM/EMD/DPA. AAPG Bulletin 1982;66(5):555
Address: Pennzoil Explor. Prod. Co., Houston, TX, USA; Nortex Gas and Oil Co., USA Conference: AAPG annual convention with divisions

SEPM/EMD/DPA Calgary, AB, Canada, June 27-30, 1982.
automatic data processing/petroleum/economic
geology/exploration/techniques/automatic cartography/Santa Barbara
channel basin/energy sources/Santa Barbara Channel Basin/economic
geology/energy sources.

1841. McCaslin JC. California shelf has vast reserve
potential. Oil Gas J. 1975;73(3):p.115
Oil & Gas Jour., Tulsa, Okla., United-States Analytic; Serial B;
Bibliography and Index of Geology (1969-present).
petroleum/United States/California/continental
shelf/possibilities/reserves/structure/economic geology/Eel River
Basin/Santa Barbara Channel/GEOREF.

1842. Anderson VC (Performer: Scripps Institution of
Oceanography, La Jolla, CA. Marine Physical Lab.) Anomalous
Absorption. Management rept. 1 Jan-31 Mar 80. ; 1980. Report No.:
MPLU3280. 6p.
PC A02/MF A01 Contract: N0001480C0091, ARPAOrder220.
The primary objective of this program is to observe and correlate
in a quantitative manner the anomalous, frequency dependent
acoustic absorption caused by fish and fish larvae with the type
and abundance of the fish and larvae population as determined by
net hauls. Such a characterization of the absorption will allow
tactical sonar performance prediction to draw on fisheries surveys
of regional productivity as a data bank for prediction of anomalous
absorption in the mobile passive sonar band. Cooperative support
for the program has been offered by the National Bureau of
Fisheries by way of ship time on the DAVID STAR JORDAN for
deploying and recovering the buoy systems and in collecting and
supplying net haul data at the buoy stations during the data
collection period. The scope of the program includes the design,
fabrication and testing of the automatic data collection buoy
system in the first year, followed by a two year program of data
collection in the southern California current.
Acoustic absorption/Underwater
acoustics/Anomalies/Fishes/Larvae/Population/Passive
sonar/Fisheries/Surveys/Productivity/Data bases/Ocean
currents/North Pacific Ocean/Acoustic absorption/Anomalous
absorption/California Current/Net hauls/NTIS.

1843. SMITH PE. SEASONAL AND GEOGRAPHIC CHARACTERISTICS OF
FISHERY RESOURCES. CALIFORNIA CURRENT REGION - II. PACIFIC SAURY.
COMMERCIAL FISHERIES REVIEW, 32(6): 47-51, JUNE 1970 1970
UNKNOWN.
FISHERIES RESOURCES/CALIFORNIA
CURRENT/SAURIES/ZOOGEOGRAPHY/SEASONAL VARIATIONS/OceanAbstracts.

1844. California Univ. BDoAS. California Squid Fishery. :
LEAFLET-21330; NOAA-83062902; 1983. 17. ((Sponsored by California
State Resources Agency.;National Oceanic and Atmospheric
Administration, Rockville, MD. Office of Sea Grant.)).
Note: Prepared in cooperation with California State Resources
Agency. Squid usually migrate into shallow waters of 15 to 35
meters in depth to spawn, although some trawlers claim to have
captured squid egg capsules at depths exceeding 100 meters.
Spawning aggregations occur most frequently during winter in
southern California and progressively later in the season further
northward. Major spawning areas have been documented for years in
Monterey Bay, near La Jolla, and near the Channel Islands. These
spawning aggregations support the bulk of the existing fishery.
Larval squid hatch after 3 weeks, depending on water temperature.
Little is known about the life history of the market squid between

hatching and maturity. Squid are important predators; research has shown that squid feed most heavily during daylight hours, primarily on euphausiids, copepods, megalops larvae, mysids, amphipods, fish, and other cephalopods. Market squid are themselves an important prey of sharks, fishes, seabirds, and marine mammals. Life cycles/Squids/Monterey Bay/Animal migrations/Shallow water/Eggs/Winter/Abundance/Females/Depths/Feeding/spawning/larvae/predation/Squid/California Channel Islands/Monterey Bay/La Jolla/marine biology/fisheries management/resource management.

1845. Day PC. Factors influencing sediment distributions and patterns on shallow, high energy insular platform, northern Channel Islands, California. Am. Assoc. Pet. Geol. Bull. 1977;61(5):779. California/sedimentation/sediments/oceanography/environmental analysis/transport/Channel Islands/marine environment/composition/granulometry/Holocene/modern/United States /marine transport/shallow-water environment/platforms/continental borderland/energy/patterns/deposition/controls/Pacific Ocean/Hood/ecosystem/Hickey/physical oceanography/MINERALS MANAGEMENT SERVICE.

1846. Krishnaswami S, Somayajulu BLK. (210)Pb/(226)Ra disequilibrium in the Santa Barbara Basin. Earth Planet. Sci. Lett. 1975;27(3):p.388-392 Analytic; Serial B; Bibliography and Index of Geology (1969-present). Pacific Ocean/geochemistry/isotopes/lead/radium/sea water/north/United States/California/Santa Barbara Basin/radionuclides/Ra 226/Pb 210/disequilibrium/Pb 210/Ra 226/ratios/radon/Rn 222/analysis/data/GEOREF.

1847. Anderson VC (Performer: Scripps Institution of Oceanography, La Jolla, CA. Marine Physical Lab.) Anomalous Absorption. Management Report for the Period 1 January 1981 thru 31 March 1981. Research and Development status rept. ; 1981. Report No.: MPLU4081. 7p. See also AD-A147 147. PC A02/MF A01 Contract: N0001480C0091, ARPAOrder220. No abstract available. Acoustic absorption/Underwater acoustics/Anomalies/Fishes/Larvae/Population/Passive sonar/Fisheries/Surveys/Productivity/Data bases/Ocean currents/North Pacific Ocean/Acoustic absorption/Anomalous absorption/California current/Net hauls/NTIS.

1848. Cann LR. Slide-mudflow, Fishermans Cove area, Santa Catalina Island. E.M. Gath, M.M. Bottoms. Geology of Santa Catalina Island. : South Coast Geol. Soc.; 1985. 73-81. mass movements/landslides/mudflows/guidebook/morphometry/schists/rhyolite/andesite/breccia/colluvium/alluvium/slumping/Santa Catalina Island/Fishermans Cove/Big Fisherman's Cove/surficial geology/geomorphology.

1849. Winter A. Distribution of living coccolithophores in the California Current system, southern California borderland. MAR. MICROPALAEONTOLOGY 1985;9(5):385-393. The distribution of living coccolithophores in the California Current system of southern California at 10 water depth was investigated on two dates in March and June, 1982. Six closely spaced stations were sampled in March, of which three were resampled in June. Thirty-six euphotic species were identified of which four, *Emiliana huxleyi*, *Umbilicosphaera sibogae*, *Gephyrocapsa oceanica*, and *Rhabdosphaera longistylis*, respectively, were the most abundant. Both the "cold" and "warm"

morphotypes of *E. huxleyi*, were present, in varying proportions. Large ranges in community structure, diversity (0.35-2.64 natural logs), and standing crop (1.0×10^4 - 6.2×10^5 cells/l) were recorded. This range of end-member values is approximately that found in the open ocean from 0 degree to about 65 degree latitude.

micropaleontology/check lists/living fossils/Coccolithophoraceae/INE/ California Current/water masses/ASFA.

1850. McCulloch TH. Geology of Santa Barbara spill; before and after. Am. Assoc. Pet. Geol., Bull. 59. AAPG distinguished lecturers. 1975;59(11 Part 1):p. 2196-2197
U. S. Geol. Surv., Univ. Wash., Seattle, Wash., United-States Analytic; Serial; Abstract B; Bibliography and Index of Geology (1969-present). California/economic geology/petroleum/offshore/Santa Barbara Channel/United States/production/recommendations/wells/development/rapid/seepage/abatement/env ironmental geology/oil spills/pollution/sea water/Pacific Ocean/oil and gas fields/structure/GEOREF.

1851. Anderson VC (Former: Scripps Institution of Oceanography, La Jolla, CA. Marine Physical Lab.) Anomalous Absorption. Management Report for the Period 1 July-30 September 1980. Research and development status rept. ; 1980. Report No.: MPLU6780. 7p.
See also AD-A147 147. PC A02/MF A01 Contract: N0001480C0091, ARPAOrder220. No abstract available.
Acoustic absorption/Underwater acoustics/Anomalies/Fishes/Larvae/Population/Passive sonar/Fisheries/Surveys/Productivity/Data bases/Ocean currents/North Pacific Ocean/Acoustic absorption/Anomalous absorption/California Current/Net hauls/NTIS.

1852. AHLSTROM EH. KINDS AND ABUNDANCE OF FISH LARVAE IN THE EASTERN TROPICAL PACIFIC, BASED ON COLLECTIONS MADE ON EASTROPAC I. U.S. NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION. NATIONAL MARINE FISHERIES SERVICE. FISHERY BULLETIN, 69 (1): 3-77, JAN. 1971
1971
UNKNOWN.
FISH LARVAE/PLANKTON/PACIFIC OCEAN TROPICAL/CALIFORNIA CURRENT/DISTRIBUTION PATTERNS/SPECIES GRADIENT/OceanAbstracts.

1853. Capelle GA, Franks LA, Jessup DA. Aerial testing of KrF-laser-based fluorosensor. : EG and G, Inc., Goleta, CA. DOE/NV/10282-T2; 1981. 27. ((Sponsored by Department of Energy, Washington, DC.)).
An airborne two-channel KrF laser fluorosensor was tested from a Convair 580-T over targets at the Nevada Test site, and at the Naval Petroleum Reserve and Santa Barbara Channel in California. The two spectral-channel system (295 and 395 nm) successfully detected a variety of pollutant-type materials on the ground, both at night and in full daylight.
Air Pollution Monitors/Aerial Monitoring/Flight Testing/Gas Lasers/Telescopes/Noise/Signals/Spectral Response/Santa Barbara Channel/Nevada Test site/Mechanical/Industrial/Civil/Marine/Engineering/Air Pollution.

1854. Briggs KT, Chu EW. Trophic relationships and food requirements of California seabirds: Updating models of trophic impact. SEABIRDS. FEEDING ECOLOGY AND ROLE IN MARINE ECOSYSTEMS. 1987;(p.279).
The California Current system comprises some of the world's most

productive marine waters. From an oceanographic and fisheries standpoint this region is perhaps the best studied in the world, but the role of seabirds and other predators is only now emerging. In this chapter the authors apply new approaches to a familiar bioenergetics model to assess the impact of California coastal seabirds on marine prey populations. The model is based on comprehensive population studies done from mid-1975 through early 1978 in southern California, and 1980 through 1982 in central and northern California, (Briggs et al., 1981 a,b, 1984), as part of our work focusing on all seabird and marine mammal populations in habitats targeted for oil and gas leasing.
trophic relationships/food consumption/coastal waters/USA/California/bioenergetics/Aves/INE/California Current/ISE/California Current/ASFA.

1855. Mattson JS, Mark HBJ, Yu T, Kolpack RL. Quantitative analysis of hydrocarbons in sediments by internal reflection spectroscopy. Abstracts of papers; Joint Southeast-Southwest regional (ACS) meeting. p. 206. ; 1970. Gulf Gen. At. Inc., San Diego, Calif., United-States; Univ. Mich. Amer. Chem. Soc. Analytic; Book; Abstract B; Bibliography and Index of Geology (1969-present).
California/geochemistry/hydrocarbons/sediments/Santa Barbara Channel/carbon/organic/quantitative analysis/spectroscopy/infrared/United States/marine geology/Pacific Ocean/organic materials/GEOREF.

1856. Anderson VC (Performer: Scripps Institution of Oceanography, La Jolla, CA. Marine Physical Lab.) Anomalous Absorption. Management Report for the Period 30 September-31 December 1980. Research and development status rept. ; 1980. Report No.: MPLU1381. 6p.
See also AD-A147 147. PC A02/MF A01 Contract: N0001480C0091, ARPAOrder220. No abstract available.
Acoustic absorption/Underwater acoustics/Anomalies/Fishes/Larvae/Population/Passive sonar/Fisheries/Surveys/Productivity/Data bases/Ocean currents/North Pacific Ocean/Acoustic absorption/Anomalous absorption/Southern California current/Net hauls/NTIS.

1857. Cass VL. Exploitation of California sea lions, *Zalophus californianus* , prior to 1972. Mar. Fish. Rev. 1985;47(1):36-38
Address: Southwest Fish. Cent., NMFS, NOAA, P.O. Box 271, La Jolla, CA 92038, USA.
This article summarizes the results of an investigation made into historical sealing activities on the California coast and Channel Islands. Of primary interest were the numbers of California sea lions, *Zalophus californianus* , killed on San Miguel Island. The harvesting of the northern or Steller sea lion, *Eumetopias jubatus* , is also discussed. Literature was reviewed for records on the number of sea lions taken for commercial purposes. Many other potential sources of information on numbers of animals killed were also investigated. harvesting/exploitation/California sea lions/*Zalophus californianus*/northern sealion/Steller sea lion/*Eumetopias jubatus*/California coast/California Channel Islands/San Miguel Island/marine biology/mammalogy.

1858. Defran RH, Kelly DL, Shultz GM, Weaver AC, Espinoza MA. Occurrence and movements of the bottlenose dolphin in the Southern California Bight (abstract). Seventh Biennial Conference on the Biology of Marine Mammals, December 1987, Miami, Florida 1987;

1859. Beers JR, Trent JD, Reid FMH, Shanks AL.

Macroaggregates and their phytoplanktonic components in the Southern California Bight. J. PLANKTON RES 1986;8(3):475-487. The abundances of phytoplankton associated with scuba-collected, visible macroaggregates from various euphotic zone depths of several nearshore and offshore sites sampled in late winter/early spring and summer were determined by microscopic study. Such phytoplankters have a different potential for predator/prey interactions than they would as separate individuals. Mean macroaggregate concentrations of 1.7-7.61 super(-1) and mean individual macroaggregate sizes of 2.7-175 mm super(3) were observed at the different sites. Phytoplankters associated with the macroaggregates were generally a few percent or less of the total phytoplankton (range for numbers, 0.2-2.5%; range for carbon, 0.2-7.1%; n = 11).

aggregation/phytoplankton/food webs/biomass/predator-prey interactions/USA/California Coast/organism aggregations/predation/INE/Southern California Bight/ASFA.

1860. Platt JP. Metamorphic and deformational processes in the Franciscan Complex, California; some insights from the Catalina Schist terrane. Geol. Soc. Am., Bull. 1975;86(10):p.1337

Analytic; Serial B; Bibliography and Index of Geology (1969-present). Los Angeles County/Franciscan Formation/California/petrology/metamorphism/schist/Mesozoic/Tertiary/Franciscan Complex/Santa Catalina Island/P T conditions/high pressure/zoning/grade/age/tectonics/plate tectonics/models/processes/blueschist/greenschist/eclogite/evolution/subduction /metamorphic rocks/metasedimentary/structural complexes/United States/schists/genesis/GEOREF.

1861. Anderson VC (Performer: Scripps Institution of Oceanography, La Jolla, CA. Marine Physical Lab.) Anomalous Absorption. Management Report for the Period 1 April-30 June 1980. Research and development status rept. ; 1980. Report No.: MPLU3880. 6p.

See also AD-A147 146. PC A02/MF A01 Contract: N0001480C0091, ARPAOrder220. No abstract available.

Acoustic absorption/Underwater acoustics/Anomalies/Fishes/Larvae/Population/Passive sonar/Fisheries/Surveys/Productivity/Data bases/Ocean currents/North Pacific Ocean/Acoustic absorption/Anomalous absorption/Southern California current/Net hauls/NTIS.

1862. RAYMOND LP. THE EFFECT OF FOOD DENSITY ON SURVIVAL AND GROWTH OF EARLY POST YOLK-SAC LARVAE OF THE NORTHERN ANCHOVY (ENGRAULIS MORDAX GIRARD) IN THE LABORATORY. JOURNAL OF EXPERIMENTAL MARINE BIOLOGY AND ECOLOGY, 5(2) :187-197, SEPT. 1970 1970

UNKNOWN.

ENGRAULIS/ANCHOVIES/FOOD SOURCES/CALIFORNIA CURRENT/SURVIVAL/YEAR-CLASS STRENGTH/OceanAbstracts.

1863. Catlin MF. Channel Islands National Park (California).

Lapidary J. (San Diego) 1980;34(7):1592-1593 mineral collecting/national parks/California Channel Islands/geology.

1864. Wall DA. Dinoflagellate cysts and acritarchs from California Current surface sediments. DISS. ABST. INT. PT. B - SCI. & ENG 1987;48(1):vp. Three aspects of Recent dinoflagellate cyst

and acritarch paleoecology in the California Current are examined in the present study: their biogeography from seventy surface sediment samples, yearly variations in cyst deposition in varved sediments, and their systematics. Six regions within the Current were studied; aquatic palynomorphs varied in peak abundance as follows (from greatest to smallest): Baja California, Southern California Bight, Gulf of California, Washington Shelf, San Juan Islands, Central California. The most important dinocyst group is the genus *Spiniferites*, with several species reaching dominance. *Lingulodinium machaerophorum* is the most abundant cyst in the Southern California Bight. Broad similarity is seen in assemblages from the six areas, with a general tendency to add species to the flora during the southward flow.

paleoecology/biogeography/cysts/paleotemperature/paleosalinity/Dinoflagellata/*Spiniferites*/*Lingulodinium machaerophorum*/INE/California Current/ISE/California Current/ASFA.

1865. Brundall L. Platform 'A'; the oil spill that spread around the world. *Explor. Econ. Pet. Ind.* 1972;10:p.77-122
Environ. Qual. Advisory Board, Santa Barbara, Calif., United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present). California/environmental geology/pollution/oil spills/Santa Barbara County/Santa Barbara Channel/Dos Cuadros Field/water/sea water/shorelines/impact/ecology/human ecology/legislation/litigation/United States/1969/GEOREF.

1866. Bentz AP, Jadamec JR, Hiltabrand RR, Anderson CP, Hendrick MS (Performer: Coast Guard Research and Development Center, Groton, CT). Feasibility Studies for Identification of Santa Barbara Natural Seep and Platform Oils. Final rept. ; 1984. Report No.: CGRDC1184, CGD2884. 78p.
The objective of this project was to 'develop a capability to identify an oil spill source (seep or specific well) in the Santa Barbara area'. Samples of available natural seeps, as well as a series of samples from various platforms representing numerous producing zones, were examined very thoroughly using state-of-the-art analytical techniques. We demonstrated that oils from natural seeps could be distinguished from platform oils by any of several methods in addition to infrared which was proposed in 1975. Owing to the relatively uniform composition of oils found in the Santa Barbara Channel area, coupled with intermixing due to thrust faults in the area and variation in composition with time of sampling, even the most sophisticated instrumentation and pattern recognition algorithms available were unable to distinguish individual wells, platforms or zones.
Chemical analysis/Oil wells/Seepage/Pattern recognition/Infrared spectroscopy/Ultraviolet spectroscopy/Gas chromatography/Sampling/Mass spectroscopy/Sites/Comparison/Feasibility/Platforms/Chemical analysis/Oil wells/Seepage/Pattern recognition/Oil spills/Natural emissions/Santa Barbara California/High performance liquid chromatography/Oil spills/NTIS.

1867. Catlin MF. Our jinxed trip to a Channel Island, San Miguel. *Lapidary J.* (San Diego) 1980;34(7):1620-1624
mineral collecting/San Miguel Island/geology.

1868. Barnes RO. Inert gas gradients and concentration anomalies in N. E. Pacific sediments. *Eos (Am. Geophys. Union, Trans.)*. 1975;56(6):p.374 Walla Walla Coll., College Place, Wash., United-States Analytic; Serial; Abstract B; Bibliography and Index of Geology (1969-present).
Pacific

Ocean/geochemistry/gases/helium/neon/argon/krypton/sediments/sea water/northeast/Santa Monica Basin/San Pedro Basin/San Clemente Basin/marine geology/United States/California/pore water/GEOREF.

1869. Batteen ML (Performer: Naval Postgraduate School, Monterey, CA). Bibliography Update on the California Current System and Related Mesoscale Ocean Modeling. ; 1984. Report No.: NPS6884017. 61p.

This bibliography has been prepared for use in the Ocean Prediction Through Observation, Modeling and Analysis (OPTOMA) program. It updates the 1980 publication: Bibliography for the Coastal Circulation of the Eastern North Pacific. In addition, mesoscale ocean modeling references related to the California Current System have been included. Originator-supplied keywords include: California Current, Ocean modeling, Mesoscale eddies, and Physical oceanography.

Bibliographies/Ocean models/Ocean currents/California/Coastal regions/Predictions/Oceanography/Bibliographies/Ocean models/Ocean currents/NTIS.

1870. Cava FM. Information technology: a key to effective marine sanctuary management. Coastal Zone 89. ; In press. Information technology and the use of personal computers have proven to be effective tools in accomplishing programmatic goals for the National Marine Sanctuary Program. This technology has been used to supplement the capabilities of a small, on-site staff in Santa Barbara, California, allowing innovative development of educational programs, research data bases and public outreach materials. Computers have also played a critical role in emergency response efforts during a major oil spill threat to the Channel Islands National Marine Sanctuary and subsequent development of a contingency plan. Channel Islands National Marine Sanctuary/contingency plans/desk top publishing education/emergency response/interactive exhibits/laser discs/management/micro computers/research database/California Channel Islands/Santa Barbara/Santa Barbara Channel/computer technology/resource management.

1871. Haury LR, Poulain PM, Mantyla AW, Venrick EL, Niiler PP. FRONTS cruise: Leg I: 11 July 1985, leg II: 12-23 July 1985. SIO REP. SER. SCRIPPS INST. OCEANOGR 1986; The data in this report were collected from 1 to 23 July 1985 on the two legs of the FRONTS cruise aboard RV New Horizon of the Scripps Institution of Oceanography. The purpose of the cruise was to describe the vertical and horizontal structure and dynamics of the physical, chemical, and biological properties associated with a persistent, seasonally-recurring front in the California Current southwest of San Diego, California. cruise reports/oceanic fronts/frontal features/hydrographic data/data reports/INE/California Current/ASFA.

1872. (Performer: Centaur Associates, Inc., Washington, DC. Funder: Minerals Management Service, Los Angeles, CA. Pacific OCS Region.) Cumulative Socioeconomic Impacts of Oil and Gas Development in the Santa Barbara Channel Region: A Case Study. Final rept. ; 1984. Report No.: MMS840059. 603p. Contract: DI1412000130026.

This report is a retrospective case study of the effects of offshore oil and gas development on the socioeconomic environment of Santa Barbara and Ventura counties in southern California. The study was conducted primarily using secondary sources. The report contains profiles of about 60 socioeconomic characteristics for each of the two counties. Estimates of the actual effects of

offshore oil and gas development in federal and state waters on selected characteristics of the two counties were made using regression analysis and a regional economic model. Tests of the applicability of these results to other coastal California counties were made.

Offshore drilling/Oil wells/Gas wells/Impact/Economic models/Regression analysis/Interactions/Coasts/Offshore drilling/Oil wells/Gas wells/Socioeconomic factors/Case studies/Economic impact/Socioeconomic factors/NTIS.

1873. Cava FM, Power DM. Environmental information, the public and the Channel Islands National Marine Sanctuary. Coastal Zone 89. ; In press. A cooperative agreement has been established in California between NOAA and the Santa Barbara Museum of Natural History through the museum's Sea Center. The goal of both the Sea Center and the Sanctuary office is to advance appreciation and understanding of the Santa Barbara Channel and the Channel Islands National Marine Sanctuary. This mission is accomplished through interpretive exhibits, public education, and coordination of research and operational activities in the region. The Sea Center is situated on Stearns Wharf at the Santa Barbara waterfront, and, because of this prime location overlooking the very region that makes up the Sanctuary, it has been the focal point of the cooperative agreement between the two agencies. Many of the public programs that have been developed also take place elsewhere, such as at the museum, in Sanctuary waters, and in the community at large. Over the last few years federal assistance has been provided to cover part of the cost of constructing the building and some of the exhibits. Most recently, ongoing support has been provided to further the public programs already established at the Sea Center, at the museum, and through the Sanctuary office in Santa Barbara--educational efforts for a variety of targeted audiences, including tourists, students and researchers.
education/environmental information/marine sanctuary/NOAA/private public partnership/public exhibits/Santa Barbara Museum of Natural History/Sea Center/California Channel Islands/Santa Barbara Channel/education/environmental information/resource management.

1874. Ciandro ML, Whittmann PA, Bird AA, Mooers CN. Hydrographic data from the OPTOMA (Ocean Prediction through Observation, Modeling and Analysis) Program OPTOMA22, 27 July-5 August 1986. REP. U.S. NAV. POSTGRAD. SCH 1986; The OPTOMA (Ocean Prediction Through Observation, Modeling and Analysis) Program, a joint NPS/Harvard program sponsored by ONR, seeks to understand the mesoscale (fronts, eddies, and jets) variability and dynamics of the California Current System and to determine the scientific limits to practical mesoscale ocean forecasting. To help carry out the aims of this project, a series of cruises has been planned in two subdomains, NOCAL and CENCAL. The cruise, OPTOMA22, was undertaken during the period 27 July to 5 August 1986, and sampled a domain approximately 240km square centered about 280km off the coast between Pt. Arena and Cape Mendocino. Oceanographic stations were occupied during the period 27 July to 5 August at approximately 18km along each track.
mesoscale features/hydrographic data/cruise reports/variability/INE/ California Current/ASFA.

1875. Koons CB, Brandon DE. Hydrocarbons in water and sediment samples from Coal Oil Point area, offshore California. Offshore Tech. Conf., Prepr. (7 Vol. 3). 1975:p.513-521 Exxon Prod. Res. Co., United-States; Alyeska Pipeline Serv. Co. 1975 offshore technology conference, Houston, Tex., May 5-8, 1975 Analytic; Serial; Conference publication B; Bibliography and Index

of Geology (1969-present). California/geochemistry/hydrocarbons/sea water/sediments/south/Coal Oil Point/Santa Barbara Channel/organic materials/chromatography/seepage/pollution/impact statements/United States/GEOREF.

1876. Skupniewicz CE, Schacher GE (Performer: Naval Postgraduate School, Monterey, CA). Measured Plume Dispersion Parameters Over Water. Volume 1. Final rept. Oct 83-Oct 84. ; 1984. Report No.: NPS6184012. 108p. The Minerals Management Service sponsored a series of four atmospheric tracer experiments at California coastal locations over a two-year span, 1980-1982. These experiments were designed to assess air pollution impact from proposed oil exploration and drilling activities along the continental shelf. Two experiments (winter and summer) at each of two sites (open coast and Santa Barbara Channel) were funded in order to investigate air quality impact under a range of meteorological conditions and sites. The basic designs of all four experiments were similar. A tracer gas, 100% SF₆, was continuously released from a stationary, sea surface platform located, for the majority of the experiments approximately 3 miles from shore. During parts of the last experiment, the platform was moved to distances up to 5 miles from shore. This volume analyzes the collected data. The tracer plume is characterized by a variety of parameters, including the conventional hourly averaged sigma-y and sigma-z values widely used in Gaussian plume dispersion formulae. Gaseous dispersion is parameterized for the over-water case by classifying the tracer results by stability in a Pasquill-Gifford equivalent scheme, and analytically describing horizontal and vertical plume growth as a function of plume travel distance. Several other over-water data sets are used in this parameterization. Comparisons are made to the over land case. Environmental impact/Air pollution/Plumes/Tracer studies/Sulfur compounds/Fluorides/Offshore drilling/Oil fields/Meteorological phenomena/Coastal regions/Dispersions/Air quality/Continental shelves/Trace gases/Environmental impact/Air pollution/Plumes/NTIS.

1877. Centaur Associates IW,D. Assessment of space and use conflicts between the fishing and oil industries. Volume III. Historical interactions between the fishing and offshore oil and gas industries. : BLM/YL/TR-81/03; 1981. 198. ((Sponsored by Bureau of Land Management, New York. New York Outer Continental Shelf Office.)).
Note: See also Volume 2, PB81-215972, and Volume 4, PB81-215998. Volume III explores the historical interactions which have taken place between the fishing and oil and gas industries with respect to competition for labor, port space and other areas of impacts including fuel and repair facilities, equipment, supplies, and financing. This volume includes a detailed examination of effects which have taken place in the North Sea, Southern California, Western Gulf of Mexico and Davisville, Rhode Island. Crude oil/Fishing/Petroleum industry/Continental shelves/Water pollution/Conflicts/Area/Natural gas/Manpower/Merchant ships/North Sea/Marine terminals/Harbors/Rhode Island/History/Environmental impacts/Mexico Gulf/California Outer continental shelves/Baseline studies/Santa Barbara Channel/North Sea/Western Gulf of Mexico/Davisville, Rhode Island fisheries/petroleum/marine biology/pollution/resource management.

1878. Sherman K. Biomass flips in large marine ecosystems. 1987 AAAS ANNUAL MEETING: 153rd NATIONAL MEETING, CHICAGO, 14-18 FEBRUARY. S OF PAPERS. 1987;:24-25.
The National Marine Fisheries Service conducts fish biomass assessments in seven LMEs within the Exclusive Economic Zone (EEZ)

of the United States - the Northeast Shelf, the Southeast Shelf, the Gulf of Mexico, the California Current, the Gulf of Alaska, the East Bering Sea, and the Insular Pacific, including the Hawaiian Islands marine ecosystem. The biomass of populations inhabiting all of these LMEs have been altered significantly over the past three decades by natural and anthropogenic changes resulting in negative impacts to the fishing industry. Mortalities can be of sufficient magnitude to result in a species "flip" from a position of dominance to a subordinate position within the ecosystem. Frequently the species "flips" occur in heavily-exploited ecosystems in which multispecies fisheries are operating on several trophic levels simultaneously. ecosystems/marine fisheries/multispecies fisheries/dominant species/Exclusive Economic Zone/USA Coasts/species flips/ASFA.

1879. Howell DG. Eocene paleogeography of southern California continental bordeland. Am. Assoc. Pet. Geol., Soc. Econ. Paleontol. Mineral., Annu. Mtg. Abstr. 1975;2:p.37-38 U. S. Geol. Surv., Menlo Park, Calif., United-States Analytic; Serial; Abstract B; Bibliography and Index of Geology (1969-present). California/stratigraphy/Eocene/paleogeography/south/San Nicolas Island/San Miguel Island/Santa Rosa Island/Santa Cruz Island/San Diego/United States/sedimentation/continental margin/turbidite/sandstone/conglomerate/faults/GEOREF.

1880. Brady BJ. Critical Analysis of Ocean Thermal Analysis Models in Operation at FNOG (Fleet Numerical Oceanography Center's). [dissertation] ; 1984. 161p. Performer: Naval Postgraduate School, Monterey, CA The objectives of this research are firstly to obtain a description of the characteristics of the ocean thermal structure from a portion of the ocean (ca.37 degs N to 39 deg N; 124 degs W to 126 deg W) sampled during the three cruises comprising OPTOMA5 which took place in June and July 1983. (OPTOMA - Ocean Prediction Through Observations, Modeling, and Analysis, is a joint Harvard/NPS project 'intended to acquire field data to characterise synoptic scale eddies over a domain in the California Current off Northern California, and to 'set-up' an eddy-resolving, statistical/dynamical, limited domain, open boundary numerical ocean prediction model. The '5' indicates the fifth series of cruises of the project). Secondly, the analysed ocean thermal structure is to be used as a 'sea truth' by which to evaluate the accuracy of two real-time ocean thermal analysis systems presently in use at the Fleet Numerical Oceanography Center (FNOG), namely, the Expanded Ocean Thermal Structure (FCTS) analysis and the Thermodynamic Ocean Prediction System (TOPS)-Coupled EOTS (TEOTS) analysis. The final objective is to determine the operational significance of deviations in the modeled thermal structure from the 'sea truth' by utilizing the output from operational acoustic models to provide a quantitative measure of the effect of these thermal structure differences on acoustic propagation in the ocean. Two low-frequency, passive-acoustic models were used to provide a measure of the variability of acoustic energy propagation which could be expected from the acoustic models alone. Ocean models/North Pacific Ocean/Temperature/Horizontal orientation/Vertical orientation/Ocean currents/Oceanographic data/Statistical analysis/Theses/Ocean models/Ocean thermal structure/California current/OPTOMA project/Ocean thermal structure/NTIS.

1881. Centaur Associates IW,D. Cumulative socioeconomic impacts of oil and gas development in the Santa Barbara Channel

Region: A case study. Final report. : MMS-84-0059; 1984. 603. ((Sponsored by Minerals Management Service, Los Angeles, CA. Pacific OCS Region)).

This report is a retrospective case study of the effects of offshore oil and gas development on the socioeconomic environment of Santa Barbara and Ventura counties in southern California. The study was conducted primarily using secondary sources. The report contains profiles of about 60 socioeconomic characteristics for each of the two counties. Estimates of the actual effects of offshore oil and gas development in federal and state waters on selected characteristics of the two counties were made using regression analysis and a regional economic model. Tests of the applicability of these results to other coastal California counties were made.

Offshore drilling/Oil wells/Gas wells/Impact/Economic models/Regression analysis/Interactions/Coasts/Socioeconomic factors/Case studies/Economic impact/Santa Barbara Channel/Santa Barbara County/Ventura County oceanography/petroleum/socioeconomics/policy/.

1882. Chen C. Topographic influences in the California Current System. NPS; MONTEREY, CA (USA) 1986;

A ten-level primitive equation numerical model is used to study the influence of the ocean bottom topography in the California Current System. Five different numerical experiments were integrated for 40 days after being initialized with a baroclinic along shore coastal jet representative of the observed coastal jet. By comparison with a flat bottom case, in Experiments 1 and 3, in which the topographic slopes face westward or northward, the topography appears to have stabilizing influences on the mean flow. In experiments 2 and 4, in which the topographic slopes face southward, the topographic beta-effect appears to be strong enough so that these two cases have already reached a quasisteady state by 40 days.

bottom topography effects/coastal currents/mathematical models/INE/California Current/ASFA.

1883. Booth JS. Early diagenesis in southern California continental borderland sediments. Am. Assoc. Pet. Geol., Soc. Econ. Paleontol. Mineral., Annu. Mtg. Abstr. 1975;2:p.6

Univ. South. Calif., Los Angeles, Calif., United-States Analytic; Serial; Abstract B; Bibliography and Index of Geology (1969-present). California/oceanography/sedimentation/south/continental margin/diagenesis/continental borderlands/cores/pore water/reactions/Cenozoic/sediments/geochemistry/clay minerals/organic materials/textures/continental shelf/United States/GEOREF.

1884. Xie SM, Aoki T, Yoshino MM. Characteristics on interannual variations of the North Pacific SST and its relation to East Asian climate. ACTA OCEANOL. SIN./HAIYANG XUEBAO 1987;6(1):68-79.

The interannual variations of the monthly sea surface temperature (SST) in the North Pacific (including Equatorial East Pacific) during 1951-1980 were analysed by the EOF method: (1) in the cold and warm ocean current areas, such as the North Pacific Current, the California Current and the Equatorial East Pacific areas, the convergence speeds are the fastest, while in the Kuroshio and the western part of the North Equatorial Current they are fast only in winter; (2) the physical features of the first 3 eigenvectors are clear. The first eigenvector shows that the SST values are high in the south and low in the north in the latitudinal distribution of the SST field. The warm current area, i.e. the northwestern part of

the North Pacific, is positive and the cold current area, i.e. the southeastern part of the North Pacific including the Eastern Equatorial Pacific, is negative. The zero line of the 2nd eigenvector field runs from northeast to southwest, in the same direction as the 1st term. For the 3rd eigenvector field, the role of the Kuroshio area is striking. The sign of components of this eigenvector is negative in the north, the North Pacific Current area. The other 3 ocean current areas show positive. Central Pacific is weakly negative; (3) the characteristics of the annual variation of the monthly SST were obtained from analyses of time amplitude coefficients associated with eigenvectors. There are quasi-periodic oscillations of 5-6 years in the 1950's and early 1960's.

surface temperature/equatorial circulation/teleconnections/climate/annual variations/correlation/IN/North Pacific/INW/Kuroshio Current/INE/California Current/East Asia/ASFA.

1885. Level HR, Goforth D, Ramelli W. Geologic sites in Ventura County (teacher's guide). ; 1974. 23 p. Natl. Assoc. Geol. Teachers, Far Western Sect. Monographic; Book B; Bibliography and Index of Geology (1969-present). California/areal geology/guidebook/south/Ventura County/Muga Rock/Anacapa Island/Channel Islands/education/general/high school/junior high/teacher's guide/United States/GEOREF.

1886. D'Asaro EA (Performer: Washington Univ., Seattle. Applied Physics Lab). XCP(Expendable Current Profiler), Measurements Off California in October. ; 1983. Report No.: APLUW8310. 33p.

Sponsored in part by Contract N00014-81-K-0095. PC A03/MF A01 Contract: N0001482C0038.

Sixty nine profiles of horizontal velocity and temperature from the surface to about 800 m were made using the Expendable Current Profiler (XCP) during De Steiguer cruise 1212, 7-18 October 1982. The XCP's were deployed in a 6 day time series behind a drogued buoy and in a 275 n.mi. zigzag spatial survey. Satellite infrared images were used to locate a cruise area away from strong mesoscale features. The measurements were designed to estimate the horizontal coherence function of the near-inertial frequency internal wave field for comparison with similar measurements made in the Sargasso Sea. It was found that the near-inertial waves are a dominant feature of the velocity field. Significant coherence exists between nearby profiles. It will, therefore, be possible to compute a correlation function for these data as planned. A near-surface feature with peak-to-peak velocities of 70 cm/s was observed and partially surveyed. (Author). Ocean currents/North Pacific ocean/Temperature/Velocity/Horizontal orientation/Depth/Profiles/Ocean currents/Temperature/California current/NTIS.

1887. Challet GL. Additional records of predaceous diving beetles (Coleoptera: Dytiscidae) from Santa Catalina Island, California. Coleopt. Bull. 1987;41(1):13-14 Address: ORANGE COUNTY VECTOR CONTROL DISTRICT, P.O. BOX 87, SANTA ANA, CALIF. 92702.

new record/predators/records/collections/fauna/islands/geographical distribution predaceous diving beetles/Coleoptera/Dytiscidae/Laccophyllus fasciatus terminalis/Laccophyllus fasciatus decipiens/Hydroporus belfragei/Hydroporus bilis/Deronectes striatellus/Agabinus glabrellus/Agabus lugens/Rhantus gutticollis/Dytiscus marginicollis/Santa Catalina Island/terrestrial biology/entomology.

1888. Chen MX. On the influence of sea surface temperature upon NW-Pacific subtropical high. ACTA OCEANOL. SIN./HAIYANG XUEBAO 1987;6(1):80-86. A correlation characteristics analysis of monthly sea surface temperature of 13 sea areas (mainly strong ocean-current areas) and 15 subtropical highs was made. The characteristics of the time-space variation of high-correlation areas are discussed. On the basis of a preliminary analysis of the possible physical mechanism for several related phenomena, it is concluded that SST affects subtropical highs through a variety of ways.
surface temperature/high pressure systems/subtropical zone/air-sea interaction/INW/Kuroshio Current/INE/California Current/INW/North Pacific/correlation/ASFA.

1889. Sherburne RW. Seismicity of the eastern Santa Barbara Channel. Calif. Geol. 1975;28(6):p.133
Cal. Div. Min. Geol., Calif., United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present).
seismology/seismic sources/epicenters/causes/tectonics/United States/California/Santa Barbara Channel/GEOREF.

1890. Champion DE, Howell DG, Marshall M. Paleomagnetism of Cretaceous and Eocene strata, San Miguel Island, California, borderland and the northward translation of Baja California. Journal of Geophysical Research 1986;B91(11):11,557-11,570
Address: U. S. Geol. Surv., Menlo Park, CA,; San Diego State Univ.
paleomagnetism/plate tectonics/Paleogene/Tertiary/rocks/movement/natural remanent magnetization/remanent magnetization/demagnetization/reversals terranes allochthons/Santa Barbara County/Pacific Coast/Western United States/Southern California/San Miguel Island/continental borderland/Baja California/stratigraphy/historical geology/solid earth geophysics.

1891. Dickey TD, Koblinsky CJ, Simpson JJ. An offshore eddy in the California current system. Part II. Surface manifestation. Prog. Oceanogr. 1984;13:51-69.
physical oceanography/MINERALS MANAGEMENT SERVICE.

1892. Wittmann PA, Ciandro ML, Bird AA, Mooers CN. Hydrographic data from the OPTOMA (Ocean Prediction Through Observation, Modelling and Analysis) Program OPTOMA 21, 7-20 July 1986. 1987;
Optoma 21 was a multidisciplinary study which took place from 7 to 20 July 1986 aboard the R/V Point Sur in the local domain. In addition to conducting a quasi-synoptic CTD/XBT mapping of a cool anomaly, meandering jet, and eddy system, measurements were made to determine: 1) the fine scale variability of the upper ocean mass and velocity fields; 2) the upper ocean nutrient, optical and phytoplankton fields; and 3) the structure of the zooplankton population. In this report, the CTD/XBT data are presented.
CTD observations/bathythermographic data/cruise reports/INE/California Current/ASFA.

1893. Oil and gas development in the Santa Barbara Channel, outer continental shelf off California. p. variously paginated 1975 U. S. Geological Survey, United-States Monographic; Report Three volume report; pagination follows subject sections. B; Bibliography and Index of Geology (1969-present) U. S. Geol. Surv. California/economic geology/energy sources/Santa Barbara Channel/continental shelf/United States/outer/petroleum/gas/natural/exploration/development/impact

statements/maps/geologic/environmental
geology/pollution/marine/shorelines/oil spills/GEOREF.

1894. Chow T, Orphan V, Rainbridge A, Bruland K, Martin J
(Performer: Science Applications, Inc., La Jolla, CA. Funder:
Bureau of Land Management, Washington, DC.) Southern California
Baseline Study and Analysis (1975/1976). Volume 3. Principal
Investigator Work Element Reports. Report Sections 4.1-4.4, 5.1,
5.2; Book 10. ; 1978. Report No.: BLMYNSR7814VOL310. 474p. See
also PB83-174847. Portions of this document are not fully legible.
PC A20/MF A01 Contract: DI08550CT552.

Intertidal and offshore samples were collected in the Southern
California Bight. The purpose of this study was to determine
existing levels of petroleum hydrocarbons and trace metals
associated with Outer Continental Shelves development, plus
enhancing or establishing the data base of abundance, composition,
diversity and general health of the marine flora and fauna of the
area. Rocky intertidal habitats were studied to determine community
composition, biogeographical and seasonal variation. Kelp bed
distribution and their seasonal variation were delineated for the
shallow areas along the mainland coast and around the offshore
islands. Sediment and macrobiota samples from intertidal sites were
analyzed for selected trace metals and hydrocarbon characteristics;
temporal and spatial variations are discussed.

Crude oil/Ecology/Marine biology/Water pollution/Southern
California Bight/Hydrocarbons/Metals/Concentration
Composition/Aquatic plants/Aquatic animals/Abundance/Distribution
Property/Chromatographic analysis/Sampling/Crude oil/Ecology/Marine
biology/Water pollution/Southern California Bight/Outer continental
shelves/Baseline studies/NTIS.

1895. Champion DE, Howell DG, Marshall MC. Paleomagnetic
evidence for 3800 km of northwestward translation of San Miguel
Island, southern California borderland. American Geophysical Union;
1981 fall meeting. Eos, Transactions, American Geophysical Union
1981;62(45):855

Address: U. S. Geol. Surv., Menlo Park, CA, USA; San Diego State
Univ. Conference: American Geophysical Union; 1981 fall meeting
San Francisco, CA, Dec. 7-11, 1981.

paleomagnetism/tectonophysics/applications/plate tectonics/plate
rotation/sedimentary rocks/Eocene/Paleogene/Tertiary/Upper
Cretaceous/Cretaceous/movement/continental
borderland/paleolatitude/Santa Barbara County/California Channel
Islands/San Miguel Island/solid earth geophysics/geology.

1896. Smith CR. Nekton falls, low-intensity disturbance and
community structure of infaunal benthos in the deep sea. J. MAR.
RES 1986;44(3):567-600. A simulation of natural disturbance at the
bathyal seafloor evoked rapid response from dominant infaunal
species, for the first time providing experimental evidence that
similar disturbances structure normal deep-sea communities. Parcels
of dead fish (1-40 kg) were placed on the seafloor at a depth of
1310 m in the Santa Catalina Basin and monitored. Dense
aggregations of fish and ophiuroids were rapidly attracted to the
baitfalls; in the process of consuming the bait, these megafaunal
scavengers disrupted sediment surface structures and resuspended
substantial amounts of sediment. The predominant macrofaunal effect
was reduction of infaunal species diversity and community abundance
around treatments. ecosystem resilience/ecosystem
disturbance/meiobenthos/bathyal-benthic
zone/benthos/disturbance/community structure/Pacific Ocean/Santa
Catalina Basin/deep sea/community
composition/INE/USA/California/Santa Catalina Basin/ASFA.

1897. Chung Y. Excess radon in the Santa Barbara Basin. Calif., Univ. Scripps Inst. Oceanogr., Contrib. 43 (Part 2). p. 1476-1480. Reprint from Earth and Planetary Science Letters 1973;17 Scripps Inst. Oceanogr., La Jolla, Calif., United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present). Pacific Ocean/geochemistry/radon/sea water/Santa Barbara Basin/isotopes/Ra 222/temperature/salinity/GEOREF.

1898. Durban DC. Analysis of Observed and Modeled Mixed Layers: NOCAL (Northern California) Region. [dissertation] ; 1983. 189p. Performer: Naval Postgraduate School, Monterey, CA Surface mixed layer properties off Northern California (NOCAL) were analyzed statistically and numerically. The observations were acquired on three cruises as part of the Pilot Ocean Prediction Study of the California Current eddies centered ca. 37 to 39N, 125 to 127W during March and August 1982. Mixed layer depth, averaging 33 + or - 14m, had a horizontal correlation scale of no more than 35Km, which has significance for relating thermal structure information from individual temperature profiles to that of Fleet Numerical Oceanography Center's (FNOC) analyses based on a grid length of approximately 300km. Simulations and sensitivity tests were made using the Garwood bulk mixed layer model and the Mellor Level-2.5 diffusion model with the initial and boundary conditions acquired at sea and from FNOC. Upper ocean thermal structure analyses and forecasts were also obtained from the Navy's TOPS/TOPS-EOTS diffusion model, which has since become operational at FNOC. Comparisons of observations, analyses, and model solutions reveal consistent cooling and deepening by the former two models and excessive warming by the latter model. These significant differences are believed to be related to model resolution, model sensitivity, oceanic and atmospheric data quality, and spatial variability. (Author). Mixed layer Marine/North Pacific Ocean/Surface waters/Temperature/Depth/Variations/Correlation/Meteorological phenomena/Statistical analysis/Mathematical models/Theses/Mixed layer Marine/NTIS.

1899. Chaney HW. Aspects of the biology of the cheilostome bryozoan *Thalamoporella californica* [dissertation]. Los Angeles, California, USA: University of Southern California; 1983. Unknown. Aspects of the reproduction, growth and population biology of the cheilostome bryozoan, *Thalamoporella californica* Levinsen, 1909 were investigated in a combined laboratory and field study. Occurring as an epiphyte on marine algae this bryozoan utilizes a dual growth pattern, either forming an encrusting colony or a series of erect, dichotomous branches. Stages of development, from formation of embryos to the growth of the young colony, were described by an SEM study. *Thalamoporella* autozooids are unisexual with female autozooids producing conspicuous, bilobate ovicells which contain up to four embryos. A lecithotrophic, coronate larva developed which then settles within a few hours. The metamorphosis of the larva into a preancestrula begins with a rapid eversion of the internal sac. Reproduction occurs throughout the year at varying intensities. Rate of astogenetic growth is greatest during late summer when seasonal water temperatures are high. Histocompatibility between *Thalamoporella* colonies was studied by examining interzoecial pores with SEM. Colonies produced by larvae originating from the same "mother" colony (siblings) can fuse with each other, forming an unusual pore pattern. No communication pores form when non-sibling colonies grow together. Several life history parameters, including zooid dimensions, colony growth rates,

percentage of females per colony, and ovicell capacity, were measured from samples collected along a subtidal shelf off Santa Catalina Island, California during a two year period. Seasonal variations were noted in each of these parameters. The number of female autozooids is particularly sensitive to changes in ambient water temperature. *Thalamoporella californica* is perceived as a durable, long-lived species capable of overgrowing other epiphytes it encounters and shifting to additional substrates by alternating its growing pattern. (Copies available from Micrographics Department, Doheny Library, USC, Los Angeles, CA 90089.). reproduction/growth/population biology/epiphyte/Cheilostome/bryozoan/Bryozoa/*Thalamoporella californica*/marine biology.

1900. Dohl TP. Marine mammal and seabird survey of the Southern California Bight area. Prep. for U.S. Dep. Interior, Minerals Management Service, Pacific OCS Region, Los Angeles, CA. Prep. by Univ. Calif., Santa Cruz. 1978; MINERALS MANAGEMENT SERVICE.

1901. Krishnaswami S, Lal D, Amin BS, Soutar A. Geochronological studies in Santa Barbara Basin; (55)Fe as a unique tracer for particulate settling. Calif., Univ. Scripps Inst. Oceanogr., Contrib. 1973;43(2):p.1074-1081 Tata Inst. Fundamental Res., Colaba, Bombay, India; Scripps Inst. Oceanogr. Analytic; Serial B; Bibliography and Index of Geology (1969-present). Pacific Ocean/geochronology/methods/Santa Barbara Basin/radioactivity/isotopes/iron/Fe 55/varved clay/stratigraphy/cores/lead/Pb 210/sedimentation/rates/Holocene/GEOREF.

1902. Varoujean DH, Baltz DM, Allen B, Power D, Schroeder DA (Performer: Nero and Associates, Inc., Portland, OR. Funder: Minerals Management Service, Reston, VA.) Seabird Oil Spill Behavior Study. Volume 1. Executive Summary. Final rept. ; 1983. Report No.: MMSYNTE83007. 21p. See also PB84-179548. PC A02/MF A01 Also available in set of 3 reports PC E99, PB84-179522. Contract: DI1412000129102. This volume contains a summary of findings of a two year (1980-1982) study on the behavior of seabirds encountering oil-contaminated water. An information survey, undertaken in the study, indicated that out of nearly 300 references to seabird/oil research only 12 articles addressed the topic of seabird behavior in the presence of oil. Available evidence does, however, indicate that seabirds avoid or try to avoid making contact with petroleum oil. Field observations and experiments conducted in the study areas of natural oil seeps in the Santa Barbara Channel California, revealed that: (1) abundance of seabirds in the study area was relatively low when compared to that in oil-free areas of the Channel; (2) the age and/or the residency status of Brown Pelicans (*Pelecanus occidentalis*), Western Gulls (*Larus occidentalis*) and Heermann's Gulls (*Larus heermanni*) were related to the frequency of interaction of these birds with oil. Birds/Animal behavior/Oil pollution/Fuel oil/Toxicity/Abundance/Crude oil/Responses/Age/Surveys/California/Birds/Animal behavior/Oil pollution/Seabirds/Oil spills/Santa Barbara Channel/Water pollution effects Animals/Seabirds/NTIS.

1903. ROSENTHAL J. PICTURE OF THE MONTH- A CATALINA EDDY. MONTHLY WEATHER REVIEW 1968;96(10, P.742-743, OCT. 1968. NO ABS., 5 FIGS., 1 REF) UNKNOWN. OceanAbstracts.

1904. Chang S, Douglas RG. Holocene turbidites of Santa Catalina Basin, California continental borderland. Jijirhag Hoiiji = Journal of the Geological Society of Korea 1987;23(1):16-31
Address: Korea Ocean Res. and Dev. Inst., Seoul, KOR; Univ. Calif. sediments/algal flora/foraminifers/sedimentation/stratigraphy/clastic sediments/biostratigraphy/environment/Holocene/turbidite/hemipelagic environment/Quaternary/continental borderland/microfossils/biogenic structures/sedimentary structures/Neogloboquadrina pachyderma/cores/Santa Catalina Basin/Santa Catalina Island/Surficial geology/quaternary geology.

1905. Dohl TP, Bonnell ML, Ford RG. Distribution and abundance of common dolphin, *Delphinus delphis*, in the Southern California Bight: A quantitative assessment based upon aerial transect data. U.S. Natl. Mar. Fish. Serv. Fish. Bull. 1986;84:333-343.
TEXT/BONNELL/DAILEY/MARINE MAMMALS/ecosystem interrelationships/MINERALS MANAGEMENT SERVICE.

1906. Dohl TP, Norris KS, Guess RC, Bryant JD, Honig MW. Summary of marine mammal and seabird surveys of the Southern California Bight area, 1975-1978. Investigators' reports. Part II. Cetacea of the Southern California Bight. Final rep. 1981;III:434.
MAMMAL/AQUATIC ANIMALS/CRUDE OIL/ECOLOGY/WATER POLLUTION/SOUTHERN CALIFORNIA BIGHT/porpoises/CETACEA/DISTRIBUTION PROPERTY/ABUNDANCE/WHALES/OFFSHORE DRILLING/ANIMAL MIGRATIONS/ENVIRONMENTAL IMPACTS/DOLPHINS/marine mammals/Bonnell/Dailey/TEXT/MINERALS MANAGEMENT SERVICE.

1907. Kantha LH, Blumberg AF, Herring HJ, Stegen GR. The use and testing of a model for upper ocean dynamics. THE OCEAN SURFACE: WAVE BREAKING, TURBULENT MIXING AND RADIO PROBING. 1985;:pp. 547-552.
A one-dimensional turbulent Ekman layer model is used to simulate the upper-ocean dynamics in Santa Barbara Channel. Comparison of simulated and measured currents showed excellent agreement below subtidal frequencies.
upper ocean/Ekman layers/turbulent boundary layer/nearshore dynamics/mathematical models/oceanography/INE/Santa Barbara Channel/models/ASFA.

1908. Glover BK. A morphometric analysis of terrace gravels in Santa Ynez Basin, Santa Barbara County, California. Sediment. Geol. 1975;13(2):p.109-124 Serial B; Bibliography and Index of Geology (1969-present). California/Sedimentary petrology/Sedimentation/gravel/Santa Barbara County/Santa Ynez Basin/Transport/Stream transport/roundness/sphericity/analysis/terraces/drainage basins/United States/Santa Ynez River/Sediments/Clastics/terrigenous/pebbles/shape/rivers/Geomorphology/Fluvial features/GEOREF.

1909. Dohl TP, Norris KS, Guess RC, Bryant JD, Honig MW. Cetacea of the Southern California Bight. Part II of Investigator's Reports: Summary of Marine Mammal and Seabird Surveys of the Southern California Bight Area, 1975-1978. 1981;:414.
text/mammals/MINERALS MANAGEMENT SERVICE.

1910. Varoujean DH, Baltz DM, Allen B, Power D, Schroeder DA

(Performer: Nero and Associates, Inc., Portland, OR. Funder: Minerals Management Service, Reston, VA.) Seabird Oil Spill Behavior Study. Volume 2. Technical Report. Final rept. ; 1983. Report No.: MMSYNTE83008. 71p.

See also Volume 1, PB84-179530 and Volume 3, PB84-179555. PC A04/MF A01 Also available in set of 3 reports PC E99, PB84-179522. Contract: DI1412000129102. This volume provides a technical discussion of a two year (1980-1982) study on the behavior of seabirds encountering oil-contaminated water. An information survey, undertaken in this study, indicated that out of nearly 300 references to seabird/oil research only 12 articles addressed the topic of seabird behavior in the presence of oil. Available evidence does, however, indicate that seabirds avoid or try to avoid making contact with petroleum oil. Field observations and experiments conducted in the study areas of natural oil seeps in the Santa Barbara Channel, California, revealed that (1) abundance of seabirds in the study area was relatively low when compared to that in oil-free areas of the Channel; (2) the age and/or the residency status of Brown Pelicans (*Pelecanus occidentalis*), Western Gulls (*Larus occidentalis*) and Heerman's Gulls (*Larus heermanni*) were related to the frequency of interaction of these birds with oil.

Birds/Animal behavior/Oil pollution/Fuel oil/Abundance/Toxicity/Crude oil/Responses/Surveys/California/Birds/Animal behavior/Oil pollution/Seabirds/Oil spills/Santa Barbara Channel/Water pollution effects Animals/Seabirds/Oil spills/NTIS.

1911. OKUTANI T. A NEW SPECIES OF ENOPLOTEUTHID SQUID, *ABRALIOPSIS*, *WATASENIA FELIS*, FROM THE CALIFORNIA CURRENT. *VELIGER* 1968;11(1, P.72-79, JULY 1,1968. NO ABS., 3 FIGS., 2 TABLES, 15 REFS. 2 IN FR., 4 IN GER., 1 IN JAPANESE. GRANT- NSF GB 2861) UNKNOWN.
SQUIDS/*ABRALIOPSIS*/CALIFORNIA CURRENT/NEW SPECIES/TAXONOMY/OceanAbstracts.

1912. Chow TJ, Earl JL, Reed JH, et al. Barium content of marine sediments near drilling sites: A potential pollutant indicator. *Marine Pollution Bulletin* 1978;9(4):97-99
Address: SIO, P.O. Box 1529, La Jolla, CA 92093.
Barite is commonly used as a weighting agent in oil- and gas-well drilling mixture; therefore, the distribution pattern of Ba in marine sediments near drilling sites may provide an indicator of anthropogenic chemical contamination from these operations. Present average content of Ba in benthic sediments from the Southern California Bight was determined to be 637 ppm, with a range from 43 to 1,899 ppm; that of the mainland and the channel island intertidal sediments averaged 879 and 388 ppm, respectively. Barium/Sediments/Pollutant detection/Barium compounds/Chemical pollution/barite/water pollution control/offshore operations/pollutant indicators/bottom sediments/Outer Continental Shelf/monitoring/baseline studies/metals/barite/oil well/marine sediments/anthropogenic effects/sediment analysis/Southern California Bight/California Channel Islands/pollution/water quality/marine biology/petroleum/oceanography/environmental biology/resource management.

1913. Dohl TP, Norris KS, Le Boeuf BJ, Hunt Jr. GL. Final report. Summary of marine mammal and seabird surveys of the Southern California Bight area 1975-1978. Synthesis of Findings. U.S. Dep. of Interior, Bureau of Land Management, Pacific OCS Region, Los Angeles 1980;II:414.
MINERALS MANAGEMENT SERVICE.

1914. McGowan MF. Northern anchovy, *Engraulis mordax*, spawning in San Francisco Bay, California, 1978-79, relative to hydrography and zooplankton prey of adults and larvae. FISH. BULL 1986;84(4):879-894.

Eggs and larvae of *Engraulis mordax* were sampled by nets monthly for one year. Either eggs or larvae were caught every month. Both were most abundant when water temperature was high. Mean egg abundance did not differ among stations but larvae were more abundant within the San Francisco Bay at high and low salinity than near the ocean entrance to the Bay. Larvae longer than 15 mm were collected over the shoals in spring and autumn but were in the channel during winter. Zooplankton and microzooplankton were abundant relative to mean California Current densities. Adult spawning biomass in the Bay was 767 tons in July 1978, based on egg abundance and fecundity parameters of oceanic animals. San Francisco Bay was a good spawning area for northern anchovy because food for adults and larvae was abundant and because advective losses of larvae would have been lower in the Bay than in coastal waters at the same latitude.

spawning/environmental conditions/USA/California/San Francisco Bay/ichthyoplankton surveys/spawning grounds/*Engraulis mordax*/food availability/abundance/hydrography/salinity effects/temperature effects/INE/San Francisco Bay/ASFA.

1915. Cole MR, Merschat WR, Parsley RM, Howell DG, Stuart CJ, Platt JP, Hill DJ. Possible strike slip faulting in the Southern California Borderland [discussion and reply]. *Geology* (Boulder). 1975;3(1):p.2-4

Serial For reference to paper by Howell, D. G., et al., see *Geology* (Boulder), Vol. 2, No. 2, 1974. B; Bibliography and Index of *Geology* (1969-present). California/Structural geology/Faults/south/Displacements/Strike slip/borderland/possibilities/evidence/Tertiary/United States/GEOREF.

1916. Smith JA (Performer: Naval Postgraduate School, Monterey, CA). Empirical and Dynamic Modes in the CCS (California Current System). ; 1984. Report No.: NPS6884003. 48p.

CTD data from the California Current System are analysed in terms of both empirical orthogonal functions (EOFs) and quasigeostrophic vertical modes (QGMs). A single EOF accounts for about 97% of the total variance in hydrostatic pressure perturbations to 3000m. The first four pressure EOFs correspond quite well to the first four QGMs. The QGMs are orthogonal with respect to integration over the total water depth, while the EOFs are orthogonal over the depth interval where there are data; thus, a subsets of increasingly deeper cast data are used; the EOFs and QGMs become more alike. The EOF amplitudes must also be uncorrelated over the sample of profiles used, while those of the QGMs need not be; yet, the EOF analysis roughly selects the first four QGMs, even from just eight casts to 3000m. Apparently, the variance contained in each successive QGM decreases precipitously; thus, the variance in QGM 1 overwhelms any correlated part of QGM 2. Likewise, the variance left over in QGM 2 is still sufficient to overwhelm QGM 3 (and so on). (Note also that low-frequency internal waves, e.g. internal tides, have virtually identical modal structure to the QGMs; these may also contribute to the EOFs). In the upper 100 meters, the EOFs vary markedly from survey to survey. The density analysis can produce an EOF which doesn't fit into the 'normal' QGM sequence, but rather is strongly surface trapped, being confirmed roughly to the top 100 meters. This mode, which may represent mixed or Ekman layer variability, can account for up to 20% of the total density

variance. (Author).

Ocean currents/Hydrostatic pressure/Depth indicators/Dynamic range/California/Ocean currents/QGM Quasigeostrophic Vertical Modes/CCS California Current System/NTIS.

1917. LOVETT JR. VERTICAL TEMPERATURE GRADIENT VARIATIONS RELATED TO CURRENT SHEAR AND TURBULENCE. LIMNOLOGY AND OCEANOGRAPHY 1968;13(1, P.127-142, JAN.1968. ABS., 14 FIGS., 32 REFS) UNKNOWN.

TEMPERATURE GRADIENTS/CALIFORNIA CURRENT/UPWELLING/OceanAbstracts.

1918. Chukhrov FV, Ermilova LP, Churikov VS, Nosik LP. The isotopic composition of plant sulfur. Org. Geochem. 1980;2(2):69-75 isotopes/sulfur/geochemistry/cycles/S-34 S-32/vegetation/Plantae/USSR/terrestrial environment/marine environment/atmosphere/circulation/atmospheric precipitation/rainfall/sea water/reduction/soils/fractionation/San Miguel Island/Cocos Islands/geology/geochemistry/chemistry.

1919. Pinardi N. Quasigeostrophic energetics and oceanic mesoscale dynamics. DISS. ABST. INT. PT. B - SCI. & ENG 1986;47(5). The quasigeostrophic energetics and dynamics of different midlatitude open ocean regions are studied. The approach resides in the blend of models and data to identify the physical mechanisms which control the dynamics of the mesoscale/synoptic variability in the ocean. The study of a successful forecast experiment in the California Current mesoscale system provided a unique example of merging of two baroclinic eddies. Results are discussed. The Polymode Synoptic Dynamical Experiment (SDE) data set is studied and the dynamics of intense thermocline jets and eddy formation processes is interpreted. The Gulf Stream prototype data assimilation studies are presented. Satellite infrared images are used to initialize the model with realistic shape and position of the surface Gulf stream front. current prediction/mesoscale features/oceanic eddies/satellite sensing/quasi-geostrophic motion/INE/California Current/ANW/Gulf Stream/ASFA.

1920. Sholkovitz E, Soutar A. Changes in the composition of the bottom water of the Santa Barbara Basin; effect of turbidity currents. Deep Sea Res. 1975;22(1):p.13 Serial B; Bibliography and Index of Geology (1969-present). Pacific Ocean/Oceanography/Sea water/sedimentation/Santa Barbara Basin/Marine geology/North/United States/California/turbidity currents/effects/bottom water/composition/Transport/changes/measurement/data/1969 1970/GEOREF.

1921. Rienecker MM, Mooers CNK, Colton MC, Wittman PA (Performer: Naval Postgraduate School, Monterey, CA). Hydrographic Data from the OPTOMA (Ocean Prediction Through Observations, Modeling and Analysis) Program OPTOMA2, Legs I and II, 31 July - 14 August, 1982. Rept. for Oct 82-Mar 84. ; 1984. Report No.: NPS6884002. 72p. The OPTOMA (Ocean Prediction Through Observations, Modeling and Analysis) Program, a joint NPS/Harvard program sponsored by ONR, seeks to understand the mesoscale (fronts, eddies, and jets) variability and dynamics of the California Current System and to determine the scientific limits to practical mesoscale ocean forecasting. To help carry out the aims of this project, a series of cruises has been planned in two subdomains, NOCAL and CENCAL. The cruise OPTOMA2 was undertaken, in the R/V ACANIA, for two weeks in August, 1982 and covered part of the NOCAL domain which is

roughly 200 km square centered 150 km off the California coast. Hydrographic data were acquired during two legs: Leg I was carried out during the period 31 July to 5 August and sampled an area 130 km cross-shore by 190 km alongshore with additional transects to and from the domain. Leg II was carried out during the period 8 to 14 August and sampled an area roughly 150 km cross-shore by 100 km alongshore. Each leg consisted of a series of parallel transects directed alongshore, separated by roughly 45 km and along which hydrographic stations were occupied every 8.8 km. In addition, there were diagonal transects and tracks to and from the domain. Oceanographic data/North Pacific Ocean/Temperature/Salinity/Depth/Profiles/Graphs/Tables Data/Oceanographic data/OPTOMA project/NTIS.

1922. LONGHURST AR. DISTRIBUTION OF THE LARVAE OF PLEURONCODES PLANIPES IN THE CALIFORNIA CURRENT. LIMNOLOGY AND OCEANOGRAPHY 1968;13(1, P.143-155, JAN.1968. ABS., 6 FIGS., 2 TABLES, 14 REFS) UNKNOWN. CRABS/LARVAE/PLEURONCODES/CALIFORNIA CURRENT/BREEDING/OceanAbstracts.

1923. Cicin-Sain B. Offshore oil development in California: challenges to governments and to the public interest. Public Affairs Report 1986;27(1-2):18 pages Address: University of California, Santa Barbara 93106. The purpose of the paper is to characterize the major challenges to governments and to the public that are posed by the accelerated pace in oil development now taking place offshore California. In recent years, huge oil discoveries have been made off the South/Central Coast of California in the Santa Barbara Channel and in the Santa Maria Basin. A number of oil development proposals are now being considered by relevant federal, state, and local authorities. The article first characterizes the magnitude of the current oil build-up, placing it in historical perspective. Next, it describes the major issues posed by accelerated development, and the complex of federal, state, and local laws that govern offshore oil extraction. The analysis highlights management dilemmas faced by local authorities in coping with the increase in oil activity. Offshore drilling/Crude oil/Government policies/Economic development/coasts/History/National government/State government/Local government/Law(Jurisprudence)/Geophysical prospecting/Sales/Leasing/Constraints/Land use/Drilling platforms/Petroleum industry/Maps/Oil recovery/oil and gas industry/government policy/legislation/Santa Barbara Channel/Santa Maria Basin/government policy/petroleum/.

1924. Douglas RC, C. Walch, G. Blake. Benthic Foraminifera from the borderland of southern California. Laboratory of Micropaleontology, Univ. of South. Calif., Tech. Rept. TR 76-2 1976;;157. benthic/foraminifera/borderland/southern California/Thompson/invertebrates/MINERALS MANAGEMENT SERVICE.

1925. Douglas RG. Paleoecology of continental margin basins: A modern case history from the borderland of southern California. Depositional systems of active continental margin basins. Soc. Econ. Paleontol. Mineral., Pacific Section, Short Course Notes 1981;;121-156. introduction/MINERALS MANAGEMENT SERVICE.

1926. Douglas R, Liestman J, Cotton ML. Benthic Foraminifera

as indicators of sediment transport in the California borderland. Geol. Soc. Am., Abstr. Prog. 1979;11(7):415. California/sedimentation/Pacific Ocean/foraminifera/Hickey/physical oceanography/distribution /marine transport/statistical analysis/United States/offshore/continental borderland/benthonic tax/rates/Holocene/Quaternary/modern/biocenoses/thanatocenoses/test/size distribution/Northeast Pacific/transport/MINERALS MANAGEMENT SERVICE.

1927. Doyle LJ, Gorsline DS. Marine geology of Baja California Borderland, Mexico. Am. Assoc. Pet. Geol. Bull. 1977;61:903-917. Dailey/Gorsline/Introduction/Geology/Geologic Features/Text/MINERALS MANAGEMENT SERVICE.

1928. Robinson AR, Carton JA, Pinardi N, Mooers CNK. Dynamical forecasting and dynamical interpolation: An experiment in the California Current. J. PHYS. OCEANOGR 1986;16(9):1561-1579. In order to perform real-time dynamical forecasts and hindcasts, three high-resolution hydrographic surveys were made of a (150 km) super(2) domain off northern California, providing two sets of initialization and verification fields. The data was objectively analyzed and regularly gridded for model compatibility. These maps initially show an anticyclonic eddy segment in the northeast and part of another in the northwest. Two weeks later only the northwest anticyclonic eddy remained, with the domain center dominated by a 0.6 m s super(-1) jet. Two weeks after that only a larger northwest eddy with fairly weak velocities remained. Numerical forecasts with persistent boundary conditions and forecast experiments with boundary conditions linearly interpolated between surveys were performed. The real-time forecast successfully predicted the formation of the zonal jet prior to its observation. Dynamical interpolation shows unambiguously that the two anticyclonic eddies have merged and formed a single eddy. Even the forecast with incorrect boundary conditions demonstrates the internal dynamical processes involved in the merger event. current prediction/dynamic analysis/hydrographic data/INE/California Current/ASFA.

1929. Ingle JCJ. Oligocene to Holocene planktonic foraminifera biofacies, biostratigraphy, and paleoceanography of the California Current System, northeastern Pacific Ocean. in Marine Plankton and Sediments and Third Planktonic Conference (chaired by Seibold, E.), Int. Counc. Sci. Unions--UNESCO. Paris, 1974. 1974:p.37 Abstract B; Bibliography and Index of Geology (1969-present). Pacific Ocean/Stratigraphy/Cenozoic/biostratigraphy/northeast/California Current System/biofacies/currents/isotherms/paleoclimatology/foraminifera /planktonic/upper Cenozoic/GEOREF.

1930. Rienecker MM, Mooers CNK, Colton MC, Wittman PA (Performer: Naval Postgraduate School, Monterey, CA). Hydrographic Data from the OPTOMA (Ocean Prediction Through Observations, Modeling and Analysis) Program: OPTOMA1, 8 to 13 March, 1982. Rept. for Oct 82-Apr 84. ; 1984. Report No.: NPS6884005. 36p. See also AD-A141 547. PC A03/MF A01. The OPTOMA (Ocean Prediction Through Observations, Modeling and Analysis) Program, a joint NPS/Harvard program sponsored by ONR, seeks to understand the mesoscale (fronts, eddies, jets) variability and dynamics of the California Current System and to determine the scientific limits to practical mesoscale ocean

forecasting. To help carry out the aims of this project, a series of cruises has been planned in two subdomains, NOCAL and CENCAL. The cruise OPTOMA1 was undertaken, on the R/V ACANIA, in March, 1982 and covered part of the NOCAL domain which is roughly 200 km square centered 150 km off the California coast. From March 8 to 13, hydrographic data were acquired along a series of tracks. In the rectangular domain, roughly 90 km across-shore by 120 km alongshore, the series of parallel transects directed alongshore were separated by about 18 km. Along-track station spacing was about 8.8 km. In addition, there were tracks to and from the domain. Oceanographic data/North Pacific Ocean/Temperate regions/Temperature/Depth/Profiles/Salinity/Graphs/Tables Data/Oceanographic data/OPTOMA Project/NTIS.

1931. STEWART DD. EXPENDABLE BATHYTHERMOGRAPH DATA ON SUBSURFACE THERMAL STRUCTURE IN THE EASTERN NORTH PACIFIC OCEAN. U.S. FISH AND WILDLIFE SERVICE. SPECIAL SCIENTIFIC REPORT -- FISHERIES. NO. 548, 72 PAGES, AUG.1967. ABS., 9 FIGS., 13 TABLES, OBSERVATION CHARTS P.21-70, 3 REFS 1967 UNKNOWN. CALIFORNIA CURRENT/DATA COLLECTIONS/PACIFIC OCEAN EAST/OceanAbstracts.

1932. Clark R, Halvorson WL. The recovery of the Santa Barbara Island live-forever. *Fremontia* 1987;14(4):3-6 endangered species/protected species/national parks/conservation areas/islands/pest control/plant ecology/Crassulaceae/Santa Barbara Island/terrestrial biology/botany/mammalogy/entomology.

1933. Matsueda H, Handa N. Vertical flux of hydrocarbons as measured in sediment traps in the eastern North Pacific Ocean. *MAR. CHEM* 1986;20(2):179-195. Sediment trap experiments were conducted at three stations (Stn. 5 at 4750 m depth, 7 at 4330 m depth and 11 at 3880 m depth) in the California Current and its adjacent areas in the eastern North Pacific from December 1982 to January 1983 to collect sinking particles, which were analyzed for organic carbon and hydrocarbons. vertical profiles/hydrocarbons/organic carbon/nitrogen/analysis/INE/ASFA.

1934. (Performer: Worth Research Associates, La Jolla, CA.) Summary Report on Contract N00014-83-C-2004. ; 1982. 46p. Contract: N0001483C2004. This project is concerned with an experimental determination of wide-band propagation parameters in the HF spectrum. Propagation characteristics of both sky-wave and ocean-surface surface-wave modes were the subject of the investigations. To provide near-full-scale measurement ranges, ocean propagation paths from San Clemente Island to Pt. Mugu, California, (site of the Navy Pacific Missile test Center) and to Pt. Arguello (Vandenberg Air Force Base) were used. Generally, field operations were conducted over periods of two to three weeks at times which allowed October 18 through November 1, 1982; January 10 through January 17; and May 1 to May 14, 1983. Surface waves/Ionospheric propagation/Air Force facilities/High frequency/Propagation/Spectra/Broadband/Oceans/Parameters/Paths/California/Surface waves/Ionospheric propagation/NTIS.

1935. LYNN RJ. SEASONAL VARIATION OF TEMPERATURE AND SALINITY AT 10 METERS IN THE CALIFORNIA CURRENT. CALIFORNIA COOPERATIVE OCEANIC FISHERIES INVESTIGATIONS. REPORTS 1967;XI, P.157-186, JAN.1,1967. NO ABS., 38 FIGS., 1 TABLE, 22 REFS. 2 IN GER., 1 IN RUSS

UNKNOWN.

CALIFORNIA CURRENT/TEMPERATURE DATA/SEASONAL VARIATION/SALINITY DATA/REGRESSION CURVES/ STATISTICAL ANALYSIS/OceanAbstracts.

1936. Clevenger JM. The split collbe reduction technology on San Nicolas Island, California [dissertation]. Long Beach, California, USA: California State University; 1982. 173. anthropology/archaeology.

1937. Pelaez J, McGowan JA. Phytoplankton pigment patterns in the California Current as determined by satellite. LIMNOL. OCEANOGR 1986;31(3):927-950.

The satellite images of phytoplankton pigments off California show a high degree of heterogeneity. However, recurrent phytoplankton pigment structures can be identified in the California Current. The major ones are: two sharp boundaries several hundreds of Kilometers long; low pigment eddies far offshore interwoven with higher pigment structures immediately inshore; a low pigment intrusion in the Southern California Bight, and a higher pigment region farther offshore; eddies "attached" to shallow coastal areas; and California Current rings spawned far offshore. Clear similarities of the phytoplankton pigment distributions to the field of dynamic height and to an infrared image of sea surface temperature indicate the very important role of ocean circulation and of phytoplankton nutrient content of the waters, in the generation and maintenance of the observed patterns.

satellite sensing/phytoplankton/pigments/ocean circulation/Pacific Ocean/California Current/satellites/remote sensing/indicators/INE/California Current/ASFA.

1938. Gibson DK, Anderson VC. Sea floor soil mechanics and trafficability measurements with the tracked vehicle 'RUM'. in Deep-Sea Sediments; Physical and Mechanical Properties; Applications of Physical and Mechanical Properties in the Marine Environment. Mar. Sci. 1974;2:p.347-366
Serial B; Bibliography and Index of Geology (1969-present). Engineering geology/Soil mechanics/Sediments/deep sea/properties/measurement/remote underwater manipulator/Pacific Ocean/Materials/profiles/ocean floors/La Jolla Canyon/San Clemente Basin/San Diego Trough/GEOREF.

1939. Blevins RW, Donnelly HL, Stadter JT, Weiss RO, Perez YPL (Performer: Johns Hopkins Univ., Laurel, MD. Applied Physics Lab. Funder: Department of Energy, Washington, DC.) At Sea Test of a Large Diameter Steel, Cold Water Pipe. ; 1979. Report No.: DOEET20342T8. 20p.

Portions are illegible in microfiche products. Contract: AI0177ET20342. During December 1978 and January 1979, a series of tests were conducted off Santa Catalina Island, California, on a large-diameter steel pipe. The pipe was 5 ft (1.52 m) in diameter and made up in 20-ft (6.10 m) sections to obtain a total length up to 500 ft (152.4 m). Deep Oil Technology's X-1 semi-submersible platform was used to support the pipe through a gimbal joint and the platform was moored with spring buoys in 1000 ft (304.8 m) of water. The objectives were to evaluate the at-sea performance of various configurations and to use the test results to verify or improve existing time and frequency domain analyses of cold-water pipes for Ocean Thermal Energy Conversion (OTEC) plants. The configurations tested were platform alone; platform with 120-ft (36.58 m) pipe, with 300-ft (91.44 m) pipe, with 500-ft (152.4 m) pipe and with 384-ft (117.0 m) pipe including a U-joint at 162 ft (49.38 m). The results of the analyses indicate that the frequency locations of the spectral peaks are generally well predicted, but

comparison of the peak values is in poorer agreement. (ERA citation 09:025742). Ocean Thermal Power Plants/Acceleration/Bending/Experimental Data/Frequency Analysis/Offshore Platforms/Performance/Pipes/Spectra/Steels/Stresses/Ocean Thermal Power Plants/ERDA/140800/NTIS.

1940. STEWART GL. MICRO-ZOOPLANKTON IN THE EUPHOTIC ZONE AT FIVE LOCATIONS ACROSS THE CALIFORNIA CURRENT. CANADA. FISHERIES RESEARCH BOARD. JOURNAL 1967;24(10), P.2053-2068, OCT.1967. ABS., 2 FIGS., 5 TABLES, 28 REFS. 1 IN FR., 3 IN GER. GRANTS- NSF GB-3175 AND GB- 4408)

UNKNOWN.

EUPHOTIC ZONES/STANDING STOCK/ZOOPLANKTON/CALIFORNIA CURRENT/FOOD CHAIN/MICROORGANISMS/OceanAbstracts.

1941. Coan E. The recent Crassatellinae of the Eastern Pacific with some notes on Crassinella. Velliger 1984;26(3):153-169 Address: DEP. INVERTEBRATE ZOO., California ACAD. SCI., GOLDEN GATE PK., SAN FRANCISCO, California 94118.

The 3 eastern Pacific species of the Crassatellinae belong in *Eucrassatella* Iredale, 1924, *Hybolophus* Stewart, 1930 is regarded as a synonym of this genus, as is the recently proposed *Eucrassinella* Cruz, 1980. The rare *E. fluctuata* (Carpenter, 1864) occurs off the Channel Islands of southern California [USA] at a mean depth of 88 m; a synonym is the Pliocene-Pleistocene *Crassatellites lomitensis* Oldroyd, 1924. *Crassatella marginata* Keep, 1887, rec Carpenter MS, which has been synonymized with *E. fluctuata*, is instead based on specimens of the bernardinid genus *Halodakra*, perhaps *H. salmonea* (Carpenter, 1864). *F. gibbosa* (Sowerby1, 1832) occurs from the Gulf of California to Peru at a mean depth of 32 m. Added to its synonymy are *E. (Hybolophus) g. tucilla* Olsson, 1932, *E. manabiensis* and *E. aequitorialis* Cruz, 1980. *C. corbuloides* Reeve, 1842, which has been synonymized with *E. gibbosa*, is instead an Australian taxon. The Venezuelan *E. antillarum* (Reeve, 1842) is synonymized with the eastern Pacific *E. digueti* (Lamy, 1917). In the eastern Pacific this species occurs at a mean depth of 45 m from the Gulf of California to Ecuador. Newly added to its synonymy is *C. laevis* A. Adams, 1854, from the Caribbean. Lectotypes are selected for all of the synonymous taxa of *Eucrassatella*. There has been an overrecognition of full, cognate species between the Panamic and Caribbean faunal provinces. Increased consideration should be given to the use of subspecies or describing the morphological differences between populations without naming them. The Caribbean *C. aduncata* Weisbord, 1974, is related to the eastern Pacific *C. adamsi* Olsson, 1961; *C. maldonadoensis* (Pilsbry, 1897) from Uruguay is very similar to the eastern Pacific *C. nuculiformis* Berry, 1940.

new

synonymy/pliocene/pleistocene/Crassatellinae/Eucrassatella/California Channel Islands/Caribbean/Uruguay/marine paleontology.

1942. Matrai PA. The distribution of the dinoflagellate *Ceratium* in relation to environmental factors along 28 degree N in the eastern North Pacific. J. PLANKTON RES 1986;8(1):105-118. The distribution of the species of the dinoflagellate *Ceratium* are related to the oceanographic conditions observed in January 1983 across the eastern North Pacific central gyre, the California Current and the transition zone between them. A change in dominance occurs in the central gyre not accompanied by concomitant changes in the observed physical or chemical features. *Ceratium* "recognized" the edge of the California Current although it seems unaffected in its abundance and species structure by a major warm

temperature anomaly.
dinoflagellates/environmental conditions/USA/California/Pacific
Ocean/ Northeast/community
structure/Ceratium/distribution/INE/California
Current/environmental effects/IS/North Pacific Central
Gyre/relationship/ASFA.

1943. Colburn I, Carey S. The petrology of some upper
Cretaceous sandstones from the Transverse Ranges. Cretaceous
Stratigraphy of the Santa Monica Mountains and Simi Hills. Soc.
Econ. Paleontol. Mineral., Pac. Sect., Guideb. ; 1973. p. p.75.
Serial B; Bibliography and Index of Geology (1969-present).
California/Sedimentary
petrology/Sandstone/Cretaceous/south/Transverse Ranges/San Miguel
Island/Santa Monica Mountains/United States/upper Cretaceous/Chico
Formation/Jalama Formation/Sedimentary
rocks/Clastics/terrigenous/petrography/composition/GEOREF.

1944. McMurtrie JT. Spatial Structures of Optical Parameters
in the California Current as Measured with the Nimbus-7 Coastal
Zone Color Scanner. Master's thesis. [dissertation] ; 1984. 151p.
Performer: Naval Postgraduate School, Monterey, CA
Optical variability across the continental slope and shelf off
Central California was studied using Nimbus-7 Coastal Zone Color
Scanner (CZCS) data. CZCS estimates of $k(490)$, the irradiance
attenuation coefficient at 490 nm, were expressed as optical depth
 $1/k(490)$. A modified atmospheric correction algorithm was used to
account for water radiance at 670 nm. Time sequences of $1/k(490)$
were assembled and partitioned into four zonal transects, at
different latitudes, spanning May through November in 1979, 1980
and 1982. Empirical Orthogonal Functions (EOFs) were calculated for
each partition. The first EOFs are dominated by scales of order 180
km, with in all cases, a band of low optical depth water in the
first 100 km adjacent to the coast. Scales decrease in successive
EOFs, to about 40 km in the fifth EOF. The feasibility of joining
EOFs from different partitions was demonstrated as a precursor for
future applications to piecewise analysis of oceanic satellite
data. (Author).
Continental slopes/Pacific Ocean/Optical
properties/Water/Depth/Atmospheres/Corrections/California/Attenua
tion/Radiance/ Parameters/Optics/Continental
shelves/Scanners/Coastal regions/Meteorological
satellites/Artificial satellites/Continental slopes/NIMBUS 7
satellite/NTIS.

1945. PAVLOVA YV. SEASONAL VARIATIONS OF THE CALIFORNIA
CURRENT. OCEANOLOGY 1967;6(6, P.806-814, AUG.1967. TRANS. OF
OKEANOLOGIJA, VOL. 6, NO. 6, 1966, AMERICAN GEOPHYSICAL UNION. NO
ABS., 5 FIGS., 1 TABLE, 22 REFS. 3 IN GER. TRANS. OF- OI ACCESSION
NO. 67-1934)
UNKNOWN.
TOPOGRAPHY/CALIFORNIA CURRENT/SEASONAL VARIATION/OceanAbstracts.

1946. Coblentz BE. Reproduction of feral goats on Santa
Catalina Island, California. Bull. South. Calif. Acad. Sci.
1982;81(3):128-137 Address: Dep. Fish. & Wildl., Oregon State
Uni., Corvallis, OR 97331. Natality of feral goats (*Capra
hircus*) on Santa Catalina Island appeared to be a density-
dependent response to forage quality and quantity. Conception
rates ranged from 1.11 corpora lutea/pregnancy in a poor forage
area to 1.80 corpora lutea/pregnancy in a good forage area. Body
weight, dressed weight, hind foot length, horn length, and kidney
fat index of goats from the good forage area were significantly

greater ($P < 0.05$) than those from the poor forage area. Partial control of goats on the island increased natality; total removal of feral goats was recommended. feral populations/reproduction/population density/density-dependent response/feral animals/habitat quality/pregnancy rate/physical condition/feral goats/Capra hircus/Santa Catalina Island/terrestrial biology/mammalogy.

1947. Skupniewicz CE, Borrmann S, Fellbaum C, Shaw WJ, Vaucher CA. Shipboard observations of mean and turbulent atmospheric surface layer quantities. SCCCAMP (South Central Coast Cooperative Monitoring Program) data report, Part 1. NPS; MONTEREY, CA (USA); REP. U.S. NAV. POSTGRAD. SCH 1986; Three weeks of aerometric observations from a shipboard platform are described and analyzed to obtain surface layer quantities relevant to the dispersion of pollutants from offshore oil operations. Momentum, heat, and moisture flux were estimated with two different methods: the dissipation technique and bulk parameterizations. Diffusion scale turbulence was measured with bivane anemometers and estimates of ship motion contributions to these measurements were performed. momentum transfer/heat exchange/moisture diffusion/turbulent diffusion/oceanic boundary layer/cruise stations/INE/Santa Barbara Channel/ASFA.

1948. Almgren AA. Upper Cretaceous foraminifera in southern California. Cretaceous Stratigraphy of the Santa Monica Mountains and Simi Hills. Soc. Econ. Paleontol. Mineral., Pac. Sect., Guideb. 1973 1973:p.31-44
Serial B; Bibliography and Index of Geology (1969-present). California/Paleontology/Foraminifera/Cretaceous/south/La Jolla/San Diego/San Miguel Island/Santa Ynez/Santa Ana Mountains/Santa Monica Mountains/Simi Hills/Biostratigraphy/Paleoecology/zoning/United States/upper Cretaceous/Cenomanian/Turonian/Coniacian/Santonian/Campanian/Maes trichtian/Jalama Formation/Rosario Formation/Chico Formation/GEOREF.

1949. Platz BW, Szabo D, Murray JJ (Performer: Coast Guard, Washington, DC. Oceanographic Unit). Oceanographic Observations North Pacific Ocean Station November and Pacific Standard Monitoring Sections P3, P4, P5, and P6, July 1966-June 1974. Terminal Report. Final rept. ; 1982. Report No.: USCG37382. 69p. Includes 15 microfiche inserts. PC A04/MF A01.
Observed and interpolated temperature and salinity data with computed sigma-t values are reviewed for all oceanographic stations occupied by U.S. Coast Guard cutters at Ocean Station NOVEMBER (30 deg 00 N, 140 deg 00 W) and Pacific Standard Monitoring Sections P3, P4, P5, and P6 from July 1966 through June 1974. The analysis of OS NOVEMBER for these eight years compares favorably with seasonal analyses made previously. The water properties show certain seasonal trends with near-surface density appearing to be primarily controlled by temperature. The mixed layer demonstrates an annual growth and decay dependent on changes in atmospheric conditions. The depth of this layer varies from 150 m in March to 10 m in September. Temperatures have an annual periodicity; salinity has a semi-annual periodicity. There is great year-to-year variability in the seasonal layer. Anomalous decreases in temperature were usually accompanied by decreases in salinity. Vertical sections of temperature and salinity for Standard Sections P3, P4, P5, and P6 are examined to determine the seasonal variations of the boundaries between the Pacific Central Water, the Pacific transition zone, and the California Current. These water masses and the limits of their boundaries are identified by the

characteristic rising of isotherms and isopycnals, T vs S relationships, and intense horizontal salinity gradients. Oceanographic data/North Pacific Ocean/Temperature/Salinity/Density/Atmospheric temperature/Seasonal variations/Graphs/Oceanographic data/Ocean Station November/NTIS.

1950. REID JL, J. SOME EXAMPLES OF SEASONAL AND NON-SEASONAL CHANGES IN CIRCULATION. PACIFIC SCIENCE CONGRESS. PROCEEDINGS 1966;1-4, P.140. 11TH CONGRESS. HELD AUG.23-SEPT.2,1966, AT TOKYO, JAPAN, ABS. ONLY UNKNOWN. CIRCULATION/CALIFORNIA CURRENT/SEASONAL VARIATION/OceanAbstracts.

1951. Coblentz BE. A unique ungulate breeding pattern. J. Wildl. Manage. 1980;44(4):929-933 Address: Dep. Fish. Wildl., Oregon State Univ., Corvallis, OR 97331. A quadrimodal breeding pattern in the feral goat on Santa Catalina Island, California, is reported. Breeding peaks, as indicated by observations of females that were courted and bred, occurred at intervals of 2-4 months, and were most commonly 3 months apart. Details are given of the social organization of the goats on the Island and the changes that occurred in the prebreeding period. Evidence suggests that the goats are polygynous breeders, males tending a single oestrus female at a time. Reasons for, and coordination of the quadrimodal breeding pattern are discussed. reproductive behavior/social organization/feral animals/goats/mammals/Santa Catalina Island/terrestrial biology/mammalogy.

1952. Day RW, Osman RW. Predation by *Patiria miniata* (Asteroidea) on bryozoans: Prey diversity may depend on the mechanisms of succession. *Oecologia* (Berl.) 1981;51(3):300-309. *Tubulipora tuba*/*Tubulipora pacifica*/kelp/dominance/abundance/Southern California Bight/USA/Thompson/invertebrates/Schroeter/sub/hard/predation/MINERALS MANAGEMENT SERVICE.

1953. Wittman PA, Mooers CN. Hydrographic data from the OPTOMA (Ocean Prediction Through Observation, Modelling and Analysis) Program OPTOMA 19, 8-13 February 1986. NPS; MONTEREY, CA (USA); REP. U.S. NAV. POSTGRAD. SCH 1986; The OPTOMA (Ocean Prediction Through Observation, Modeling and Analysis) Program seeks to understand the mesoscale (fronts, eddies, and jets) variability and dynamics of the California Current System and to determine the scientific limits to practical mesoscale ocean forecasting. The cruise OPTOMA19 was undertaken in Feb. 1986 and covered a domain 240 km square centered 190 km off the coast from Pt. Arena. This report presents the hydrographic data which were acquired during the period 8 to 13 February. The cruise track consisted of alongshore transects. Data acquired during OPTOMA19 include XBT and CTD profiles. Wind velocity, air temperature, dew point, and 2 meter thermosalinograph measurements were recorded every 2 minutes. hydrographic data/mesoscale features/INE/California Current/ASFA.

1954. Booth JS. Early diagenesis in southern California continental borderland sediments [dissertation]. Thesis; Abstract B; Bibliography and Index of Geology (1969-present). Southern California. Doctoral, 1974. California/Sedimentary petrology/Diagenesis/south/offshore/Sedimentation/Experimental studies/cores/sediments/textures/pore

water/geochemistry/continental borderland/mineral composition/continental margin/Marine geology/Pacific Ocean/United States/data /GEOREF.

1955. Fauchald K, Jones G, Douglas R, Walch C, Blake G (Performer: Science Applications, Inc., La Jolla, CA. Funder: Bureau of Land Management, Washington, DC.) Southern California Baseline Study and Analysis (1975/1976). Volume III (Principal Investigator Work Element Reports). Report Sections 2.4 and 2.5; Book 6 of 10. ; 1978. Report No.: BLMYNSR7810VOL36. 708p. See also PB80-218035. Contract: DI08550CT552.

Intertidal and offshore samples were collected in the Southern California Bight. The purpose of this study was to determine existing levels of petroleum hydrocarbons and trace metals associated with OCS development, plus enhancing or establishing the data base of abundance, composition, diversity and general health of the marine flora and fauna of the area. Rocky intertidal habitats were studied to determine community composition, biogeographical and seasonal variation. Sediment and macrobiota samples from intertidal sites were analyzed for selected trace metals and hydrocarbon characteristics; temporal and spatial variations are discussed.

Crude oil/Ecology/Marine biology/Water pollution/Southern California Bight/Continental shelves/Crustacea/Mollusca/Echinodermata/Annelida/Abundance/Distribution Property/Hydrocarbons/Metals/Environmental impacts/Invertebrates/Tables Data/Sites/Crude oil/Ecology/Marine biology/Water pollution/Southern California Bight/Outer continental shelves/Baseline studies/Species diversity/NTIS.

1956. AHLSTROM EH. FLUCTUATIONS OF CLUPEID FISHES IN RELATION TO THE ENVIRONMENTAL CHANGES IN THE CALIFORNIA CURRENT. PACIFIC SCIENCE CONGRESS. PROCEEDINGS 1966;1-4, P.147. 11TH CONGRESS. HELD AUG.23-SEPT.2,1966, AT TOKYO, JAPAN, ABS. ONLY UNKNOWN.

CLUPEID FISHES/ENVIRONMENTAL VARIATIONS/PELAGIC FISHES/CALIFORNIA CURRENT/OceanAbstracts.

1957. Collins CT. A breeding record of the Dark-eyed Junco on Santa Catalina Island, California, USA. West. Birds 1987;18(2):129-130 reproductive biology/Junco hyemalis/Dark-eyed Junco/Santa Catalina Island/terrestrial biology/ornithology.

1958. Rodrigues MA, Pires AB. Contribuicoes ao conhecimento da fauna do arquipelago de Abrolhos, Bahia, Brasil; Foraminiferos. Translated title: The study of the Abrolhos Archipelago fauna, Bahia, Brazil; the foraminifera]. Acad. Bras. Cienc., An. 1972;44(3-4):p.588

Serial; Abstract B; Bibliography and Index of Geology (1969-present). Brazil/Paleontology/Foraminifera/Holocene/Bahia/Abrolhos Archipelago/Santa Barbara Island/Ecology/Distribution/benthonic/temperature/salinity/South America/GEOREF.

1959. (Performer: National Oceanic and Atmospheric Administration, Washington, DC. Office of Coastal Zone Management.) Final Environmental Impact Statement on the Proposed Channel Islands Marine Sanctuary. ; 1980. Report No.: NOAA82121603. 508p. The National Oceanic and Atmospheric Administration proposes the designation of the waters surrounding the four northern Channel Islands and Santa Barbara Island as a marine sanctuary. The proposed sanctuary would extend six nautical miles seaward from the mean high tide line. If these waters are designated as a marine

sanctuary, the following activities would be subject to the proposed regulations described in this document: oil and gas operations, discharging or depositing any substance, alteration of or construction on the seabed, navigation and operation within one nautical mile of the Islands of vessels not engaged in fishing. All regulations shall only be applied consistent with international law. Channel Islands/Santa Barbara Island/Environmental impact statements final/Construction/Regulations/Economic impact/Fishes/Birds/Mammals/Cetacea/Aquatic plants/Invertebrates/Shellfish/Navigation/Law enforcement/Natural gas/Crude oil/California/Channel Islands/Santa Barbara Island/Environmental impact statements final/Marine sanctuary/Marine sanctuary/NTIS.

1960. MCGOWAN JA. DISTRIBUTIONAL ATLAS OF PELAGIC MOLLUSCS IN THE CALIFORNIA CURRENT REGION. CALIFORNIA COOPERATIVE OCEANIC FISHERIES INVESTIGATIONS, ATLAS NO. 6, 132 PAGES, APRIL 1967. NO ABS., 18 REFS. GRANT- NSF GB-2861 1967 UNKNOWN. MOLLUSKS/PELAGIC D/CALIFORNIA CURRENT/ABUNDANCE/SPECIES LIST/OceanAbstracts.

1961. Collins PW, Drost C, Fellers GM. Migratory status of Flammulated Owls in California USA with recent records from the California Channel Islands. West. Birds 1986;17(1):21-32 Address: SANTA BARBARA MUSEUM NATURAL HISTORY, 2559 PUESTA DEL SOL, SANTA BARBARA, CALIF. 93105. records/biogeography/Flammulated Owls/Otus flammeolus/California Channel Islands/terrestrial biology/ornithology.

1962. Berelson WM. Studies of water column mixing and benthic exchange of nutrients, carbon and radon in the Southern California Borderland. DISS. ABST. INT. PT. B - SCI. & ENG 1986;46(12, pt.1). The water column and pore water chemistry of several basins in the Southern California Borderland have been studied in order to understand mixing rates in the waters of these basins, fluxes across the sediment-water interface, and the rates at which biogenic silica and carbon are mineralized in basin sediments. In situ benthic fluxes have also been measured in two of these basins with a benthic flux chamber (lander) that was built for this study. Copies available exclusively from Micrographics Department, Doheny Library, USC, Los Angeles, CA 90089-0182, USA. water mixing/sediment-water exchanges/silicon cycle/carbon cycle/INE/USA/Southern California Borderland/ASFA.

1963. Krishnaswami S. Man made plutonium in freshwater and marine environments. Indian Acad. Sci., Proc., Sect. A. 1974;80(3):p.116-123 Serial B; Bibliography and Index of Geology (1969-present). Environmental geology/Pollution/Water/sea water/surface water/lakes/sediments/radionuclides/plutonium/observations/data/samples/Europe/ France/United States/California/Santa Barbara Basin/Isotopes/marine/fresh water/abundance/measurement/applications/tracer experiments/sedimentation/rates/Composition/Chemical composition/Experimental studies/basins/GEOREF.

1964. Silva VMF. Thermal Calibration of Satellite Infrared Images and Correlation with Sea-Surface Nutrient Distribution. Master's thesis. [dissertation] ; 1982. 65p. Performer: Naval Postgraduate School, Monterey, CA Satellite infrared imagery off the California coast, near Pt. Sur,

show thermal patterns associated with an upwelling center; the patterns frequently curl cyclonically when interacting with the warmer California Current. This pattern shows sharp thermal fronts, easily identified in satellite IR images, that are strongly correlated with nutrient fronts during the early stages of upwelling. With sea truth data available, it was feasible to calibrate satellite derived sea surface temperature, by applying radiative transfer theory, and to infer nutrient concentrations from their linear inverse correlations with temperature. Thus, it was possible to calibrate satellite thermal fields to produce maps of nutrient distributions. When the inferred relationships were applied over representative regions of the upwelling center, standard deviations of 0.5C, 1.7 microns and 0.1 microns were computed for temperature, nitrate and phosphate, respectively. (Author).

Infrared images/Calibration/Nutrients/Ocean surface/Correlation techniques/Artificial satellites/Patterns/Upwelling/Surface temperature/Radiative transfer/Theory/Concentration Composition/Distribution/Maps/Standard deviation/Oceanographic data/Nitrates/Phosphates/Coastal regions/California/Theses/Infrared images/Calibration/Nutrients/Ocean surface/Correlation techniques/NTIS.

1965. FLEMINGER A. DISTRIBUTIONAL ATLAS OF CALANOID COPEPODS IN THE CALIFORNIA CURRENT REGION, PART II. CALIFORNIA COOPERATIVE OCEANIC FISHERIES INVESTIGATIONS, ATLAS NO. 7, 228 PAGES, MAY 1967. NO ABS., 8 REFS. GRANT- NSF GB-2861. SEE ALSO- OI ACCESSION NO. 66-1885 1967

UNKNOWN.

CALIFORNIA CURRENT/COPEPODS/CALIFORNIA COAST/SPECIES LIST/ABUNDANCE/OceanAbstracts.

1966. Cooper KR, Thornton JA. Project documentation report, Southern California ASW Range (SOAR) survey. : Rep. U.S. Nav. Facil. Eng. Command Chesapeake Div. CHES/NAVFAC-FPO-85(28).; 1985. 111.

The Southern California ASW Range (SOAR) Phase 1B will provide a 100 square mile Anti-Submarine Warfare Training Range in 4,500 feet of seawater west of San Clemente Island, California. An underwater survey of the near shore area of SOAR was conducted in April and May of 1985. The survey was to provide geotechnical and environmental data for the shore landing of underwater cables to be installed in 1987 (SOAR Phase 1B). The survey was conducted in two parts (a) A diver conducted cable inspection of two existing cables and geotechnical data gathering in the near shore area, (b) A hydrographic survey including bathymetry, sub-bottom profile, side scan sonar and current meter data. Both portions of the survey confirmed the presence of two sand covered channels adjacent to West Cove Beach, the proposed cable landing site. They offer potentially good shore landing cable routes to the eastern portion of the survey area where sand thicknesses exceed 60 feet. The western part of the survey area in about 200-300 FSW where sand thicknesses are relatively thin should be avoided although dynamic wave-induced motion of the cable should not be a problem at this depth. The survey provided a good image of the bottom and sub-bottom physical characteristics of the area permitting the development of a cable route to deepwater that provides maximum cable protection. The results of the survey also provide data necessary for cable design. and nearshore protection requirements. cable laying/site surveys/geotechnical data/hydrographic surveys/diving surveys/submarine cables/San Clemente Island/West Cove Beach defense/military.

1967. Eber LE. Contoured depth-time charts (0 to 250 m, 1950 to 1966) of temperature, salinity, oxygen and sigma-t at 23 CalCOFI stations in the California Current. Calif. Coop. Oceanic Fish. Invest. Atlas No. 25 1977; text/physical oceanography/MINERALS MANAGEMENT SERVICE.

1968. Eber LE, Wiley N. Revised update and retrieval system for the CalCOFI oceanographic data file. 1983;:75. animal migrations/chemical oceanography/Eganhouse/California Current/Dissolved gases/minnows/reproduction/biology/Hickey/physical oceanography/MINERALS MANAGEMENT SERVICE.

1969. Eber LE, Mosser HG, Smith PE. Larval fish assemblages in the California current region, 1954-1960, a period of dynamic environmental change. Calif. Coop. Oceanic Fish. Invest. Rep. 1987;28:97-127. fish/MINERALS MANAGEMENT SERVICE.

1970. Sherman K. Measurement strategies for monitoring and forecasting variability in large marine ecosystems. VARIABILITY AND MANAGEMENT OF LARGE MARINE ECOSYSTEMS.; AAAS SELECT. SYMP. SER. 1986;(99):203-235.

Significant effort is underway aimed at providing a scientific basis for the management and conservation of living resources within seven LMEs--the Insular Pacific, Eastern Bering sea, Gulf of Alaska California Current, Gulf of Mexico, Southeast Atlantic Shelf, and Northeast Atlantic Shelf. In each of the LMEs three resource assessment strategies have been implemented to monitor variability and forecast abundance of resource population: (1) utilization of yield statistics for estimating population trends, (2) yield-independent surveys of adult and early-life stages on mesoscale spatial (20-100 km) and temporal (weeks-months) sampling frequencies, and (3) process-oriented studies of ecosystem structure and function leading to improved resource forecasts. ecosystems/marine resources/resource management/environment management/methodology/environmental monitoring/measuring techniques/marine ecosystems/variability/ASFA.

1971. Gevirtz JL, Casey RE. Derivation of radiolarian assemblages; application of cluster analysis. Am. Assoc. Pet. Geol., Soc. Econ. Paleontol. Mineral., Annu. Mtg. Abstr. 1974;1:p.39

Serial; Abstract B; Bibliography and Index of Geology (1969-present). California/Paleontology/Radiolaria/Holocene/offshore/Santa Catalina Basin/Ecology/Depth/assemblages/marine/Pacific Ocean/United States/GEOREF.

1972. Bretschneider DE, McLain DR (Performer: National Marine Fisheries Service, Washington, DC). Sea Level Variations at Monterey, California. ; 1983. Report No.: NOAATRNMFSSSRF761. Sea level data from Monterey, Calif., during the period 1963 through 1976 were compared with data from coastal stations from Peru to Alaska. Sea level fluctuations at Monterey were correlated with data from these stations, particularly those to the south. The causes of sea level fluctuations at Monterey were investigated by correlation, regression, and spectral analysis of sea level with atmospheric pressure, zonal and meridional wind stress, Ekman and Sverdrup transport, surface temperature and salinity, and dynamic height data from nearby locations. Of these variables, dynamic height was the best predictor of sea level fluctuations.

Atmospheric pressure, surface temperature, and meridional wind stress were of secondary importance. The prediction was better during the Davidson Current period than during the upwelling period.

Monterey Bay/Sea level/Tide gages/Ocean tides/Time series analysis/Abnormalities/Fisheries/Air water interactions/Coasts/Sea states/Spectrum signatures/California/Monterey Bay/Sea level/NTIS.

1973. BRINTON E. VERTICAL MIGRATION AND AVOIDANCE CAPABILITY OF EUPHAUSIIDS IN THE CALIFORNIA CURRENT. LIMNOLOGY AND OCEANOGRAPHY 1967;12(3, P.451-483, JULY 1967. ABS., 24 FIGS., TABLES, 32 REFS. 1 IN GER)
UNKNOWN.

CALIFORNIA CURRENT/NETS/EUPHAUSIDS/ZOOGEOGRAPHY/FUNCTIONAL MORPHOLOGY/VERTICAL MIGRATIONS/OceanAbstracts.

1974. Cooper K. Project execution plan for the near shore survey SOCAL ASW (Southern California Anti-Submarine Warfare) Range. : Naval Facilities Engineering Command, Washington, DC. Chesapeake Div. CHES/NAVFAC-FPO-1-85(8); 1985. 52. The Southern California Acoustic Range (SOAR) is designed to provide a 100 sq mi antisubmarine warfare training range in 4500 feet of sea water west of San Clemente Island. SOAR will provide accurate tracking of air, surface and submerged targets. This project plan is a working document that details the mobilization, execution and demobilization of an underwater survey of the near shore area of SOAR. The purpose of the survey is to provide geotechnical and environment data for the shore landing for underwater cables. Survey results will provide (a) a basis for environmental factors required for cable design; (b) geophysical data for cable location; (c) data necessary for the Naval Ocean System Center to support an environmental impact statement, and (d) provide the near shore portion of the total range survey. The survey will be conducted in two parts: (a) a diver cable inspection of two existing cables; and (b) an hydrographic survey of bathymetry, sub-bottom profile, side-scan sonar and current meter data. Transmission lines/Electric cables/Acoustic ranges/Antisubmarine warfare/Training/Cables/Position(Location)/Environments/geophysics Bathymetry/Hydrographic surveying/Mobilization/Inshore areas/Divers/Inspection/Environmental impact statements/Navy/Oceans/Surveys/Planning/Landing/Shores/Antisubmarine warfare/California/South(Direction)/Tracking/Underwater/Sea water/Underwater targets/Underwater equipment/North pacific ocean/Santa Barbara islands/Naval shore facilities/SOAR(Southern California Acoustic Range)/Shore Survey/San Clemente Island/navigation/communications detection/countermeasures/acoustic/detection/Navy/military.

1975. MacCall AD. Changes in the biomass of the California Current ecosystem. VARIABILITY AND MANAGEMENT OF LARGE MARINE ECOSYSTEMS.; AAAS SELECT. SYMP. SER. 1986;(99):33-45. California Current pelagic fishes have been monitored for 30 to 50 years, and a paleosedimentary record extends back 200 to 2000 years. Large natural fluctuations in abundance occur at all time scales. Overharvest of sardines removed a major component of the ecosystem; the extent to which it was replaced by other species is not clear. Large predatory fishes have declined in abundance due to exploitation. Pinnipeds were depleted in the last century, but now are abundant and are increasing rapidly. Seabird reproductive success is closely related to availability of small forage fish such as anchovy. Despite a wealth of scientific information, species interactions are poorly understood, and are difficult to separate from independent differential responses to varying

environmental conditions. The biological basis of fishery management is likely to remain single-species models in the foreseeable future. Ecosystem management requires coordinated consideration of both fished and non-fished species, but faces conflicting jurisdictions and other institutional difficulties. ecological balance/ecosystem management/marine fisheries/Pacific Ocean/ California Current/biomass/environmental changes/marine ecosystems/INE/ California Current/ISE/California Current/environmental conditions/changes/ASFA.

1976. Eswaran H, Stoops G, De PP. A contribution to the study of soil formation on Isla Santa Cruz, Galapagos. *Pedologie*. 1973;23(2):p.100-122 Serial B; Bibliography and Index of Geology (1969-present). Galapagos Islands/Soils/Genesis/Santa Cruz Island/Parent materials/pyroclastics/lava/peridotite/granulometry/ion exchange/structure/amorphous/clay mineralogy/weathering/South America/GEOREF.

1977. Hodder D, Mel M (Performer: Science Applications, Inc., La Jolla, CA. Funder: Bureau of Land Management, Washington, DC.) Southern California Baseline Study and Analysis (1975/1976). Volume III. Principal Investigator Work Element Reports. Report Section 2.6; Book 7 of 10. ; 1978. Report No.: BLMYNSR7811VOL37. 516p.

See also Volume 3, Book 6, PB83-149799, and Volume 3, Book 8, PB83-174839. PC A22/MF A01.

Intertidal and offshore samples were collected in the Southern California Bight. The purpose of this study was to determine existing levels of petroleum hydrocarbons and trace metals associated with OCS development, plus enhancing or establishing the data base of abundance, composition, diversity and general health of the marine flora and fauna of the area. This report (Book 7) contains a review of literature on known and historical locations of kelp beds, the results of four aerial surveys, and an analysis of seasonal changes in the distribution of kelp plants in the southern California area.

Crude oil/Ecology/Marine biology/Water pollution/Southern California Bight/Surveys/Continental shelves/Aquatic plants/Infrared mapping/Sites/Area/Abundance/Distribution Property/Hydrocarbons/Metals/Environmental impacts/Invertebrates/Tables Data/Sites/Crude oil/Ecology/Marine biology/Water pollution/Southern California Bight/Outer continental shelves/Baseline studies/Species diversity/Kelp/Macrocystis/Kelp/NTIS.

1978. BRINTON E. DISTRIBUTIONAL ATLAS OF EUPHAUSIACES CRUSTACEA IN THE CALIFORNIA CURRENT REGION, PART 1. CALIFORNIA COOPERATIVE OCEANIC FISHERIES INVESTIGATIONS. ATLAS. NO. 5, FEB.1967. 285 PAGES, NO ABS., 4 REFS. GRANT, NSF GB-2861 1967 UNKNOWN. EUPHAUSIDS/ZOOGEOGRAPHY/EUPHAUSIACEA/ATLASES/CALIFORNIA CURRENT/DATA COMPILATION/OceanAbstracts.

1979. Cooper K, Jones T. Project execution plan for the installation of the SOCAL Acoustic Range (SOAR). : Naval Facilities Engineering Command, Washington, DC. Chesapeake Div. HES/NAVFAC-FPO-1-84(4); 1984. 72.

The Southern California Acoustic Range (SOAR) is designed to provide a 100 square mile Anti Submarine Warfare training range in 4000 feet of sea water west of San Clemente Island, California. SAR will provide accurate tracking of air, surface and submerged

targets. This plan is a working document that details the mobilization, execution and demobilization of the underwater portion of the SOAR project. The overall scenario of the project is to accomplish the following; (a) Prefabrication and assemble project materials at NOSC, San Diego; (b) Conduct training near Coronado beach; (c) Mobilize the OCP SEACON and UCT-2 personnel and equipment at West Cove, San Clemente Island; (d) Land the SSL cable and deploy the SSL system at sea; (e) Land the WQC cable and deploy the WQC transducer at sea; (f) Conduct a complete as-built survey (g) Demobilize SEACON and return all equipments and (h) Prepare a detail completion report.

Acoustic ranges/Naval training/Antisubmarine warfare/Aerial targets/Surface targets/Installation/Naval planning/Deep oceans/Inlets(Waterways)/West(Direction)/Prefabrication/Sea water/Underwater targets/Documents/California/Mobilization/Scenarios/South(Direction)/Tracking/San Clemente Island/West Cove navigation/communications detection/naval planning/military.

1980. Ecological Consulting. A risk analysis model for marine mammals and seabirds: A Southern California Bight scenario. Final report. OCS study MMS 85-0104. Prepared for Pacific OCS Region of Minerals Management Service, U.S. Dept. of Interior 1985;:236.

mammals/birds/anthropogenic/MINERALS MANAGEMENT SERVICE.

1981. Ingle JCJ. Oligocene to Holocene planktonic foraminiferal biofacies and paleoceanography of the California Current system at lat. 39 degrees N. in Cordilleran Section, 70th Annual Meeting. Geol. Soc. Am., Abstr. 1974;6(3):p.195 Serial; Abstract B; Bibliography and Index of Geology (1969-present). Pacific Ocean/Paleontology/Foraminifera/Cenozoic/northeast/Deep Sea Drilling Project/Site 173/Rotaliina/paleoecology/temperature/Globigerinita/Globigerina/Globorotalia/C atapsydrax/Oceans/circulation/Currents/California Current/evolution/Oligocene/Miocene/Pliocene/Pleistocene/marine/subarctic/tempe rate/subtropical/GEOREF.

1982. Edwards BD, M.E. Field. Sedimentary processes active on slopes of California borderland. Am. Assoc. Pet. Geol. Bull. 1980;64(3):442. California/Pacific Coast/Pacific Ocean/sedimentation/geophysical surveys/Hickey/physical oceanography/acousticalsurveys/continentalslope/marinegeology/slumping/United States/Northeast Pacific/observations/submersibles/soft sediment deformation/sedimentary structures/basins/mass movements/failure/processes/MINERALS MANAGEMENT SERVICE.

1983. Kaplan I, Bainbridge A, Holm HO, Risebrough R, DeLappe B (Performer: Science Applications, Inc., La Jolla, CA. Funder: Bureau of Land Management, Washington, DC.) Southern California Baseline Study and Analysis (1975/1976). Volume III. Principal Investigator Work Element Reports. Report Sections 3.1, 3.2.1-3.2.4; Book 8 of 10. ; 1978. Report No.: BLMYNSR7812VOL38. 582p. See also Volume 3, Book 7, PB83-174821, and Volume 3, Book 9, PB83-174847. PC A25/MF A01. Intertidal and offshore samples were collected in the Southern California Bight. The purpose of this study was to determine existing levels of petroleum hydrocarbons and trace metals associated with outer continental shelf development, plus enhancing or establishing the data base of abundance, composition, diversity and general health of the marine flora and fauna of the area. Book 8 contains those studies dealing with the chemistry of the Bight,

primarily high-molecular-weight hydrocarbons in sediments; seawaters; particulate and dissolved organic carbon analysis; and physical oceanography. Crude oil/Ecology/Marine biology/Water pollution/Southern California Bight/Chemical analysis/Intertidal zone/Hydrocarbons/Sediments/Oceanographic data/Carbon/Particles/Water chemistry/Sea water/Environmental impacts/Physical properties/Tables Data/Sites/Crude oil/Ecology/Marine biology/Water pollution/Southern California Bight/Outer continental shelves/Baseline studies/Species diversity/NTIS.

1984. SOUTAR A. PLANKTONIC FORAMINIFERA- FIELD EXPERIMENT ON PRODUCTION RATE. SCIENCE. 1967;156(3781, JUNE 16,1967. P.1495-1497 ABS., 1 FIG., 1 TABLE, 7 REFS) UNKNOWN.
PLANKTONIC FORAMINIFERA/GLOBIGERINA/GLOBIGERINOIDES/GLOBOQUADRINA/PRODUCTIVITY/CALIFORNIA CURRENT/OceanAbstracts.

1985. Cooper KR, Thornton JA. Project documentation report, Southern California ASW Range (SOAR) Survey. : Naval Facilities Engineering Command, Washington, DC. Chesapeake Div. CHES/NAVFAF-FPO-85(28); 1985. 111. The Southern California ASW Range (SOAR) Phase 1B will provide a 100 square mile Anti-Submarine Warfare Training Range in 4,500 feet of seawater west of San Clemente Island, California. An underwater survey of the near shore area of SOAR was conducted in April and May of 1985. The survey was to provide geotechnical and environmental data for the shore landing of underwater cables to be installed in 1987 (SOAR Phase 1B). The survey was conducted in two parts; (a) A diver conducted cable inspection of two existing cables and geotechnical data gathering in the near shore area, (b) A hydrographic survey including bathymetry, sub-bottom profile, side scan sonar and current meter data. Both portions of the survey confirmed the presence of two sand covered channels adjacent to West Cove Beach, the proposed cable landing site. They offer potentially good shore landing cable routes to the eastern portion of the survey area where sand thicknesses exceed 60 feet. The western part of the survey area in about 200-300 FSW where sand thicknesses are relatively thin should be avoided although dynamic wave-induced motion of the cable should not be a problem at this depth. The survey provided a good image of the bottom and sub-bottom physical characteristics of the area permitting the development of a cable route to deepwater that provides maximum cable protection. The results of the survey also provide data necessary for cable design and nearshore protection requirements.

Shores/Inshore areas/Ocean bottom/Antisubmarine warfare/California/Dynamics/Environments/Hydrographic surveying/Naval shore facilities/Images/Inspection/Landing/Bottom/Cables/measuring instruments/Motion/Physical properties/Protection/Requirements/Sand/Scanning sonar/Sea water/Acoustic ranges/Side looking sonar/Surveys/Thickness/Training/Underwater/Underwater equipment/Waves/Underwater cables/Cable landing areas/San Clemente Island/SOAR(Southern California Acoustic Range)/California Channel Islands/Santa Barbara Channel/San Clemente Island/physical oceanography.

1986. Thornton SE. Origin of mass flow sedimentary structures in hemipelagic basin deposits: Santa Barbara Basin, California borderland. GEO-MAR. LETT 1985;6(1):15-19. Holocene mass flow processes produce distinctive sedimentary structures in this silled, anoxic basin characterized by high

sedimentation rates of fine-grained fill. Mud flow deposits possess a diagnostic vertical sequence of structures on the lower slope. Basin floor turbidites possess a variety of bed set combinations of: finely laminated layers, graded silt and clay layers, and ungraded, massive silts and clays with floating sand grains. Massive, ungraded flood-derived suspensate deposits can be distinguished from turbidites. Turbidites and suspensate deposits constitute 30% of the sampled sediment column. Varve counting of the remaining 70% provides frequencies of turbidite and flood suspensate layer deposition.

turbidites/Holocene/sediments/sedimentary
structures/varves/INE/USA/ California/Santa Barbara Basin/ASFA.

1987. Hill DJ. Pre Tertiary rocks exposed on Santa Cruz Island, California; preliminary observations. in Cordilleran Section, 70th Annual Meeting. Geol. Soc. Am., Abstr. 1974;6(3):p.192

Serial; Abstract B; Bibliography and Index of Geology (1969-present). California/Petrology/Igneous rocks/metamorphic rocks/Mesozoic/Santa Cruz Island/Plutonic/Schists/United States/GEOREF.

1988. Benson A, Risebrough R, Burlingame A, Moberg M (Performer: Science Applications, Inc., La Jolla, CA. Funder: Bureau of Land Management, Washington, DC.) Southern California Baseline Study and Analysis (1975/1976). Volume III. Principal Investigator Work Element Reports. Report Sections 3.3-3.6; Book 9 of 10. ; 1978. Report No.: BLMYNSR7813VOL39. 379p.

See also Volume 3, Book 8, PB83-174839. PC A17/MF A01. Intertidal and offshore samples were collected in the Southern California Bight. The purpose of this study was to determine existing levels of petroleum hydrocarbons and trace metals associated with OCS development, plus enhancing or establishing the data base of abundance, composition, diversity and general health of the marine flora and fauna of the area. Book 9 contains those studies dealing with the chemistry of the Bight, primarily high-molecular-weight-hydrocarbons in benthic fauna, intertidal flora and fauna, and results of GC/MS analysis. Crude oil/Ecology/Marine biology/Water pollution/Southern California Bight/Hydrocarbons/Intertidal zone/Chemical analysis/Aquatic plants/Aquatic animals/Abundance/Distribution Property/Chromatographic analysis/Gas chromatography/Mass spectra/Sampling/Crude oil/Ecology/Marine biology/Water pollution/Southern California Bight/Outer continental shelves/Baseline studies/Species diversity/NTIS.

1989. LONGHURST AR. VERTICLE DISTRIBUTION OF ZOOPLANKTON IN RELATION TO THE EASTERN PACIFIC OXYGEN MINIMUM. DEEP-SEA RESEARCH AND OCEANOGRAPHIC ABSTRACTS. 1967;14(1, FEB.1967. P.51-63, ABS., FIGS., TABLES, 22 REFS., MF. CONTRACTS- BCF 14-170007-139/221) UNKNOWN.

VERTICAL MIGRATION/OXYGEN MINIMUM/ZOOPLANKTON DISTRIBUTION/
CALIFORNIA CURRENT/EAST PACIFIC OCEAN/OceanAbstracts.

1990. Corbett EJ. Velocity structure of Southern California continental borderland as seen from Catalina Island. T. Long. 78th annual meeting, Seismological Society of America, abstracts. Earthquake Notes 54(1). ; 1982. 67-68.

Address: Ga. Inst. Technol., Sch. Geophys. Sci., Atlanta, GA
Conference: 78th annual meeting of the Seismological Society of America Salt Lake City, UT, May 2-4, 1983.
seismology/crust/oceanography/velocity
structure/earthquakes/continental

shelf/traveltime/explosions/Mohorovicic discontinuity/P-waves/Santa Barbara Islands earthquake 1981/continental borderland Los Angeles County/Ventura County/Santa Catalina Island/Santa Barbara Islands/San Nicolas Island/Santa Barbara Islands/California Channel Islands/geology/geophysics/seismology.

1991. Eganhouse RP, Johnson JN, Young DR, McDermott DJ. Mercury in southern California waters: Inputs, distribution, and fate. Summary rep. 1971-75. 1976;:64. mercury metal/southern california bight/trace elements/water pollution/industrial wastes/sewage/surface water runoff/sediments/hydrology/concentration composition/sea water/air pollution/ocean currents/marine transportation/sites/sampling/accumulation/aquatic animals/north pacific ocean/water pollution sampling/water pollution effects animals/ocean waste disposal/path of pollutants/air water interactions/mercury/methyl/ntissolo/anderson/anthropogenic/eganhouse/chemical/ oceanography/invertebrates/MINERALS MANAGEMENT SERVICE.

1992. Sayce JR, Hunt GLJ. Sex ratios of pre fledging western gulls. AUK 1987;104(1):33-37. Western Gull (*Larus occidentalis*) chicks on Santa Barbara Island, California, had a sex ratio at hatching of 1.12 M/F; the sex ratio of chicks greater than or approximate to 35 days of age was 0.89. The sex ratio at hatching and fledging did not vary significantly from 1.0 or from each other, but the data suggest that male mortality before fledging exceeded that of females. Depressed growth rates of male chicks hatched third may be responsible for these higher male mortality rates. The authors found no evidence for seasonal or hatching-order effects on sex ratios at hatching. They suggest that post fledging differences in mortality between the sexes are in part responsible for the skewed sex ratio (0.67 males/female) observed in the adult breeding population. sex ratio/USA/California/Santa Barbara Island/population structure/marine birds/*Larus occidentalis*/juveniles/INE/USA/California/Santa Barbara Island/ASFA.

1993. Griggs GB. Coastal currents and waste water discharge. in Cordilleran Section, 70th Annual Meeting. Geol. Soc. Am., Abstr. 1974;6(3):p.184-185 Serial; Abstract B; Bibliography and Index of Geology (1969-present). Pacific Ocean/Oceanography/Oceans/circulation/northeast/California/Monterey Bay/Currents/Davidson Current/California Current/patterns/applications/waste disposal/Engineering geology/Liquid wastes/domestic/factors/United States/GEOREF.

1994. Eber LE, Wiley N (Performer: National Marine Fisheries Service, La Jolla, CA. Southwest Fisheries Center.) Revised Update and Retrieval System for the Calcofi Oceanographic Data File. ; 1982. Report No.: NOAATMNMFSWFC24, NOAA83040101. 75p. Oceanographic observations have been made over an extensive grid of stations in the California Current region since 1949. The grid was designed during development of a systematic sampling program to determine the major spawning areas of the Pacific sardine off the coasts of the United States and Baja California, Mexico. With the demise of the sardine, emphasis in the program was redirected toward the Northern Anchovy. The physical and chemical data from CalCOFI surveys have been compiled by SIO into data reports, which include values of temperature, salinity and oxygen tabulated at observed and at standard depths, and computed values of sigma-t, thermosteric anomaly and geopotential anomaly at standard depths.

These data have been used by many investigators working on problems associated with the California Current.

Information systems/Oceanographic data/Fisheries/Animal migrations/Reproduction Biology/Minnows/Coasts/California Current/Computer programming/Surveys/Ocean temperature/Salinity/Oxygen/Dissolved gases/Nutrients/Mexico/United States/Information systems/Oceanographic data/Fisheries/Spawning/Baja California Mexico/NTIS.

1995. PAVLOVA IV. SEASONAL VARIATIONS OF THE CALIFORNIA CURRENT. OKEANOLOGIJA. 1966;6(6, 1966. P.1003-1013. IN RUSSIAN, ENG. SUM., 3 FIGS., 1 TABLE, 22 REFS)

UNKNOWN.

CALIFORNIA CURRENT/TRANSPORT/VERTICAL DISTRIBUTION/COUNTERCURRENTS/CALIFORNIA COAST/SEASONAL VARIATIONS/CURRENT VELOCITIES/WIND FIELDS/ ATMOSPHERIC CIRCULATION/DENSITY/DYNAMIC TOPOGRAPHY/OceanAbstracts.

1996. Corbett EJ. Seismicity and crustal structure studies of Southern California; tectonic implications from improved earthquake locations [dissertation]. Pasadena, CA: California Inst. of Technol.; 1984. 247.

seismology/folds/faults/tectonophysics/earthquakes/mechanics systems/crust/seismicity/decollement/block structures neotectonics/Transverse Ranges/Santa Barbara earthquake aftershocks/focal mechanism/Santa Barbara Island earthquake/Santa Cruz-Catalina Fault/scarps/velocity structure/explosions Mojave Desert/Santa Catalina Island/San Bernardino Mountains/Santa Barbara Island/Santa Monica Basin/ geology/solid earth geophysics/seismology.

1997. Smith RC, Dustan P, Au D, Baker KS, Dunlap EA. Distribution of cetaceans and sea-surface chlorophyll concentrations in the California Current. MAR. BIOL 1986;91(3):385-402.

A census of marine mammals was conducted off the coast of California (USA) in 1979-1980. The distribution of sea-surface chlorophyll was determined at the same time by onboard fluorometry and by remote sensing using the Coastal Zone Color Scanner on the Nimbus-7 satellite. Comparisons of species and chlorophyll distributions indicate that marine mammals are not randomly distributed with respect to chlorophyll. Cetaceans were more abundant in the productive coastal waters than in the offshore oceanic waters of the California Current. This supports the hypothesis that the distributions of some cetacean species may be related to the mesoscale features that are manifest in the patterns of chlorophyll as revealed in the satellite imagery. It is suggested that oceanic chlorophyll may be used as a habitat descriptor for selected marine mammals.

chlorophylls/Cetacea/ecological distribution/INE/California Current/ASFA.

1998. Normark WR, Piper DJW. Sediments and growth pattern of Navy deep sea fan, San Clemente Basin, California borderland. Calif., Univ. Scripps Inst. Oceanogr., Contrib. Vol. 42, Part 2, p. 1094-1119, illus. (incl. sketch maps), 1972. Reprint from J. Geol. 1972;80:p.198

Serial B; Bibliography and Index of Geology (1969-present). Pacific Ocean/Oceanography/Sedimentation/submarine fans/California/San Clemente Basin/Navy Fan/Transport/Marine transport/fans/deep sea/Marine geology/United States/continental margin/Sediments/Environmental analysis/Sand/mud/biogenic/foraminifera/Radiolaria/lithofacies/co

res/GEOREF.

1999. ALVARINO A. DISTRIBUTIONAL ATLAS OF CHAETOGNATHA IN THE CALIFORNIA CURRENT REGION. CALIFORNIA COOPERATIVE OCEANIC FISHERIES INVESTIGATIONS. ATLAS. NO. 3, DEC.1965. RECEIVED OL, AUG.1966. 302 PAGES, NO ABS., 8 REFS., MF 1965 UNKNOWN. ATLASES/PLANKTON DISTRIBUTION/POPULATION DENSITY/TEMPERATURE PROFILES/DATA COMPILATION/OXYGEN PROFILES/CHAETOGNATHS/CALCOFI ATLASES/CRUISE REPORTS/WATER MASSES/CALIFORNIA CURRENT/SEASONAL VARIATIONS/CALIFORNIA COAST/OceanAbstracts.

2000. orbett EJ, Johnson CE. The Santa Barbara Channel earthquake of August 13, 1978. Eos (Am. Geophys. Union, Trans.) 1978;59(12):1130 Address: Calif. Inst. Technol., Seismol. Lab., Pasadena, Calif. Conference: San Francisco, Calif., Dec. 4-8, 1978. seismology/earthquakes/mechanism/focus/foreshocks/main shock/aftershocks/faults/rupture/earthquake history/earthquake foci/epicentres/epicenters/Santa Barbara/Santa Barbara Channel/geology/seismology/geophysics/.

2001. Driessen PK. Offshore oil platforms: An invaluable ecological resource. OCEANS '86 CONFERENCE RECORD: SCIENCE-ENGINEERING-ADVENTURE. VOL. 2. DATA MANAGEMENT, INSTRUMENTATION AND ECONOMICS. OCEANS '86 1986;;516-521. Hard substrates created by oil platforms in the Gulf of Mexico and Santa Barbara Channel provide a significant portion of the hard bottom habitat that is essential for the encrusting organisms that form the base of a complex food web. These substrates, the platforms' high profile and open structure, and their creation of excellent habitats and breeding grounds from the sea floor through the splash zone expand the numbers, diversity and range of many desirable fish, shellfish and other organisms. artificial reefs/offshore structures/utilization/risks/risk assessment/oil and gas industry/ecological evaluation/industrial sites/ASFA.

2002. Koide M, Soutar A, Goldberg ED. Marine geochronology with (210)Pb. Calif., Univ. Scripps Inst. Oceanogr., Contrib. 1972;42(2):p.997-1001 Serial B; Bibliography and Index of Geology (1969-present). California/Geochronology/Varved clay/absolute age/offshore/Santa Barbara Basin/Marine geology/Pacific Ocean/United States/sediments/Isotopes/Lead/marine/Pb 210/Dates/methods/GEOREF.

2003. Dorman CE. Winds between San Diego and San Clemente Island. Jnl. of Geophysical Research 1982;87(C12):p.9636-9646 Performer: San Diego State Univ., CA. Dept. of Geological Sciences. Wind/North Pacific Ocean/California/Coastal regions/Wind velocity/Stresses/Diurnal variations/Seasonal variations/Wind/California bight/Wind stress/NTIS.

2004. PERKINS HC. SURVEY OF PELAGIC FISHES OF THE CALIFORNIA CURRENT AREA. U.S. FISH AND WILDLIFE SERVICE. FISHERIES BULLETIN. 1966;65(3, 1966. P.625-682, ABS., 30 FIGS., 2 TABLES, 53 REFS) UNKNOWN. TAXONOMY/ECOLOGY/ZOOGEOGRAPHY/FAUNA LIST/ONTOGENY/POPULATION DENSITY/SIZE DISTRIBUTION/LIFE HISTORY/SPECIFICATIONS/NETS/SURVEYS/FISHES/CALIFORNIA CURRENT/PELAGIC/SAMPLERS/TRAWLS/OceanAbstracts.

2005. Carlucci AF, Craven DB, Robertson KJ, Henrichs SM. Microheterotrophic utilization of dissolved free amino acids in

depth profiles of Southern California Borderland basin waters.
OCEANOL. ACTA 1986;9(1):89-96.

Microheterotrophic utilization of dissolved free amino acids (DFAA) was examined during the spring season in depth profiles of two California Borderland basins, and the effects of added DFAA concentrations on incorporation and respiration rates were studied. Utilization rates were most rapid in the euphotic zone (0.4-4.0 nmol l super(-1) h super(-1)), and decreased considerably in mid-depth basin waters. Elevated utilization rates were generally observed in the deepest basin waters studied, where bacterial numbers also increased over mid-depth values. Euphotic-zone microheterotrophs, were insensitive to DFAA additions as high as 15 nmol l super(-1), but mid-water populations associated with low ambient DFAA concentrations displayed elevated respiration rates, and elevated incorporation rates to a lesser degree, at DFAA additions greater than approximately 2 nmol l super(-1).

amino acids/vertical
profiles/microorganisms/metabolism/respiration/INE/USA/California
/ASFA.

2006. Howell DG, Stuart CJ, Platt JP, Hill DJ. Possible Strike Slip Faulting in the Southern California Borderland. Geology (Boulder). 1974;2(2):p.93-98

Serial Proposed East Santa Cruz fault system, right slip, reconstruction of Eocene-Miocene sedimentation and paleogeography; offshore California. B; Bibliography and Index of Geology (1969-present).

California/Structural geology/Faults/south/Santa Cruz Island/San Miguel Island/San Nicolas Island/Santa Rosa Island/Tertiary/United States/Santa Cruz

Basin/paleogeography/sedimentation/reconstruction/Eocene/Poway Conglomerate/Miocene/San Onofre Breccia/Displacements/Strike slip/possibilities/age/nomenclature/offshore/East Santa Cruz Basin Fault/GEOREF.

2007. Capelle GA, Franks LA, Jessup DA (Performer: EG and G, Inc., Goleta, CA. Funder: Department of Energy, Washington, DC.) Aerial Testing of KrF-Laser-Based Fluorosensor. ; 1981. Report No.: DOENV10282T2. 27p. Contract: AC0883NV10282.

An airborne two-channel KrF laser fluorosensor was tested from a Convair 580-T over targets at the Nevada Test site, and at the Naval Petroleum Reserve and Santa Barbara Channel in California. The two spectral-channel system (295 and 395 nm) successfully detected a variety of pollutant-type materials on the ground, both at night and in full daylight. (ERA citation 08:034386).

Air Pollution Monitors/Aerial Monitoring/Flight Testing/Gas Lasers/Telescopes/Noise/Signals/Spectral Response/Air Pollution Monitors/ERDA/440300/ERDA/010900/NTIS.

2008. MAKEROV IV. SEASONAL VARIABILITY OF THE HYDROLOGICAL STRUCTURE AND HYDROLOGICAL CHARACTERISTICS OF THE KUROSHIO AND CALIFORNIA CURRENTS. MOSCOW. GOSUDARSTVENNYI OKEANOGRAFICHESKII INSTITUT. TRUDY. NO. 84, 1965. RECEIVED CUS, MARCH 30, 1966. P.225-242 IN RUSSIAN, RUSS. ABS., 3 FIGS., 5 TABLES, 9 REFS 1965 UNKNOWN. CALIFORNIA CURRENT/KUROSHIO CURRENT/CURRENTS/TEMPERATURE DISTRIBUTION/SALINITY DISTRIBUTION/SEASONAL VARIATIONS/CURRENT VELOCITY/OceanAbstracts.

2009. Corbett EJ, Piper KA. Santa Barbara Island, California earthquake, September 4, 1981. EOS Trans Am Geophys Union (Washington DC) 1981;62(45):10388-104
DATES: 07 DECEMBER TO 11 DECEMBER 1981. Conf. No. 81-0197.
earthquake foci and epicenters/earthquake epicentres/earthquake

intensity/earthquake distribution/Santa Barbara Channel/California Channel Islands geology.

2010. Brink KH, Muench RD. Circulation in the Point Conception-Santa Barbara Channel region. J. GEOPHYS. RES. (C OCEANS) 1986;91(C1):877-895. During spring and early summer 1983, fifteen current moorings were deployed around the periphery of Santa Barbara Channel and over the continental shelf to the west, off Point Conception. Data from these moorings have been used to describe the regional circulation and to address problems of wind forcing and the spatial coherency scales for current fluctuations. The mean circulation in Santa Barbara Channel was dominated by a westward jet which occupied the northwestern portion of the Channel. Current and temperature fluctuations were generally well-correlated among all locations around the Channel, and time lags suggested cyclonic propagation of events around the Channel. The time fluctuations were dominated by a relatively few low-frequency events. It was impossible to determine exactly either the driving mechanisms for these events or their relationships to regional flow.
current meter data/shelf dynamics/temperature data/INE/Santa Barbara Channel/ASFA.

2011. Weaver CE, Ver PWE. Geology and mineral deposits of an area north of San Francisco Bay, California; Vacaville, Antioch, Mount Vaca, Carquinez, Mare Island, Sonoma, Santa Rosa, Petaluma, and Point Reyes quadrangles. Calif. Div. Mines Geol., Bull. Revision and condensation of Memoir No. 78, Geological Society of America, plus economic geology. 1949;149(p.1-135)
Serial B; Bibliography and Index of Geology (1969-present).
California/Areal geology/San Francisco Bay/north/Vacaville Quadrangle/Antioch Quadrangle/Mount Vaca Quadrangle/Carquinez Quadrangle/Mare Island Quadrangle/Sonoma Quadrangle/Santa Rosa Quadrangle/Petaluma Quadrangle/Point Reyes Quadrangle/Economic geology/Mineral resources/regional/United States/Maps/geologic/Contra Costa County/Marin County/Napa County/Solano County/Sonoma County/GEOREF.

2012. Helander CJ (Performer: California State Dept. of Motor Vehicles, Sacramento. Funder: National Highway Traffic Safety Administration, Washington, DC.
Funder: California Office of Traffic Safety, Sacramento.)
Intervention Strategies for Accident-Involved Drivers: An Experimental Evaluation of Current California Policy and Alternatives. Final rept. ; 1983. Report No.: CALDMVRSS8385. 65p.
Sponsored in part by National Highway Traffic Safety Administration, Washington, DC., and California Office of Traffic Safety, Sacramento. PC A04/MF A01. The project was designed to evaluate current and alternative strategies for selecting and treating accident-involved drivers in California. The current accident-based selection criteria were contrasted with an expanded selection strategy which included convictions as well as accidents as criteria for selection. The standard diagnostic reexamination treatment was compared to two alternative behavior modification treatments--an accident-avoidance session and a mailed educational pamphlet/self-administered test. Interaction between treatments and selection criteria revealed that accident-involved drivers with minimal conviction histories were amenable to treatment intervention, while accident-involved drivers with more extensive conviction histories were not. Motor vehicle operators/Accident investigations/Behavior/Rehabilitation/Treatment/Surveys/Motor vehicle operators/Accident investigations/NTIS.

2013. FLEMINGER A. DISTRIBUTIONAL ATLAS OF CALANOID COPEPODS IN THE CALIFORNIA CURRENT REGION, PART 1. CALIFORNIA COOPERATIVE OCEANIC FISHERIES INVESTIGATIONS. ATLAS. NO. 2, DEC.1964. RECEIVED CUS, FEB.1966. 329 PAGES, NO ABS., CHARTS P.1-313, 5 REFS 1964 UNKNOWN.

DATA COMPILATION/PLANKTON/SPECIES COMPOSITION/POPULATION DENSITY/NORTHEAST PACIFIC OCEAN/PERIODICITY/NEW RECORDS/CALANOIDA/CRUISE REPORTS/COPEPODS/CALIFORNIA CURRENT/OceanAbstracts.

2014. Corbett EJ. Seismicity and crustal structure studies of Southern California: tectonic implications from improved earthquake locations [dissertation]. California: California Institute of Technology; 1984. 247. The 5.1 M(,L) Santa Barbara earthquake of 13 August 1978 was located 3 km southeast of Santa Barbara at a focal depth of 12.7 km. The temporal-spatial development of the aftershock zone may indicate that the initial rupture plane was considerably smaller than that of the eventual aftershock zone. The aftershock hypocenters outline a nearly horizontal plane (dipping 15(DEGREES) or less) at 13-km depth and the preferred focal mechanism indicates north-over-south thrusting. These observations are consistent with a tectonic model in which much of the slip occurred on a nearly horizontal plane, and this earthquake may be taken as evidence for mid-crustal horizontal shearing in the western Transverse Ranges.^ To further test the decollement hypothesis, Caltech catalog locations were reviewed to determine the depth distribution of earthquakes in the Transverse Ranges. The seismogenic zone is thickest along the southern front of the Transverse Ranges and is thinnest in the southern Mojave Desert and at the east end of the Transverse Ranges. The seismicity of the western Transverse Ranges is typified by north-dipping planar structures and the eastern Transverse Ranges are typified by pervasive seismicity extending down to the floor of the seismogenic zone. The San Bernardino Mountains are underlain by a well-defined bottom of the seismogenic zone that dips southward from 5-km depth under the Mojave Desert to 15-km depth where it intersects the San Andreas fault.^ Data from a large quarry explosion on Catalina Island were utilized to derive a 3-layer Continental Borderland velocity structure to improve the locations of the 1981 Santa Barbara Island earthquakes. The Santa Barbara Island earthquake (5.3 M(,L)) occurred on September 4, 1981. Aftershocks exhibited a clear northwest-southeast alignment that coincides with the submarine escarpment of the Santa Cruz-Catalina fault and was consistent with focal mechanisms. The aftershock zone was initially small, but grew bilaterally with time. This seismic activity suggests strike-slip motion on the Santa Cruz-Catalina fault, with the Santa Monica basin and Catalina Island behaving as a coherent block being displaced southeastward from the Transverse Ranges. faults/continental borderlands/1978 Santa Barbara earthquake/San Andreas fault/Santa Barbara Island earthquake Santa Catalina Island/Santa Barbara Island geology/Geophysics.

2015. Loop TH. Low Budget Marine Geologic Surveying. J.

Geol. Educ. 1973;21(5):p.199-203

Serial Marine field methods (underwater photography, surface surveys, subsurface sampling); example of study done at Santa Catalina Island, California. B; Bibliography and Index of Geology (1969-present).

Education/Oceanography/Curricula/methods/materials/surveys/surface/subsurface/low cost/college level/California/Marine geology/Santa Catalina Island/Pacific Ocean/United States/Los Angeles County/GEOREF.

2016. POSTMA H. WATER CIRCULATION AND SUSPENDED MATTER IN BAJA CALIFORNIA LAGOONS. NETHERLANDS JOURNAL OF SEA RESEARCH. 1965;2(4, JULY 1965. RECEIVED CUS, DEC.8,1965. P.566-604 IN ENGLISH, NO ABS., 13 FIGS., 5 TABLES, 11 REFS) UNKNOWN. SUSPENDED MATTER/CIRCULATION/TIDAL CURRENTS/TEMPERATURE MEASUREMENTS/SALINITY MEASUREMENTS/SEDIMENT/EDDY DIFFUSION/LAGOONS/TRANSPORT/ BAJA CALIFORNIA/LIGHT MEASUREMENTS/OceanAbstracts.

2017. Corille RE. An extra mid tibial spur in an island population of *Trypoxylon tridentatum* (Hymenoptera: Sphenida: Larrinae: Trypoxylonini). Pan Pac. Entomol. 1979;55(1):73
Address: DIV. ENTOMOL. PARASITOL., UNIV. CALIF., BERKELEY, CALIF. 94720. An additional midtibial spur was found on several of the larrine sphecid *T. t. tridentatum* Packard on Santa Cruz Island, Santa Barbara County, California [USA]. midtibial spur
Hymenoptera/Sphenida/Larrinae/Trypoxylonini/Trypoxylon tridentatum
Santa Cruz Island terrestrial biology/entomology.

2018. Williamson SW, Favuzzi J, Cox JL. Patchiness and nutritional condition of zooplankton in the California Current. FISH. BULL 1986;84(1):157-176. Zooplankton and water samples were collected from 81 stations off the California coast in April 1981 during CalCOFI cruise 8104 aboard the RV David Starr Jordan . Abundance, weight (wet and dry), digestive enzyme activity (laminarinase), and biochemical composition of three zooplankton species were determined. The indices measured provided estimates of zooplankton nutritional history on time scales of 1 day to 3 weeks. Upwelling was taking place along the California coast, from Point Conception to San Francisco during the study period. The resulting low surface temperatures were most evident south of San Francisco and just north of Point Conception. Just south of these areas patches of high phytoplankton standing crop (up to 14.7 mg chlorophyll a/m super(3)) were found. The two herbivorous species, *Euphausia pacifica* and *Calanus pacificus* , showed highest laminarinase activity in areas with the highest density of phytoplankton: enzyme activity was particularly high in the waters off Point Conception. Zooplankters in the southern and offshore regions of the sampling grid showed very low digestive enzyme activity. *Nematoscelis difficilis* , which is not a herbivore, did not show these patterns.
California Current/zooplankton/spatial distribution/nutrient status/plankton surveys/enzymatic activity/biochemical composition/animal nutrition/*Euphausia pacifica*/*Calanus pacificus*/*Nematoscelis difficilis*/INE/California Current/spatial variations/patchiness/ASFA.

2019. Yeats RS, Cole MR, Merschat WR, Parsley RM. Poway Fan and Submarine Cone and Rifting of the Inner Southern California Borderland. Geol. Soc. Am., Bull. 1974;85(2):p.293
Serial Eocene and Oligocene conglomerate beds with tuff clasts, basement schists, two plates or blocks which broke away from Peninsular Ranges. B; Bibliography and Index of Geology (1969-present).
California/Stratigraphy/Eocene/Oligocene/paleogeography/south/Channel Islands/north/San Nicolas Island/Santa Monica Mountains/Simi Hills/Peninsular Ranges/northwest/Tertiary/United States/plate tectonics/faults/conglomerate/Poway Suite/Sedimentary rocks/Clastics/terrigenous/genesis/clasts/fans/submarine/cones/Tectonics/Structure/schists/block/Tectonophysics/Subduction zones/rift/rates/age/models/Poway Conglomerate/Poway Group/GEOREF.

2020. SCHAEFER MB. SOME ASPECTS OF THE BIOLOGICAL OCEANOGRAPHY OF THE CALIFORNIA CURRENT WITH PARTICULAR REFERENCE TO THE VICINITY OF POINT ARGUELLO. CALIFORNIA. UNIVERSITY. INSTITUTE OF MARINE RESOURCES. IMR REFERENCE. NO. 65-26, 1965. 25 PAGES, PLUS 32 FIGS., NO ABS., 3 REFS 1965 UNKNOWN.
CALIFORNIA CURRENT/PHOSPHATES/PROGRESS
REPORT/DESCRIPTIVE/SILICATES/STATISTICAL/SALINITY
DISTRIBUTION/CHLOROPHYLL/ZOOPLANKTON/BIOMASS/TEMPERATURE
DISTRIBUTION/OceanAbstracts.

2021. Cowen RK. The effect of sheephead *Semicossyphus pulcher* predation on red sea urchin *Strongylocentrotus franciscanus* populations: an experimental analysis. *Oecologia* (Berl.) 1983;58(2):249-255
Address: SCRIPPS INST. OCEANOGRAPHY, UNIV. CALIF., MAIL CODE A-008, LA JOLLA, CALIF. 92093.
An experimental evaluation of the effect of sheephead (*Semicossyphus pulcher*) predation on red sea urchins (*Strongylocentrotus franciscanus*) was initiated at San Nicolas Island, California [USA] in Sept. 1980. All sheephead (n = 220) were removed from an area of .apprx. 12,700 m² and subsequent changes in sea urchin numbers and microhabitat utilization were monitored along permanent transects for 24 mo. The sea urchins within the transects were also measured in situ to determine changes in the size frequency distribution of the population. Although sea urchins rank only 7th in relative importance in the sheephead's diet at San Nicolas Island, there has been a significant increase in sea urchin numbers in the experimental area (26% increase/yr) but there has been no change in the control site. There has been a slight increase in the proportion of sea urchins occupying exposed vs. sheltered microhabitats in the removal site. Changes in the size frequency distribution of the urchins were minimal (probably due to an observation period of only 1 yr); the size frequency distribution was unimodal and skewed to the left, indicating weak recruitment of urchins. Comparisons of sheephead densities and the percent of sea urchins in exposed microhabitats (i.e., available to predation by sheephead) were also made at 4 areas around San Nicolas Island and 3 areas in Baja California. In areas with low sheephead densities (0-35/ha), sea urchins were highly exposed, and in areas where sheephead densities were high (200-500/ha), no urchins were exposed. Sheephead are capable of regulating the density and microhabitat distribution of sea urchin populations. These results are discussed in relation to other factors which may affect sea urchin populations. size frequency distribution/predation/sheephead /*Semicossyphus pulcher*/red sea urchins/*Strongylocentrotus franciscanus*/San Nicolas Island/ marine biology.

2022. Eppley RW. Particulate matter in the Southern California Bight. *Memorias de la II reunion de los Centros de Investigacion de Baja California y la Institucion de Scripps de Oceanografia*. (Transactions from the II Joint Meeting of the Centers of Scientific Research of Baja California and Scripps Institution of Oceanography). La Paz, Baja Calif. Sur, Mexico, Nov. 30, 1976. In: CIBCASIO Transactions 1976;2:12.
sediments/Pacific Ocean/sea water/nitrogen/carbon/marine
sediments/physical oceanography/composition /suspended
materials/Southern California Bight/particulate
materials/depth/euphotic
zone/phytoplankton/zooplankton/ecology/geochemistry/Hickey/physical
oceanography/Hood/ecosystem/MINERALS MANAGEMENT SERVICE.

2023. Bailey TG, Robison BH. Food availability as a selective factor on the chemical compositions of midwater fishes in the eastern North Pacific. MAR. BIOL 1986;91(1):131-141. In September and October 1980 the authors examined the relationships between food availability, depth, and chemical composition among 12 midwater fish species, from three adjacent areas of the eastern North Pacific: the eastern gyre, the California Current, and the transitional region between them. By comparing trends in chemical composition across a geographical productivity gradient, the influence of food availability could be examined both with and without depth as a dependent variable. In general, caloric density, lipids, and water content showed consistent trends along both vertical and horizontal gradients of food availability. Lipids and caloric contents were lowest among bathypelagic species and among fishes from the gyre. Water content was highest in the gyre and among deeper-living species. food availability/biochemical composition/marine fish/vertical distribution/pelagic environment/INE/California Current/INE/North Pacific Subtropical Gyre/INE/North Pacific/ASFA.

2024. Fischer PJ, Berry R. Environmental Hazards of the Santa Barbara Channel; Oil and Gas Seeps and Holocene Faulting. in Geology, seismicity, and environmental impact, sketch maps. Assoc. Eng. Geol. Los Angeles, 1973. 1973:p.417-431
B; Bibliography and Index of Geology (1969-present). California/Engineering geology/Geologic hazards/petroleum/gas/seepage/faults/Santa Barbara Channel/Environmental geology/Pollution/natural/United States/GEOREF.

2025. REID JL, J. PHYSICAL OCEANOGRAPHY OF THE REGION NEAR POINT ARGUELLO. CALIFORNIA. UNIVERSITY. INSTITUTE OF MARINE RESOURCES. IMR REFERENCE. NO. 65-19, JULY 1965. 39 PAGES, PLUS 53 FIGS., NO ABS., 25 REFS 1965
UNKNOWN.
PROGRESS REPORT/OXYGEN/DESCRIPTIVE/REGIONAL STUDIES/POINT ARGUELLO/CALIFORNIA CURRENT/TEMPERATURE DISTRIBUTION/SALINITY DISTRIBUTION/SURFACE CURRENTS/UPWELLING/SOUTHERN CALIFORNIA COAST/NUTRIENTS/OceanAbstracts.

2026. Cowen RK. Ecology and population biology of the sheephead, *Semicossyphus pulcher*, (feeding habits, sex-change, recruitment, predation, Labridae) [dissertation]. San Diego, California, USA: University of California; 1985. 147. Various aspects of the feeding ecology, reproductive biology and population dynamics of the sheephead, *Semicossyphus pulcher* (Labridae), were investigated. The principal goal of the study was to identify the role of the sheephead in their community and how that role may be modified through interactions with both physical and biological processes. An experimental evaluation of the effect of sheephead predation on red sea urchins was initiated at San Nicolas Island, California in September 1980. All sheephead were removed from an area of approximately 12,700 m² and subsequent changes in sea urchin numbers and microhabitat utilization were monitored along permanent transects for 24 months. Following the removal, there was a significant increase in sea urchin numbers in the experimental area (26% increase/year) but there was no change in the control site. Further there has been a slight increase in the proportion of sea urchins occupying exposed versus sheltered microhabitats in the removal site. Comparisons of sheephead densities and the percent of sea urchins in exposed microhabitats at other sites corroborate the finding that

sheephead are capable of regulating the density and microhabitat distribution of sea urchin populations. Further analysis of the feeding ecology of four populations of sheephead was examined with respect to such factors as site-specific prey availability, density of the sheephead population, and size of the sheephead. The pattern of recruitment of sheephead was examined throughout a major portion of its range over a period of 7-9 years using both field transects and age-structure data. The observed pattern of recruitment was compared to both spatial and year-to-year variations in the current regime within the region using both average flow data (CalCOFI data base) and satellite imagery. In the final chapter, the change in age and size of sexual changeover in sheephead was examined along an environmental gradient. The combined results of all these studies demonstrate the extent that both within-site and between-site processes may act to influence the role of an organism within its community. Various environmental conditions, e.g. food resources and current regimes, may influence an organism's growth rate, reproductive biology, role as predator and distribution. Thus, seemingly non-related interactions may have a profound influence on an organism's ecology. (Abstract shortened with permission of author.).
feeding ecology, reproductive biology, population dynamics/sex change/hermaphroditism/ Labridae/sheephead/Semicossyphus pulcher/red sea urchin Stronglyocentrotus franciscanus/San Nicolas Island/marine biology.

2027. Eppley RW. People and the plankton. Lecture Notes on Coastal and Estuarine Studies, Plankton Dynamics of the Southern California Bight 1986;15:289-303.
planktonic/productivity/water pollution/thermal pollution/Bray/Algae/Spermatophytes/Hardy/phytoplankton/TEXT/MINERALS MANAGEMENT SERVICE.

2028. Eppley RW,e. Lecture notes on coastal and estuarine studies, Vol. 15. Plankton dynamics of the Southern California Bight USA. 1986::373.
bacterioplankton/phytoplankton/zooplankton/dissolved organic matter/particulate organic matter/trophic relationships/water chemistry/biogeochemistry/water pollution/Pieper/Reish/red tides/episodic/text/Eganhouse/geochemistry/chemical oceanography/Hardy/MINERALS MANAGEMENT SERVICE.

2029. Eppley RW, Cullen JJ. Chlorophyll maximum layers of the Southern California Bight and possible mechanisms of their formation and maintenance. Oceanol. Acta 1981;4(1):23-32.
eganhouse/geochemistry/chemical oceanography/chlorophyll/fluorescence/biomass/primary production/maximum layers/MINERALS MANAGEMENT SERVICE.

2030. Eppley RW, Holm-Hansen O. Primary production in the Southern California Bight USA. Lecture notes on coastal and estuarine studies. Plankton dynamics of the Southern California Bight 1986;15:176-215.
Hardy phytoplankton/small scale mixing/upwelling/nutrient input/nitracline/temperature/nutrients/light modeling/remote sensing/algae and spermatophytes/Bray/Murray/Reish/TEXT/biological/chemical oceanography/geochemistry/eganhouse/settling introduction/venkatesan/MINERALS MANAGEMENT SERVICE.

2031. Lee WHK, Vedder JG. Recent earthquake activity in the Santa Barbara Channel region. Seismol. Soc. Am., Bull.

1973;63(5):p.1757-1773 Serial B; Bibliography and Index of Geology (1969-present). California/Seismology/Earthquakes/Santa Barbara Channel/United States/1969 1971/epicenters/patterns/faults/Displacements/Strike slip/left lateral/GEOREF.

2032. WYRTKI K. SURFACE CURRENTS OF THE EASTERN TROPICAL PACIFIC OCEAN. INTER-AMERICAN TROPICAL TUNA COMMISSION, BULLETIN 1965;9(5, 1965. P.271-304 IN ENGLISH AND SPANISH, REFS) UNKNOWN. SURFACE/EQUATORIAL COUNTERCURRENT/NORTH EQUATORIAL CURRENT/CHARTS/CURRENTS/EASTERN TROPICAL PACIFIC OCEAN/PERU CURRENT/INTERACTION/SOUTH EQUATORIAL CURRENT/CALIFORNIA/OceanAbstracts.

2033. Cox JL, Robison BH. Reconnaissance survey of Santa Rosa Island. California State Water Resources Control Board, Water Quality Monitoring Report. ; 1981. 96. Conducted terrestrial, subtidal and aerial surveys of Santa Rosa Island for state program on areas of special biological significance. site survey/Santa Rosa Island/terrestrial biology/marine biology.

2034. Gowing MM, Wishner KF. Trophic relationships of deep-sea calanoid copepods from the benthic boundary layer of the Santa Catalina Basin, California. DEEP-SEA RES 1986;33(7A):939-961. Benthopelagic zooplankton were collected and preserved in situ in the benthic boundary layer of the Santa Catalina Basin, using a multiple sampling opening-closing net system attached to the DSRV Alvin. Gut content analysis performed with transmission electron microscopy (TEM) showed that the majority of benthopelagic calanoid copepods examined were predominantly detritivores. They had ingested detritus and associated bacteria, including metal-precipitating bacteria; no attached enteric bacteria were observed in the copepods guts. The gut particles indicated generalized feeding and qualitatively resembled material present in the environment at the time of collection, i.e. suspended particles, large fecal pellets, particles from the surface layer of the sediment, and phaeodia of phaeodarian radiolarians. trophic relationships/stomach content/zoobenthos/diets/deep sea/benthic environment/Pacific Ocean/Santa Catalina Basin/Calanoidea/INE/USA/ California/Santa Catalina Basin/ASFA.

2035. Sholkovitz E. Interstitial water chemistry of the Santa Barbara Basin sediments. Geochim. Cosmochim. Acta. 1973;37(9):p.2043 Serial Basin and slope sediments, sea water, diagenesis, models, calcareous nanofossils changes, organic materials. B; Bibliography and Index of Geology (1969-present). Pacific Ocean/Geochemistry/Sediments/pore water/United States/California/Santa Barbara Basin/Sedimentation/Diagenesis/Marine/models/Organic materials/Sea water/Relation/GEOREF.

2036. REID JL. DETAILED MEASUREMENT OF A SHALLOW SALINITY MINIMUM IN THE THERMOCLINE. JOURNAL OF GEOPHYSICAL RESEARCH. 1964;69(22, NOV. 15,1964. P.4767-4771 ABS., BIBLIOG) UNKNOWN. CALIFORNIA CURRENT/CIRCULATION/SALINITY/CALIFORNIA COAST/THERMOCLINE/CALIFORNIA CURRENT/INVERSION/NORTH PACIFIC INTERMEDIATE WATER/MINIMUM/TEMPERATURE/WATER MASSES/OceanAbstracts.

2037. Eppley RW, Stewart E, Abbott MR, Heyman U. Estimating ocean primary production from satellite chlorophyll: Introduction

to regional differences and statistics for the Southern California Bight. J. Plankton Res. 1985;7(1):57-70.

eganhouse/geochemistry/chemical oceanography/primary production/remote sensing/chlorophylls/hardy phytoplankton/TEXT/insulation/pelagic/ecosystem/algae/MINERALS MANAGEMENT SERVICE.

2038. Smith CR, Jumars PA, DeMaster DJ. In situ studies of megafaunal mounds indicate rapid sediment turnover and community response at the deep sea-floor. NATURE 1986;323(6085):251-253. The authors are studying mounds in the deep sea to evaluate rates and patterns of megafaunal sediment mixing, and to assess the disturbance effects of mound building on the infaunal community, with the goal of using mounds to investigate natural processes of succession at the deep-sea floor. Results indicate that sediment turnover associated with mound building by echiuran worms can be very rapid, and that bathyal infauna can respond quickly to this type of disturbance. These findings suggest that spatially rare but dynamic elements in the sediment fabric, such as mounds, may be important in controlling microstratigraphy, chemical diagenesis and community structure at the deep-sea floor.

sediments/disturbance/community structure/marine fauna/deep sea/ocean floor/abysobenthic zone/bioturbation/burrowing organisms/sediment properties/INE/Santa Catalina Basin/mounds/ASFA.

2039. Loop TH. Dissected marine terraces on Santa Catalina Island, California. J. Sediment. Petrol. 1973;43(3):p.841-843 Serial B; Bibliography and Index of Geology (1969-present). California/Sedimentary petrology/Sediments/Santa Catalina Island/Clastics/terrigenous/Gravel/terraces/Geomorphology/Shore features/Marine geology/United States/GEOREF.

2040. ALVARINO A. ZOOGEOGRAFIA DE LOS QUETOGNATOS, ESPECIALMENTE DE LA REGION DE CALIFORNIA. CIENCIA V.23,#2,1964. P.51-74 ENG. ABS., BIBLIOG 1964 UNKNOWN. DISTRIBUTION/ARCTIC OCEAN/PACIFIC OCEAN/PERU CURRENT/CALIFORNIA CURRENT/ZOOGEOGRAPHY/CHAETOGNATHA/SAGITTA/SIPHONOPHORA/INDIAN OCEAN/ANTARCTIC OCEAN/OceanAbstracts.

2041. Coyer JA. The invertebrate assemblage associated with *Macrocystis pyrifera* and its utilization as food source by kelp forest fishes [dissertation]. ; 1979. 364. Documented the monthly abundances of 114 species of invertebrates through a 19 month study. From 51-75 species appeared for any given month with gammarid amphipods dominating in biomass, number, and species. Some species preferred the canopy over lower zones, but in general, the number of species declined from the bottom zone to the canopy, more individuals and a greater biomass were present in the lower zones than in the canopy, and larger amphipods, mysids, and shrimp were found in the canopy. food sources/community ecology gammarid amphipods/*Macrocystis pyrifera*/giant kelp/kelp forests Santa Catalina Island marine biology/ecology.

2042. Estrada M, D. Blasco. Two phases of the phytoplankton community in the Baja California upwelling. Limnol. Oceanogr. 1979;24(6):1065-1080. Hardy/phytoplankton/California Current/diatoms/dinoflagellates/Chrysophyta/Pyrrophyta/MINERALS MANAGEMENT SERVICE.

2043. Wittmann PA, Kelley EA, Moorers CNK. Hydrographic data from the OPTOMA (Ocean Prediction Through Observations, Modeling

and Analysis) program: OPTOMA 16, 20 May-23 June 1985. REP. U.S. NAV. POSTGRAD. SCH 1985; The OPTOMA (Ocean Prediction Through Observations, Modeling and Analysis) Program, seeks to understand the mesoscale (fronts, eddies, and jets), variability and dynamics of the California Current System and to determine the scientific limits to practical mesoscale ocean forecasting. Data acquired during Leg MI, Leg MII and Leg A include expendable bathythermographic data and current temperature density data profiles. Bucket surface temperature and water samples for salinity were taken at most CTD stations. These surface values were used for calibration purposes as well as contributions to the data base. Leg A also acquired continuous 2m thermosalinograph measurements, continuous meteorological data such as atmospheric pressure at a height of 2m and wind speed and direction at a height of 20m, and acoustic Doppler velocity data. hydrographic data/cruise reports/CTD profilers/atmospheric pressure/INE/ California Current/OPTOMA/ASFA.

2044. Drake DE, Kolpack RL, Fischer PJ. Sediment Transport on the Santa Barbara Oxnard Shelf, Santa Barbara Channel, California. Shelf Sediment Transport; Process and Pattern, illus. (incl. sketch maps). Dowden, Hutchinson & Ross. Stroudsburg, Pennsylvania, 1972. 1972:p.307-331
Flood discharge, rapid erosion, turbidity, 1969. B; Bibliography and Index of Geology (1969-present).
Pacific Ocean/Oceanography/Sedimentation/continental shelf/California/Santa Barbara Channel/United States/Transport/Marine transport/turbidity currents/suspended sediments/floods/effects/measurement/1969/1970/GEOREF.

2045. BURT WV. DRIFT BOTTLE OBSERVATIONS OF THE DAVIDSON CURRENT OFF OREGON. STUDIES ON OCEANOGRAPHY. DEDICATED TO PROFESSOR HIDAKA IN COMMEMORATION OF HIS 60TH BIRTHDAY. TOKYO, 1964. P.156-165 ABS., BIBLIOG 1964 UNKNOWN.
OceanAbstracts.

2046. Coyer JA. Possible cleaning behavior by a juvenile California sheephead, *Semicossyphus pulcher* (Labridae). Bull. Southern California Acad. Sci. 1980;79(3):125-126
This not reports possible cleaning by a juvenile California sheephead, a behavior previously unreported for this species. cleaning behavior/Labridae/*Semicossyphus pulcher*/California sheephead/ Santa Catalina Island/Starlight Beach/marine biology.

2047. Brown DA, Gossett RW, Hershelman GP, Ward CF, Westcott AM, Cross JN. Municipal wastewater contamination in the Southern California Bight: Part 1. Metal and organic contaminants in sediments and organisms. MAR. ENVIRON. RES 1986;18(4):291-310. Sediments and organisms were examined for concentrations of organic and metal contaminants from near the Los Angeles County (JWPCP) municipal outfall at Palos Verdes (PV) station 7-3, the Los Angeles City (Hyperion) municipal outfall at Santa Monica Bay (SMB) station 6-4, and reference station SMB 2-3 near Malibu Beach. Flows and mass emission rates of suspended solids, PCBs, Cd and Zn were similar at the two outfalls. Mass emission rate of copper was almost twice as high from Hyperion as from JWPCP, while mass emission rate of DDTs was an order of magnitude higher from JWPCP than from Hyperion. Surficial sediments at PV 7-3 were enriched in most contaminants relative to SMB 6-4 and relative to the mass emission rates of contaminants from the JWPCP and Hyperion outfalls. The degree of contamination of organisms by DDTs increased with proximity to PV 7-3 but contamination by PCBs was similar at PV 7-3 and SMB 6-4.

outfalls/heavy metals/PCB/DDT/marine pollution/wastewater treatment/industrial wastes/domestic wastes/sediment pollution/pollution effects/marine organisms/marine fish/marine invertebrates/cadmium/zinc/copper/INE/USA/California/Southern California Bight/ASFA.

2048. Chow TJ, Bruland KW, Bertine K, Soutar A, Koide M, Goldberg ED. Lead Pollution; Records in Southern California Coastal Sediments. Science (AAAS). 1973;181(4099):p.551-552
Serial Derivation from gasoline combustion, Santa Monica, San Pedro, and Santa Barbara basins. B; Bibliography and Index of Geology (1969-present). California/General/Environmental geology/Santa Monica Basin/San Pedro Basin/Santa Barbara Basin/Pollution/Lead/sediments/United States/GEOREF.

2049. Markson R, Sedlacek J, Fairall CW. Turbulent transport of electric charge in the marine atmospheric boundary layer. J. GEOPHYS. RES 1981;VOL. 86, NO. C12:vp
Airborne Res. Assoc., Weston, MA 02193, USA.
Sensible heat, water vapor, aerosols, gaseous pollutants, and electric charge are transported vertically in the marine boundary layer by turbulent processes. The standard eddy correlation method for measuring fluxes from aircraft requires inertial navigation systems, considerable computer power, and large aircraft with gust probes on specially engineered booms to correct for aircraft motions. The development of a method for obtaining routine, high quality, relatively inexpensive measurements of at least one boundary-layer flux profile from light aircraft could permit enhancement of boundary-layer research on a new statistical scale. The flux of electric charge (called the eddy current) can be inferred from simple dc measurements of electric field intensity and conductivity from a light aircraft. Recent aircraft measurements off the California coast show good correlation of surface layer eddy current peak values with the surface water vapor flux and the convective mixed layer velocity, $w_{sub(*)}$. It is suggested that the eddy current could be used to infer the flux profiles of other passive scalars. Atmospheric electrical measurements from aircraft have the potential for providing important new information for pollution modeling and studies of boundary-layer meteorology.
atmospheric boundary layer/eddy kinetic energy/aircraft/turbulent transfer/kinetic energy/OceanAbstracts.

2050. Coyer JA. Observations on the reproductive behavior of the giant kelpfish *Heterostichus rostratus* (Pisces: Clinidae). Copeia 1982;1982(2):344-350 The reproductive behavior of the giant kelpfish was observed at Santa Catalina Island, California [USA], from 1972-1979. Establishment of a territory, courtship, spawning and parental care were examined, as were age and weight relationships. Reproductively active males selected and weakly defended an algal oviposition site. Nests were not modified or prepared by the males, but were present during most months of the year. Forty defended nests were observed (27 with eggs); 77% of these involved red algae with *Gelidium nudifrons* (56%) as the principal species. The male's courtship repertoire includes 5 behavioral units and a distinctive nuptial body color pattern. The female is passive throughout. The female deposits a mass of adhesive eggs within the nest following a short courtship by the male. Spawning requires 40 to over 60 min to complete. In addition to fertilizing the eggs, the male chases intruding fishes from the area while the female is in the nest. The egg mass was apparently the result of a single spawning, because no nests were observed with multiple stages of egg development. The male guards the eggs

after the spent female leaves. Male defense of the egg-laden nest is vigorous against all conspecifics and some alga-searching fish predators, but minimal or non-existent for other fish species. territoriality/courtship/spawning/parental care/age/body weight/nuptial color pattern/nest defense/spawning behavior/reproductive behavior/parental behavior Pisces/Clinidae/giant kelpfish/Heterostichus rostratus/Gelidium nudifrons/Santa Catalina Island/marine biology/ichthyology.

2051. Edwards BD. Bioturbation in a dysaerobic, bathyal basin: California borderland. Biogenic structures: Their use in interpreting depositional environments. Soc. Econ. Paleontol. Mineral. Spec. Publ. No. 35 1985;:309-331. borderland/invertebrates/bioturbation/dysaerobic/text/fish/california/bathyal/basin/thompson/cross/allen/MINERALS MANAGEMENT SERVICE.

2052. Barale V, Fay RW. Variability of the ocean surface color field in central California near-coastal waters as observed in a seasonal analysis of CZCS (Coastal Zone Color Scanner) imagery. J. MAR. RES 1986;44(2):291-316. A time series of Coastal Zone Color Scanner images has been analyzed, on a seasonal basis, to gain a perspective on the ocean surface color field heterogeneity in central California near-coastal waters. Seasonal composite maps of the diffuse attenuation coefficient at 490 nm were derived, in the form of arithmetic means and corresponding variances, for the years 1981, 1982 and 1983. By identifying "open ocean", "transition" and "coastal" water types in the mean images, and comparing values and areal extent of each class in different periods and years, a distinct seasonality of the spatial characteristics of ocean color emerged. Possible interpretations of the imagery in terms of the oceanographic "climate" of the region are discussed, as reflecting the combined effects of coastal processes and offshore mesoscale dynamics typical of the California Current System. A profound influence of the bathymetric relief on surface structure, even in deep ocean areas, is finally documented by the data set. optical water types/satellite sensing/variability/time series/INE/USA/ California/ASFA.

2053. Young DR, Johnson JN, Soutar A, Isaacs JD. Mercury Concentrations in Dated Varved Marine Sediments collected off Southern California. Nature. 1973;244(5414):p.273 Serial Sediment cores, profiles from past 150 yr, as well as 1400-1500 yr B.P.; distinct increase in mercury toward surface. B; Bibliography and Index of Geology (1969-present). California/Geochemistry/Mercury/sediments/Santa Barbara Basin/Abundance/Holocene/Santa Barbara/offshore/Composition/Chemical composition/distribution/variations/varves/cores/United States/Geochronology/Varved clay/Interpretation/GEOREF.

2054. Coyer JA. The invertebrate assemblage associated with the giant kelp *Macrocystis pyrifera* at Santa Catalina Island, California, USA: a general description with emphasis on amphipods, copepods, mysids and shrimps. U.S. Natl. Mar. Fish. Serv. Fishery Bulletin 1985;82(1):55-66 The motile invertebrate assemblage associated with the giant kelp, *M. pyrifera*, fronds was examined monthly from June 1975-Dec. 1976, at Santa Catalina Island, California. Replicate samples were collected from each of 3 vertical zone (canopy [C], middle [M], bottom [B]). The number of species collected from all zones was 114 and ranged from 51 to 75 for any given month. Amphipods, copepods,

mysids and shrimps comprised the majority of invertebrate abundance (86 [C], 92 [M], 93% [B]) and biomass (90 [C], 89 [M], 86% [B]). Gammarid amphipods dominated the assemblage in numbers (34 [C], 60 [M], 51% [B]), biomass (34 [C], 68 [M], 67% [B]), and number of species (20). The assemblage displayed 3 patterns of vertical stratification within the *Macrocystis* forest: The mean number of species progressively decreased from the bottom to the canopy (several species displayed zone preferences); more individuals and a greater total biomass were present in the lower zones than in the canopy; and the mean lengths of gammarids, mysids, and shrimps were significantly larger and proportionately greater numbers of large individuals were present in the canopy than in either of the lower zones. vertical zone stratification giant kelp/*Macrocystis pyrifera*/amphipods/copepods/mysids/shrimps/Santa Catalina Island/marine biology.

2055. Friligos N. Turnover time of water in a deep basin in the Aegean Sea. ESTUAR. COAST. SHELF SCI 1985;21(6):879-894. In the Saronikos Gulf, below about 100 m the water is almost stagnant, essentially isothermal (around 14 degree C) and it has practically uniform salinity. The level and the mechanism of enrichment in nutrients is discussed. The age of the water estimated from nutrient budget calculations is between one and eight years. The replacement time of water is similar to that found in the Santa Barbara basin, but different from those of the Cariaco Trench and the Black Sea. nutrients (mineral)/residence time/MED/Greece/Saronikos Gulf/ASFA.

2056. Irelan WJ. Ninth annual report of the State Mineralogist, for the year ending December 1, 1889. Calif. State Min. Bur., State Mineral., Annu. Rep. 1890;9(p.1-352) Serial B; Bibliography and Index of Geology (1969-present). California/Economic geology/Mineral resources/auriferous gravels/cement/clays/coal/counties/Channel Islands/Areal geology/Ventura County/San Nicolas Island/Santa Cruz Island/GEOREF.

2057. Coyer JA. The mollusk assemblage associated with fronds of giant kelp *Macrocystis pyrifera* off Santa Catalina Island, California, USA. Bull. South. Calif. Acad. Sci. 1986;85(3):129-138
The mollusk assemblage associated with giant kelp (*Macrocystis pyrifera*) fronds off Santa Catalina Island, California was examined monthly from June 1975 through December 1976. Mollusks comprised 1.0, 1.6, and 2.9% (by number) of all invertebrates associated with kelp fronds in the canopy, middle, and bottom zones of the kelp forest, respectively. Forty one species (36 gastropods, 5 bivalves) were collected, ranging from 14-28 for any given month. The mean number of species present was greater in the bottom (16.9) and middle zones (15.6) than in the canopy (9.3). Most species (29) were rare in occurrence (< 1/kg kelp) and small (< 4 mm) in size. Throughout the study, more mollusks were found in the bottom zone than in the middle; fewest numbers were present in the canopy. Most species reflected this general pattern; only the nudibranch *Polycera tricolor* was more abundant in the canopy than in the lower zones. As a group, mollusks were most abundant on *Macrocystis* fronds during summer-fall.
taxonomic diversity/abundance/vertical distribution/seasonal variation Mollusca/Gastropoda/bivalves/*Bivalvia*/nudibranch/*Polycera tricolor*/*Macrocystis pyrifera*/Phaeophyta/*Macrocystis pyrifera*/Santa Catalina Island marine biology/ecology.

2058. Larraneta MG, Vazquez A. A relationship between the decrease in solar constant and the north-south flow in the

California Current. INTERNATIONAL SYMPOSIUM ON THE MOST IMPORTANT UPWELLING AREAS OFF WESTERN AFRICA (CAPE BLANCO AND BENGUELA). SIMPOSIO INTERNACIONAL SOBRE LAS AREAS DE AFLORAMIENTO MAS IMPORTANTES DEL OESTE AFRICANO (CABO BLANCO Y BENGUELA). 1985;1:213-221. The following hypothesis is exposed: Variations of the oceanic currents depend mainly on these two factors: (a) the variation of the solar energy flux; and (b) the energy dissipated from Earth's variable rotation. In oceanic currents having an E-W direction the main factor will be polar motion, but in currents N-S this factor will be variations of the solar energy flux. Percent of decrease in solar constant and coefficient of variation for the first Empirical Orthogonal Function in the California Current, as an example of N-S current, have been used. Relationship between these two factors appears to be significant, and the time lag between changes of the solar energy flux and response of the current flow seems to be about 3-9 months. A seasonal variation of the velocity of the Kuroshio seems to confirm this solar energy role in oceanic currents.
oceanic currents/earth rotation/solar radiation/current velocity/INE/ California Current/ISE/California Current/seasonal variations/ASFA.

2059. Fischer PJ, Stevenson AJ. Natural Hydrocarbon Seeps Along the Northern Shelf of the Santa Barbara Basin, California. Offshore Tech. Conf., Prepr. illus. (incl. sketch maps), 1973. 1973;1(5):p.159-164 Serial Mapping, 900 seeps, 250 active, structural controls. B; Bibliography and Index of Geology (1969-present).
California/Economic geology/Petroleum/gas/seeps/Santa Barbara Basin/continental shelf/north/United States/hydrocarbons/natural/GEOREF.

2060. Coyer JA, Engle JM. California marine waters, areas of special biological significance, reconnaissance survey report. Santa Catalina Island subareas II and IV, Los Angeles County. : State Water Resources Control Board, Water Qual Mon. Rpt.; 1981. 191.
Report summarizes existing data describing the physical, chemical, and biological aspects of the intertidal, subtidal, and adjacent land areas. Current patterns of land/water use, actual or potential pollution threats, and special water quality requirements also are addressed.
surveys Santa Catalina Island/Little Harbor to Ben Weston and Binnacle Rock to Jewfish Point/marine biology/pollution.

2061. Fauchald K, Jones GF. Variation in community structures on shelf, slope and basin macrofaunal communities of the Southern California Bight. Rep. 19. Southern California Outer Continental Shelf Environmental Baseline Study, 1976/1977 (Second Year) Benthic Program. II, Principal Invest. Repts., Ser. 2, Repts. 18-24. Prep. by Science Applications, Inc., La Jolla. 1979;:720. MINERALS MANAGEMENT SERVICE.

2062. Fauchald K, Jones G, Douglas R, Walch C, Blake G. Southern California baseline study and analysis (1975/1976). Vol. III (Principal investigator work element reports). Report sections 2.4 and 2.5; Book 6 of 10. Prep. for Bureau of Land Management, Washington, DC. 1978;:708.
crude oil/ecology/marine biology/water pollution/metals/southern california bight/continental shelves/crustacea/mollusca/echinodermata/annelida/abundance/hydrocarbons/enviro nmental impacts/tables data/sites/Thompson/invertebrates/outer continental

shelves/baseline studies/species diversity/Pieper
zooplankton/Eganhouse/chemical oceanography/MINERALS MANAGEMENT
SERVICE.

2063. Curry RR. Vertical Movements of the Sangamon Marine
Terrace around the Santa Barbara Channel, California. Les niveaux
marins quaternaires, part 2, Pleistocene. Quaternaria.
1971(15):p.79
Serial; Abstract B; Bibliography and Index of Geology (1969-
present). California/Structural geology/Vertical tectonics/Santa
Barbara Channel/Tectonics/Uplifts/Quaternary/United
States/Sangamon/Changes of level/GEOREF.

2064. Fuhrman JA, Azam F. Thymidine Incorporation as a
Measure of Heterotrophic Bacterioplankton Production in Marine
Surface Waters: Evaluation and Field Results. MAR. BIOL 1982;VOL.
66, NO. 2:pp. 109-120
Mar. Sci. Res. Cent., State Univ. New York Stony Brook, Long
Island, NY 11794, USA.
To assess bacterioplankton production in the sea, a procedure for
measuring growth based on incorporation of tritiated thymidine into
DNA has been developed; the accuracy of this procedure was tested
under a variety of laboratory and field conditions. By
autoradiography, the authors have found that for all practical
purposes their technique is specific for the nonphotosynthetic
bacteria and that virtually all of the "active" bacteria (one-
third of more of the total countable bacteria) take up thymidine.
They also measured (1) the intracellular isotope dilution of
thymidine assessed by parallel experiments with labeled phosphorus,
and (2) DNA content of natural marine bacteria (0.2 to 0.6 μ m
size fraction); a conversion factor derived from these data
permitted estimation of production from thymidine incorporation
results. Data from Southern California Bight waters derived with
this method are presented.
nucleosides/bacteria/plankton/production/heterotrophs/measuring
methods/DNA/uptake/California Coast/thymidine/Southern California
Bight/OceanAbstracts.

2065. Coyer JA, Engle JM, Ambrose RF, Nelson BV. Utilization
of purple and red sea urchins (*Strongylocentrotus purpuratus*
Stimson and *S. franciscanus* Agassiz) as food by the white sea
urchin (*Lytechinus anamensis* Clark) in the field and laboratory.
Journal of Experimental Marine Biology and Ecology 1987;105:21-38
competition/predation/feeding biology/*Strongylocentrotus*
purpuratus/purple sea urchin/*Strongylocentrotus franciscanus*/red
sea urchin/*Lytechinus anamensis*/white sea urchin/Anacapa
Island/marine biology/ecology.

2066. Fry DM, Lowenstine LJ. Pathology of common murre and
Cassin's auklets exposed to oil. ARCH. ENVIRON. CONTAM. TOXICOL
1985;14(6):725-737. The histopathology of diving seabirds exposed
to oil is described. Cassin's Auklets (*Ptychoramphus aleuticus*)
were experimentally exposed to weathered Santa Barbara Channel (CA)
crude oil by external application to the breast plumage or wings.
Beached Common Murres (*Uria aalge*) were recovered from an
accidental oil spill of bunker C fuel oil. Exposed birds exhibited
hepatocellular dissociation and hemosiderosis, renal tubular
necrosis, and hemolytic anemia. Both unexposed and exposed birds
exhibited numerous gastrointestinal lesions and parasites making
interpretation of oil damage effects to the gastrointestinal system
difficult. Burrow nesting auklets had a high incidence of
pneumoconiosis while cliff nesting murrelets had no particulate
inclusions on lungs. The results describe the extent of pathology

to be expected in wild, free living seabirds.
oil spills/oil/pathology/histopathology/oil pollution/pollution
effects/Ptychoramphus aleuticus/Uria aalge/exposure/ASFA.

2067. Sanders JE. Map of parts of floor of Santa Barbara Channel, California, compiled from side scanning sonar records. Am. Assoc. Pet. Geol., Bull. 1973;57(4):p.802
Serial; Abstract B; Bibliography and Index of Geology (1969-present). California/Oceanography/Ocean floors/Santa Barbara Channel/United States/maps/sonar/side scanning/GEOREF.

2068. Coyer JA, Zaugg-Haglund AC. A demographic study of the elk kelp, *Pelagophycus porra* (Laminariales, Lessoniaceae), with notes on *Pelagophycus* x *Macrocystis* hybrids. *Phycologia* 1982;21(3):399-407
Address: (not present address, though) Div. Sci. & Math., Marymount Palos Verdes Coll., Rancho Palos Verdes, CA 90274.
Seasonality, survivorship and individual growth patterns of *Pelagophycus porra* were studied. Bi-weekly measurements were obtained from a cohort of seventy plants growing at 17-21 m depth off Santa Catalina Island, California, beginning with the undivided lamina stage and continuing until plant death or loss. *Pelagophycus* is an annual, as 86% of the cohort disappeared within 12 months. Stipe elongation rates of the cohorts had a maximum mean rate of 0.multiplied by.7 cm/d from July through November. The zone of greatest blade elongation was 10-30 cm from the blade-stipule junction. Blade growth ranged from 5.multiplied by.1-6.multiplied by.5 cm/d during July and August, and 2.multiplied by.7-3.multiplied by.2 cm/d from January through March. Rates of stipe elongation and blade growth in naturally occurring *Pelagophycus* x *Macrocystis* hybrids were similar to *Pelagophycus*, but longevity was lower. population studies/growth patterns/survival/seasonality/survivorship/growth patterns/stipe length/blade elongation/hybrids
Laminariales/Lessoniaceae/elk kelp/*Pelagophycus porra*/*Pelagophycus* x *Macrocystis* hybrids Santa Catalina Island/marine biology/phycology/botany.

2069. Fischer PJ. Evolution of Santa Barbara Basin; western Transverse Ranges, California. Am. Assoc. Pet. Geol., Bull. 1973;57(4):p.778-779 Serial; Abstract B; Bibliography and Index of Geology (1969-present). California/Structural geology/Tectonics/Transverse Ranges/west/Santa Barbara Basin/Structure/Basins/evolution/Tertiary/United States/sedimentation/Controls/Structural controls/Matilija Formation/Sacate Formation/Vaqueros Sands/GEOREF.

2070. Greenblatt PR. Small-Scale Horizontal Distributions of Zooplankton Taxa. MAR. BIOL 1982;VOL. 67, NO. 1:pp. 97-11
Marine Phys. Lab., A-005, Scripps Inst. Oceanogr., La Jolla, CA 92093, USA. Small-scale (100 to 2,400 m) horizontal distributions of major taxonomic categories (class and order) of zooplankton were measured at a depth of 90 m with an opening-closing plankton net over a 3 d period in October 1978 in the California Current. Some zooplankton categories showed evidence of diurnal vertical migration, while others had long-period temporal changes in mean abundance. Variance-to-mean ratio for large copepods and euphausiids was higher at night than during the day, while the opposite was true for chaetognaths and pteropods. Within a given category, the variance-to-mean ratio generally increased with a category's abundance. Spatial abundance variations were characterized by trends (i.e., fluctuations larger than length of the net hauls) in some taxonomic categories. Correlation analysis

of taxonomic counts implied that significant biological interactions occurred. Comparisons of wet weight biomass to taxonomic counts indicated that biomass was usually less variable than taxonomic counts. horizontal distribution/zooplankton/Copepoda/Euphausiacea/Chaetognatha/abundance/California current/US West Coast/pteropoda/OceanAbstracts.

2071. Coyer JA. Variation in surfperch diets between allopatry and sympatry: circumstantial evidence for competition. *Oecologia* (Berlin) 1983;58:402-410
Characteristics of the diet of black surfperch were compared between islands where it occurs with and without a congener, the striped surfperch. Several hypotheses were considered to explain observed dietary differences between allopatric and sympatric populations of black surfperch.
diets/foraging behavior/competition/allopatry/sympatry *Embiotoca lateralis*/black surfperch/*Embiotoca lateralis*/striped surfperch/Santa Cruz Island/Santa Catalina Island/San Clemente Island/marine biology/ecology.

2072. Fiedler PC. Satellite remote sensing of the habitat of spawning anchovy in the Southern California Bight. *Calif. Coop. Oceanic Fish. Invest. Rep.* 1983;24:202-209.
Northern anchovy/*Engraulis mordax*/spawning/reproduction/fish/Cross Allen TEXT/MINERALS MANAGEMENT SERVICE.

2073. Machado F. Acid Volcanoes of San Miguel, Azores. *Bull. Volcanol.* 1973;36(2):p.319-327
Serial Crustal drift of 1 cm/y, shallow magma chambers (basaltic). B; Bibliography and Index of Geology (1969-present).
Azores/Volcanology/San Miguel Island/Volcanoes/Atlantic Ocean/history/genesis/Igneous rocks/Volcanic/Acidic/composition/Geophysical surveys/Seismic surveys/ground/magmas/Basaltic/Sea floor spreading/rates/GEOREF.

2074. Craig S, Walker PL. Archeological evidence concerning the prehistoric occurrence of sea mammals at Point Bennet, San Miguel Island. *California Fish and Game* 1979;65(1):50
Archeology/prehistoric marine mammals/mammalia Point Bennett, San Miguel Island paleontology/marine biology/marine archaeology/mammalogy/anthropology.

2075. Fiedler PC, Methot RD, Hewitt RP. Effects of California USA El Nino 1982-1984 on the northern anchovy. *J. Mar. Res.* 1986;44(2):317-338. plankton
availability/temperature/current/biomass growth/fecundity/larval mortality/ecology/aquatic wildlife
management/biostatistics/biometeorology/oceanography/external effects/physical effects/mechanical effects/external effects/temperature
metabolism/energy/respiratory metabolism/nutrition/general studies/nutritional
status/methods/reproductive/physiology/biochemistry/developmental biology/general morphogenesis/chordate
taxonomy/pisces/movement/pathology/necrosis/pediatricsdevelopmental/biology/ general/descriptive/animalia/osteichthyes/Cross/El Nino/episodic fish/Allen/TEXT/MINERALS MANAGEMENT SERVICE.

2076. Field ME. Shallow structure of northern Santa Rosa-Cortes Ridge, southern California continental borderland. *Am. Assoc. Pet. Geol. Bull.* 1976;60(4):670-671.
geology/geochemistry/chemical oceanography/continental

shelf/sediments/tectonics/seismic surveys/deformation/Santa Barbara Island/Santa Rosa-Cortes Ridge/borderland/transport/slump/structures/faults/MINERALS MANAGEMENT SERVICE.

2077. Field ME, Edwards BD. Slopes of the southern California continental borderland; a regime of mass transport. Proceedings of the 4th Pacific Coast Paleogeography Symposium, Quaternary Depositional Environments of the Pacific Coast, Bakersfield, CA, United States, April 9, 1980 1980;:169-184. California/sedimentation/oceanography/introduction transport/continentalshelf/marinetransport/United States/southern California/Quaternary/Cenozoic/sedimentary petrology/processes/mass movements/Hickey/physical oceanography/MINERALS MANAGEMENT SERVICE.

2078. Field ME, S.H. Clarke Jr. Small-scale slumps and slides and their significance for basin slope processes southern California USA borderland. US Geol. Survey Special Publ. No. 27, Geology of Continental Slopes 1979;:223-230. basin/slope/southern California/Thompson/invertebrates/MINERALS MANAGEMENT SERVICE.

2079. Chung YC. Excess radon in the Santa Barbara Basin. Earth Planet. Sci. Lett. 1973;17(2):p.319-323
Serial B; Bibliography and Index of Geology (1969-present). Pacific Ocean/Geochemistry/Isotopes/radon/sea water/Santa Barbara Basin/diffusion/Rn 222/GEOREF.

2080. Cramer AJ, Pauly RD. Shore processes at a man-made headland. Shore Beach 1979;47(3):2-7
Address: Calif. Dep. Transp., Los Angeles, Calif. engineering geology/shorelines/erosion/littoral drift/sedimentation/erosion control/stabilization Santa Barbara County/Ventura County/Punta Gorda/Santa Barbara Channel/engineering geology/environmental geology.

2081. Booth JS, Dahl AG. A note on the relationships between organic matter and some geotechnical properties of a marine sediment. MAR. GEOTECHNOL 1986;6(3):281-298.
An analysis of the relationship between organic matter and liquid and plastic limits, and grain-specific gravity of a marine sediment was accomplished by making a stepwise adjustment in the organic content of that sediment. The sample use was from Santa Barbara Basin (off southern California) and is typical of fine-grained marine sediments: it is a clayey silt with a common suite of minerals and other constituents. During the experiment, texture and composition (except organic content) were constant; only the quantity of natural, indigenous organic matter was changed. A strong linear relationship exists between the independent variable, the amount of organic carbon present in the sample, and the dependent variables. Liquid limit, plastic limit, and plasticity index all increased with increasing organic content over the range studied (0.57-3.20% organic carbon). Grain-specific gravity decreased. All had linear correlation coefficients (r) greater than !0.90! and r super(2) values greater than 90%, except the plasticity index (83%). sediment properties/geotechnology/organic matter/plasticity/soil mechanics/INE/USA/California/Santa Barbara Basin/ASFA.

2082. Yeats RS. Poway Fan and submarine cone and rifting of the inner southern California borderland. in Cordilleran Section, 69th Annual Meeting. Geol. Soc. Am., Abstr. 1973;5(1):p.125
Serial; Abstract Drifts, restoration to pre-Saucesian positions, conglomerate clasts, Eocene and Oligocene, volcanism, plate

tectonic models. B; Bibliography and Index of Geology (1969-present).

California/Stratigraphy/Tertiary/lithostratigraphy/south/United States/continental drift/lower Tertiary/Sedimentary rocks/Clastics/terrigenous/Conglomerate/Tectonophysics/Plate tectonics/models/GEOREF.

2083. Crandall GJ. A marine seismic refraction study of the Santa Barbara Channel [dissertation]. Santa Barbara, CA: University of California; 1982. 132. geophysical surveys/seismic surveys/tectonics/Coast Range Ophiolite/continental shelf/traveltime/evolution/basement Mesozoic/Phanerozoic/Cenozoic/oceanic crust/thickness California Borderland/continental margin Santa Barbara Channel/ structural geology.

2084. Fuhrmann JA, Eppley RW, Hagstroem A, Azam F. Diel variations in bacterioplankton, phytoplankton, and related parameters in the Southern California Bight. MAR. ECOL. (PROG. SER.) 1985;27(1-2):9-20.

The principal objectives of this study were (i) to determine the extent of coupling between phytoplankton and microheterotrophs on the shelf off Southern California, (ii) to compare different measures of primary and bacterial secondary production, and (iii) to assess whether sampling times should be as strictly controlled for microheterotroph as for autotroph studies. Two diel cycles (May and October) were studied by sampling an isotherm as the ship followed paired submerged drogues. We found significant diel changes of chlorophyll, super(14)C bicarbonate incorporation, bacterial abundance and thymidine incorporation, frequency of dividing bacterial cells (FDC), abundance of non-pigmented flagellates, particulate organic carbon and nitrogen and their ratios, and dissolved oxygen.

plankton/circadian rhythms/nannoplankton/chlorophylls/abundance/enviromental factors/amino acids/dissolved oxygen/quantitative distribution/light effects/INE/USA/Southern California Bight/ASFA.

2085. Henyey TL, Lee TC, Lawver LA. Heat Flow Measurements Of The Southern California Borderland And In The Gulf Of California. Cordilleran Section, 69th Annual Meeting. Geol. Soc. Am., Abstr. 1973;5(1):p.53

Serial; Abstract B; Bibliography and Index of Geology (1969-present). California/Geophysical surveys/Heat flow/south/Gulf of California/United States/regional patterns/GEOREF.

2086. Crandall GJ, Luyendyk BP, Reichle MS, Prothero WA. A marine seismic refraction study of the Santa Barbara Channel, California. Marine Geophysical Researches 1983;6(11):15-37
Address: Univ. Calif., Dep. Geol. Sci., Santa Barbara, CA 93106. geophysical surveys/tectonophysics/seismic surveys/mantle/refraction methods/marine methods/elastic waves/P-waves/velocity structure/traveltime/oceanic crust/upper mantle/plate tectonics Santa Barbara Channel geology/solid earth geophysics/.

2087. Fitch JE. Fossil records of certain schooling fishes of the California Current system. Calif. Coop. Oceanic Fish. Invest. Rep. 1969;13:71-80. TEXT/CROSS/ALLEN/FISH/MINERALS MANAGEMENT SERVICE.

2088. Ridgway SH, Robison CC. Homing by released captive California sea lions, *Zalophus californianus*, following release on

distant islands. CAN. J. ZOOL 1985;63(9):2162-2164.

Captive male California sea lions were twice flown to offshore breeding islands and released. Three animals returned to their pen in San Diego Bay after discharge on San Clemente Island, about 115 km away. Two of four returned to the same facility from San Nicolas Island, about 240 km away. The fastest sea lion returned in 2 days from San Clemente and in 4 days from San Nicolas. This is the first evidence for such specific east--west navigation by sea lions and suggests that these animals are good navigators.

homing behavior/navigation behavior/animal navigation/marine mammals/Zalophus californianus/INE/USA/California/San Diego Bay/ASFA.

2089. Fischer PJ. Quaternary Evolution Of The Santa Barbara Basin, California. in Cordilleran Section, 69th Annual Meeting. Geol. Soc. Am. 1973;Abstr. 5(1):p.43

Serial; Abstract Neogene east-west structural trends, three environments, fan channels, distal sheet sands (Quaternary), fault blocks, submarine terrace deposits. B; Bibliography and Index of Geology (1969-present). California/Sedimentary petrology/Sedimentation/Quaternary/Santa Barbara Basin/United States/tectonics/Environment/Basins/deposition/Structure/Evolution/Changes of level/GEOREF.

2090. Imsand S. Comparison of the Food of *Triphoturus mexicanus* and *T. nigrescens*, Two Lanternfishes of the Pacific Ocean. MARINE BIOL 1981;VOL. 63, NO. 1:pp. 87-100
SIO, La Jolla, CA.

Prey (chiefly euphausiids and copepods) eaten by two myctophids (lanternfishes) are compared from incidence in fish stomachs and from abundance in the environment. One lanternfish species, *Triphoturus mexicanus*, lives in the California Current, and the other, *T. nigrescens*, lives in the central Pacific Ocean. Although these two environments are very different physically and biologically, the feeding habits of the two lantern-fishes are surprisingly similar. Prey biomass is 94% euphausiids, 3% copepods, and 3% other organisms for *T. mexicanus* and 88% euphausiids, 4.5% copepods, and 7.5% other organisms for *T. nigrescens*; the difference between the fish species is not significant when tested statistically.

Triphoturus/Osteichthyes/Myctophidae/Diet/Feeding habits/California Coast/Pacific Ocean Central/California Current/*T. mexicanus*/*T. nigrescens*/lantern fish/OceanAbstracts.

2091. Fleischer P. Mineralogy of hemipelagic basin sediments, California continental borderland. Dissertation, Univ. South. Calif., Los Angeles, CA 1970;:208.

text/chemical oceanography/Eganhouse/Venkatesan/MINERALS MANAGEMENT SERVICE.

2092. Spiegel Z. Problems of the Triassic stratigraphy in the Canadian River Basin, Quay, San Miguel and Guadalupe Counties, New Mexico. N. M. Geol. Soc., Annu. Field Conf. Guideb. 1972(23):p.79

Serial B; Bibliography and Index of Geology (1969-present). New Mexico/Stratigraphy/Triassic/lithostratigraphy/Canadian River Basin/Quay County/San Miguel County/Guadalupe County/United States/Chinle Formation/Santa Rosa Sandstone/Redonda Formation/upper Triassic/Sedimentary rocks/GEOREF.

2093. Fleischer P. Mineralogy of hemipelagic basin sediments, California continental borderland. Technical report. 1971;:211.

minerals/continental shelves/marine geology/California/clay
minerals/carbonates/x-ray diffraction analysis/egan/ocean bottom
sampling/particle size/identification/quantitative
analysis/rivers/calcium
compounds/sedimentation/geochemistry/silt/sand/potassium
compounds/Eganhouse/chemical oceanography/MINERALS MANAGEMENT
SERVICE.

2094. Brinton E, Townsend AW. Euphausiids in the Gulf of California--The 1957 Cruises. Conf. Nonconsumable Living Resources of the Calif. Current: Interact. with Consumable Resources & Their Exploit. CALIF. COOP. OCEANIC FISH. INVESTIG. REPTS 1980;VOL. 21, NO Marine Life Res. Group, SIO, La Jolla, CA.

Euphasiid crustaceans in the Gulf of California were examined from four bimonthly CalCOFI grid cruises during February through August of 1957. Of the nine species found to regularly inhabit the Gulf, *Nematoscelis difficilis* and *Nyctiphanes simplex* are common to the warm-temperate California Current. These have the broadest ranges in the Gulf. *Euphausia eximia*, a species having high densities at zones considered marginal to the eastern tropical Pacific, also varies little in range during the year, consistently occupying the southern half of the Gulf. Tropical *Nematoscelis gracilis* shows a range complementary to that of *N. difficilis*. The distributions and abundances of the species and their life stages, are described in relation to seasonal variation in flow and temperature in the Gulf.

Nematoscelis/Nyctiphanes/Euphausia/Euphausiacea/Crustacea/Range extension/Zoogeography/Gulf of California/California Current/Seawater temperatures/Life histories/Seasonal variations/Distribution/Abundance/N/difficilis/N/simplex/E/eximia/OceanAbstracts.

2095. Crandall GJ, Luyendyk BP, Reichle MS, Prothero WA. A marine seismic refraction study of the Santa Barbara Channel, California. Mar. Geophys. Res. 1983;6(1):15-37
Address: Hughes Aircraft, 4833 Fallbrook Ave. (MS, W-75) Canoga Park, CA 91304, USA.

Seismic data from a 186 km-long refraction profile in the Santa Barbara Channel have been interpreted using several velocity inversion techniques. Travel-time inversion gives a $V_{sub}(p)$ of 6.3 km sec super(-1) at 7.2 km depth above 7.2 km sec super(-1) at 14.4 km depth at the western end of the channel. At the eastern end, solutions suggest three sediment refractors overlying $V_{sub}(p)$ of 6.4 km sec super(-1) at 7.3 km depth, above 7.0 km sec super(-1) at 11.6 km depth, above mantle arrivals with $V_{sub}(p)$ of 8.3 km sec super(-1) at 21.8 km depth. The velocity structure determined by these methods suggests that the channel has a sedimentary fill of from 4 to 7 km and a layer of mafic plus ultramafic rock 14 to 17 km thick. The greatest thicknesses of sediments are restricted to east of Point Conception. The velocity data also suggest that the Franciscan formation may not be present beneath the channel. Rather, the crust here may represent a thickened portion of the Coast Range ophiolite.

seismic refraction profiles/sediment density/sedimentary structures/sedimentary rocks/seismic data/Santa Barbara Channel/geology/seismology.

2096. Alvarino A. The depth distribution, relative abundance and structure of the population of the Chaetognath *Sagitta scrippsae* Alvarino 1962, in the California Current off California and Baja California. AN. INST. CIENC. MAR LIMNOL. UNIV. NAC. AUTON. MEX. (ZOOLOG.) 1983;10(1):47-84.

Samples of *Sagitta scrippsae* were obtained in 1969 off California and Baja California, from day and night hauls at identical

locations and depth strata, in winter, spring, summer, and fall cruises. The greatest number of specimens was collected from August-September. *S. scrippsae* occurred off California and Baja California in waters deeper and farther west and south in August-September and was present in the 0-25 stratum only in February-March 1969. The distribution of *S. scrippsae* off California and Baja California shows a positive correlation with the intensity of the California current, gradually decreasing in numbers as the California current loses its distinctiveness. Therefore, the species could be considered as an indicator of the northern flow off California and Baja California, and to estimate the degree of mixing taking place in the California current system.

vertical distribution/indicator species/current direction/Sagitta scrippsae/seasonal variations/population number/population structure/ISE/Mexico/Baja California/INE/USA/California/INE/California Current/ISE/California Current/ASFA.

2097. Soutar A. Micropalaeontology of anaerobic sediments and the California Current. The micropalaeontology of oceans, illus. (incl. sketch map). Camb. Univ. Press. Cambridge, 1971. 1971:p. 223-230

Fish scales, calcareous and siliceous microfossils present in varves, seasonal changes, relation to sardine industry. B; Bibliography and Index of Geology (1969-present). Pisces/Distribution/Scales/ecology/Holocene/Pacific Ocean/California Current/Sediments/Environmental analysis/Anaerobic/Sedimentary structures/Planar bedding structures/Varves/Sedimentary petrology/GEOREF.

2098. Antonelis GA, Fiscus CH. Pinnipeds of the California Current. Nonconsumable Living Resources of CA Current: Interactions with Consumable Resources & Their Exploit. CA COOP. OCEANIC FISH. INVEST. REPTS; VOL. 21, NO Marine Mammal Div., Northwest and Alaska Fish. Ctr., NMFS, Sand Point Way, NE Seattle, WA. There are six species of pinnipeds-California sea lion, *Zalophus californianus*; northern sea lion, *Eumetopias jubatus*; northern fur seal, *Callorhinus ursinus*; Guadalupe fur seal, *Arctocephalus townsendi*; harbor seal, *Phoca vitulina richardsi*; and northern elephant seal, *Mirounga angustirostris* - that inhabit the study area of the California Cooperative Oceanic Fisheries Investigations (CalCOFI). The numbers of animals in each population are given; the size, distribution, and seasonal movements are described. The known prey species of the pinnipeds are listed for each species. *Zalophus/Eumetopias/Callorhinus/Arctocephalus/Phoca/Mirounga/Pinnipedia/Mammalia/Size composition/Zoogeography/California Current/Abundance/Migration/Predation/Diet/OceanAbstracts.*

2099. Crawford D. U. S. offshore; U. S. geology tells potential tale. Offshore 1982;42(2):47-49, 51-52, 55

survey organizations/Atlantic Coastal Plain/Gulf Coastal Plain/current research/economic geology/U.S. Geological Survey/fuel resources/petroleum/natural gas/offshore/exploration/continental shelf/outer shelf/resources/reserves Atlantic Coastal Plain/Atlantic Ocean/Gulf Coastal Plain/Gulf of Mexico/Santa Barbara Channel/Alaska/Gulf of Alaska/economic geology/energy sources.

2100. Casey RE, Partridge TM, Sloan JR. Radiolarian life spans, mortality rates, and seasonality gained from Recent sediment and plankton samples. Planktonic Conf., Proc. 1971;1(2):p.159-165

Serial Life spans of one month found for two species, seasonality noted in upper 200 meters and in varved sediments of Santa Barbara

Basin (Pacific Ocean), possible correlation with exotics and their invading water masses, seasonality also found in Miocene varved sediments. B; Bibliography and Index of Geology (1969-present). Radiolaria/Faunal studies/Holocene/Pacific Ocean/Santa Barbara Basin/growth/reproduction/seasonality/Paleontology/Miocene/United States/California/GEOREF.

2101. Tont SA, Delistraty DA. Effects of Climate on Terrestrial and Marine Populations. Nonconsumable Living Resources of CA Current: Interactions with Consumable Resources & Their Exploit.CA COOP. OCEANIC FISH. INVEST. REPTS;VOL. 21, NO SIO, La Jolla, CA.

Climate appears to be a major extrinsic regulatory agent for some organisms, most notably the more r-selected ones. Random meteorological events are reflected in environmental and population variability and instability. The variability associated with marine populations in the California Current system is largely due to climatic fluctuation. The interplay of short (upwelling) and longer term (water mass influx) changes in the physical environment have been shown to regulate diatom blooms.

Population dynamics/Marine organisms/California Current/California Coast/Climates/Environmental conditions/Upwelling/Water masses/Diatoms/climatic-biological interaction/OceanAbstracts.

2102. Crippen RE, Luyendyk BP, Hajic EJ. High resolution structural mapping in the Santa Barbara Channel. Geological Society of America, Cordilleran Section, 78th annual meeting. Abstracts with Programs - Geological Society of America 1982;14(4):157

Address: Univ. Calif., Dep. Geogr., Santa Barbara, CA Conference: Geological Society of America, Cordilleran Section, 78th annual meeting. Anaheim, CA, April 19-21, 1982.

oceanography/geophysical surveys/continental shelf/surveys/sonar methods/geophysical methods/acoustical surveys/reflection/seismic surveys/tectonics/Monterey Formation/folds/Santa Cruz Island Fault/Dume Fault/anticlines/Santa Rosa Island Fault/high-resolution methods/fold geometry/seismic reflection/faults Anacapa Passage/Santa Barbara Channel/marine geology/oceanography.

2103. Blumberg AF, Kantha LH, Herring HJ, Mellor GL. A hindcast of the circulation in the Santa Barbara Channel during spring 1983. APPLICATIONS OF REAL-TIME OCEANOGRAPHIC CIRCULATION MODELING: SYMPOSIUM PROCEEDINGS. 1986;:285. A joint program of field observations and numerical modeling has been undertaken in the Santa Barbara Channel to acquire a better understanding of its circulation. The program is designed to provide the best description possible of the circulation in the region on synoptic, seasonal and climatological time scales. The modeling component is structured to augment and supplement the field observational effort undertaken by Science Applications International Corporation (SAIC/NW). Parallel development of the field observational and modeling efforts is intended to provide for an optimal design of both. The numerical modeling component is centered on the use of a three-dimensional prognostic shelf circulation model. A second-moment turbulence closure model has been used to provide for a realistic parameterization of the vertical mixing processes. The model variables are the three components of velocity, temperature, salinity, turbulence kinetic energy and turbulence macroscale. The circulation patterns presented utilize the data sets collected during a pilot observational program carried out in April-June, 1983, for initialization and forcing. shelf dynamics/continental shelves/wave hindcasting/INE/Santa Barbara Channel/mathematical models/ASFA.

2104. Delaca TE, Lipps JH. The mechanism and adaptive significance of attachment and substrate pitting in the foraminiferan *Rosalina globularis* d'Orbigny. *J. Foraminiferal Res.* 1972;2(2):p.68-72
Serial Attaches to any firm substrate by organic membrane, may cause pits to form on substrate, provides protection from turbulent shallow waters, Pleistocene, Holocene, California. B; Bibliography and Index of Geology (1969-present).
Foraminifera/Rotaliina/Pleistocene/Holocene/California/morphology/biology/ecology/Rosalina globularis/United States/Bodega Head/Santa Barbara Island/Marine/Paleontology/GEOREF.

2105. McGowan JA, Miller CB. Larval Fish and Zooplankton Community Structure. Nonconsumable Living Resources of CA Current: Interactions with Consumable Resources & Their Exploit. CA COOP. OCEANIC FISH. INVEST. REPTS;VOL. 21, NO
SIO, La Jolla, CA.
The macrozooplankton samples from two CalCOFI cruises have been analysed for the abundance of most of the important species of zooplankton. The data show that there are large changes in the degree of numerical dominance from place to place and that the identity of the dominant species varies strongly from sample to sample. In all of these samples larval fish were rare to very rare as compared to other species. Many of these other species must be competitors of larval fish, and some are known predators.
Fish larvae/Zooplankton/Abundance/Competition/Predators/California Current/Cruises/Species composition/macrozooplankton/OceanAbstracts.

2106. Crittenden R, Muhs DR. Cliff-height and slope-angle relationships in a chronosequence of Quaternary marine terraces, San Clemente Island, California. *Zeitschrift fur Geomorphologie* 1986;30(3):291-301
Address: Dept of Geog, Sci Hall, Univ of Wisconsin, Madison, WI 53706. Indicates a regular increase in slope angle with the logarithm of the cliff height and cliffs of a given height show a decline in maximum slope angle with time. Overall, the relationships are weaker than for stream terraces and fault scarps in unconsolidated materials, but the method can probably be used successfully to distinguish early, middle and late Quaternary fault scarps or sea cliffs in consolidated materials.
slope angle/cliff height/stream terraces/fault scarps/Quaternary/sea cliffs/geomorphology/shore features/marine terraces/angular unconformities/chronostragraphy/absolute age/corals/molluscs/San Clemente Island/geology/geomorphology/geochronology.

2107. Ford RG. A risk analysis model for marine mammals and seabirds: A Southern California Bight scenario, final report. Prep. for: U.S. Dep. of the Interior, Minerals Management Service. OCS Study MMS 85-0104. 1985;:236. MINERALS MANAGEMENT SERVICE.

2108. Mooers CNK. Experience with real-time mesoscale ocean prediction (analysis and forecast) in the EEZ off California. APPLICATIONS OF REAL-TIME OCEANOGRAPHIC CIRCULATION MODELING: SYMPOSIUM PROCEEDINGS. 1986;:189-210. Since March 1982, the OPTOMA (Ocean Prediction Through Observation, Modeling, and Analysis) Program, a joint NPS/Harvard project sponsored by ONR, has been: exploring the capabilities and limitations to practical mesoscale ocean prediction with an ODPS (Ocean Descriptive/Predictive System) in a 150km by 150km "test block" of ocean off Northern California; and, using the resultant fields from ODPS to improve our

understanding of the kinematics, dynamics, and energetics of the California Current System (CCS). The ODPS consists of (quasi-geostrophic) dynamical and (objective analysis) statistical models developed at Harvard, plus observing systems, including shipborne, airborne, moored buoy, and satellite remote sensing components. Altogether, approximately equals 30 synoptic realizations have been acquired, which form the basis for calculating dynamical and statistical modes, and the correlation functions needed in the statistical model. Two real-time ocean prediction experiments have been conducted to date, a pilot experiment for 1 mo. in summer 1983 and a prototype experiment for 2 mo. in summer 1984, with promising results.

Exclusive Economic Zone/mesoscale features/ocean circulation/oceanography/forecasting/realtime systems/California/INE/USA/ California/prediction/real-time ocean prediction/ASFA.

2109. Morin RW. Late Quaternary biostratigraphy of cores from beneath the California Current. Micropaleontology. 1972;17(4):p.475-491 Serial Planktonic foraminifera, Radiolaria, five faunal changes occur at or slightly above or below lithic Pleistocene-Holocene boundary, paleoclimatology, period of warming noted above boundary, Pacific Ocean. B; Bibliography and Index of Geology (1969-present). Foraminifera/Biostratigraphy/Planktonic/paleoclimatology/Quaternary/Pacific Ocean/California Current/Radiolaria/Stratigraphy/GEOREF.

2110. Anderson DW, Gress F, Mais KF, Kelly PR. Brown Pelicans as Anchovy Stock Indicators and Their Relationships to Commercial Fishing. Nonconsumable Living Resources of CA Current: Interactions with Consumable Resources & Their Exploit. CA COOP. OCEANIC FISH. INVEST. REPTS;VOL. 21 Dept. Wildlife and Fish. Biol., Univ. CA, Davis. Pelicanus/Aves/Bioindicators/Fish stocks/Endangered species/Anchovies/Engraulidae/California Coast/Commercial fisheries/Abundance/Food resources/P/occidentalis californicus/Southern California Bight/OceanAbstracts.

2111. Crouch JK, Bachman S. Regional post-late Miocene thrust faulting in offshore central California; implications for wrench-style tectonics. 1984 AAPG annual convention with divisions; SEPM/EMD/DPA. AAPG Bulletin 1984;68(4):467 Address: Nekton, San Diego, CA Conference: AAPG annual convention with divisions; SEPM/EMD/DPA. San Antonio, TX, United States, May 20-23, 1984. geophysical surveys/tectonics/seismic surveys/Miocene/Neogene/Tertiary/faults/thrust faults/wrench faults/offshore/basins/Hosgri Fault/folds/compression/Cenozoic Point Conception/Santa Maria Basin/Santa Barbara Channel/Hosgri Fault/structural geology.

2112. Robinson AR, Carton JA. Real-time data assimilation, mesoscale dynamics and dynamical forecasting. APPLICATIONS OF REAL-TIME OCEANOGRAPHIC CIRCULATION MODELING: SYMPOSIUM PROCEEDINGS. 1986;:pp. 79-92. The Harvard group is carrying out research on the optimal estimation of oceanic fields, focusing on real data assimilation in dynamical models. Their conceptual basis is the Descriptive-Predictive System which consists of an observational network, a statistical model, and a dynamical model to be used both for practical forecasting and for dynamical analysis. Among the present studies are: a hierarchy of coupled models for studies of the general circulation, transport and dispersion, developed in conjunction with Sandia National Laboratories; a real-time experimental prediction program in the California current, in

conjunction with the Naval Postgraduate School; development of an ocean-going forecasting system and studies of sampling design for optimal initialization of the forecasts; and studies of Gulf Stream dynamics and forecasting, including assimilation of satellite altimeter and Rafos float data.

data processing/dynamic analysis/statistical analysis/ocean circulation/oceanography/realtime systems/real-time data/Oceanic Descriptive-Predictive System/ASFA.

2113. Wilson HM. New seismic tools led to Santa Ynez oil.

Oil Gas J. 1972;70(26):p.116

Serial Analysis of seismic data from the Santa Barbara channel, California. B; Bibliography and Index of Geology (1969-present). California/Economic geology/Petroleum/Santa Barbara channel/Santa Ynez/United States/exploration/seismic surveys/Geophysical surveys/marine/GEOREF.

2114. Eppley RW, Cullen JJ. Chlorophyll Maximum Layers of the Southern California Bight and Possible Mechanisms of Their Formation and Maintenance. OCEANOLOGICA ACTA 1981;VOL. 4, NO. 1:pp. 23-32

Inst. Marine Resources, SIO, La Jolla, California 92093, USA. One hundred forth-three vertical profiles of in vivo fluorescence taken in the Southern California Bight from 1974 through 1979 were studied in relation to other information from the same stations. Subsurface fluorescence maximum layers are usually present, and are generally located well above the 1% light level in the vicinity of the nitracline. Fluorescence maxima are usually chlorophyll maxima, and chlorophyll maxima are often biomass maxima. Chlorophyll maximum layers often contribute significantly to water column primary production, but the majority of chlorophyll maxima are not primary production maxima. Density structure of the water column does not have overriding proximate control on the position of chlorophyll maxima below the mixed layer. Although the layers are often found where light and nutrient conditions are favorable for growth, they are not maintained as the result of enhanced growth rate in that stratum. Chlorophyll measurements/Fluorescence/Biomass/California Coast/Primary production/Density/Southern California Bight/maximum layers/OceanAbstracts.

2115. Crouch JK, Bachman S. Seismic reflection profiles from offshore central California; evidence for post-Miocene imbricate thrust faulting. 1984 AAPG annual convention with divisions; SEPM/EMD/DPA. AAPG Bulletin 1984;68(4):467 Address: Nekton, San Diego, CA, USA Conference: AAPG annual convention with divisions; SEPM/EMD/DPA. San Antonio, TX, May 20-23, 1984.

geophysical surveys/petroleum/seismic surveys/offshore/exploration/Miocene/Neogene/Tertiary/thrust faults/faults/imbrication/planar bedding structures/sedimentary structures/tectonics/neotectonics/San Andreas Fault/discoveries/anticlines/folds/wrench faults/structural traps/traps/geophysical profiles/Central California/Santa Maria Basin/Santa Barbara Channel/Point Conception/San Andreas Fault/economic geology/energy sources.

2116. Mueller JL. Optical variability in the eastern North Pacific Ocean as measured by the NIMBUS-7 coastal zone color scanner. PROCEEDINGS OF THE PACIFIC CONGRESS ON MARINE TECHNOLOGY, HONOLULU, HAWAII, APRIL 24-27, 1984. 1984;:pp. OST2/11-12. Sequences of Nimbus-7 Coastal Zone Color Scanner (CZCS) images have been processed to map bio-optical variability in the eastern North Pacific Ocean. Phytoplankton pigment concentrations)chlorophyll-a

plus phaeopigments-a) and $k(490)$ (the vector irradiance attenuation coefficient at a wavelength of 490 nm) were calculated from the radiances measure in cloud free portions of each available CZCS image. These parameters were then mapped onto a Mercator grid extending from 28 N to 42 N and from 117 W to 143 W at a nominal resolution of 5 km. Emphasis was placed on Oct and Nov of 1979 and 1982 as part of the analysis phase of the ONR sponsored Optical Dynamics Experiment (ODEX). The objective of the ODEX program is to develop a 1-dimensional model for predicting optical propagation in the upper ocean away from coastal current systems. A strong optical front separates turbid coastal water from transparent offshore water at a location near the base of the continental slope. Along the zonal transect at 35 N, this front is clearly visible near 123 W in CZCX-derived optical depth. In the offshore continuation of the 35 N transect, the Acania's CTD profiles clearly indicated that the water masses between the optical front of 123 W and beyond 130 W have temperature-salinity characteristics associated with the California Current System. Vertical profiles of in situ optical properties also varied systematically over the zonal t/satellite sensing/photosynthetic pigments/phytoplankton/water masses/water currents/CTD observations/image processing/remote sensing/satellites/oceanography/chlorophylls/marine environment/INE/California Current/variability 35 N./NIMBUS-7/ASFA.

2117. Fleischer P. Sepiolite associated with Miocene diatomite, Santa Cruz Basin, California. Am. Mineral. 1972;57(5-6):p.903-913
Serial B; Bibliography and Index of Geology (1969-present). Minerals/Sheet
silicates/Sepiolite/genesis/authigenesis/diatomite/chemical analysis/Pacific Ocean/Santa Cruz Basin/Sedimentary rocks/Clastics/nonterrigenous/diagenesis/California/Mineralogy/GEOREF.

2118. O'Connell CP. Percentage of Starving Northern Anchovy, *Engraulis mordax*, Larvae in the Sea as Estimated by Histological Methods. FISHERIES BULL. 1980 Apr;VOL. 78, NO. 2:pp. 475-489
Southwest Fish. Ctr. La Jolla Lab., N.M.F.S., La Jolla, CA. The proportion of starving larvae of northern anchovy, *Engraulis mordax*, was estimated for the Southern California Bight in March 1977 from histological examination of larvae for 64 1 m net tow samples. The number of larvae in the tows varied from 0 to about 400. Approximately 6 per tow were sectioned and examined with the light microscope. Twenty-six specimens were identified as emaciated from anomalies of the trunk musculature and digestive tract. Some of the emaciated larvae occurred as isolated cases at widely scattered locations, but most were from a few nearshore tows, indicating "patches" of starving larvae.
Engraulis/Anchovies/*Engraulidae*/Osteichthyes/Fish larvae/Starvation/Stock assessment/Histology/California Coast/US West Coast/Southern California Bight/E/*mordax*/OceanAbstracts.

2119. Mooers CNK, Robinson AR. Mesoscale ocean variability in the California Current system. PROCEEDINGS OF THE PACIFIC CONGRESS ON MARINE TECHNOLOGY, HONOLULU, HAWAII, APRIL 24-27, 1984. 1984;:pp. OST2/6-7. A joint NPS/Harvard investigation of the scientific requirements for, and the limitations of, practical limited-area, open ocean forecasting of the mesoscale ocean eddy field commenced two years ago under ONR sponsorships. The investigation is called the OPTOMA (Ocean Prediction Through Observation, Modeling, and Analysis) Program. Ocean prediction (analysis and forecast) experiments are being undertaken in "test

blocks" (ca. 200 X 200 km) of ocean off Northern and Central California. A series of ten week-long, quasi-synoptic shipboard hydrographic XBT and CTD surveys have been conducted, along with some AXBT surveys by aircraft and the acquisition of some satellite IR remote sensing imagery, to develop a statistical (objective analysis) model. The dynamical model used in the forecasts is a quasi-geostrophic, eddy-resolving numerical model, which is initialized with the aid of observations. The first prototype (real-time) prediction experiment was performed in June/July 1983; the second is planned for the same time frame in 1984. The first major, comprehensive (i.e., with thermodynamical as well as dynamical models) prediction experiment is planned over a larger space-time domain for 1986. The initial survey revealed new features in the California Current System (CCS), which were corroborated in the subsequent surveys. The CCS regime is now firmly established.

mesoscale eddies/ose-packed/synoptic/mesoscale eddies/intense mean/current prediction/ocean circulation/INE/California Currents/and strong surface thermal fronts/ISE/California Current/variability/mathematical models/OPTOMA/ASFA.

2120. Normark WR, Piper DJW. Sediments and growth pattern of Navy Deep Sea Fan, San Clemente Basin, California borderland. J. Geol. 1972;80(2):p.198 Serial B; Bibliography and Index of Geology (1969-present). Sediments/Environmental analysis/Quaternary/Invertebrata/marine geology/California/Oceanography/Navy Fan/San Clemente Basin/Sedimentation/Environment/United States/GEOREF.

2121. Knight MD. Larval Development of *Euphausia eximia* (Crustacea: Euphausiacea) with Notes on Its Vertical Distribution and Morphological Divergence Between Populations. FISHERY BULL. 1980 Apr;VOL. 78, NO. 2:pp. 313-335 SIO, La Jolla, CA. Larval development of *E. eximia* is examined. A comparison of larvae of *E. eximia* from across the species' range showed significant differences in morphology between forms from the California Current terminus off Baja California and from the South Equatorial and Peru Currents. Significant differences in morphology were found as well during a preliminary survey of adults. The vertical distribution of larval stages in day and night samples from two locations off Baja California and one in the South Equatorial Current showed development of diurnal vertical migration in the second half of the furcilia phase after acquisition of the full complement of setose abdominal pleopods. *Euphausia*/Crustacea/Malacostraca/Euphausiacea/Larvae/Ontogeny/Morphology/Baja California Coast/Vertical distribution/California Current/South Equatorial Current/Peru Current/E/eximia/krill/OceanAbstracts.

2122. Culver RL. Infrasonic ambient ocean noise spectra from freely drifting sensors. Summary report. : Scripps Institution of Oceanography, La Jolla, CA. Marine Physical Lab. MPL-U-52/85; SIO-REF-85-22; 1985. 51. Self-contained Swallow Floats can record very low frequency (VLF) ambient ocean noise over extended periods of time. The autonomous buoys measure and record the components of particle velocity in the 1-10 Hz band. They can be ballasted to neutral buoyancy at a desired depth. The buoys generate and receive high frequency acoustic signals which may be used to determine their relative positions. The deployment of several of these units forms a freely drifting array of sensors. Individual element time series may be combined coherently off-line using a beamformer, e.g., the MPL dynamic Beamformer. The Swallow float design minimizes self-noise which can limit accurate ambient ocean noise

measurements. The floats drift freely and are not subject to flow noise or cable strumming. They measure particle velocity and are therefore insensitive to variations in local pressure. MPL has conducted Swallow float deployments annually since 1982. The 1982 deployment tested only the acoustic positioning system. Between 12 and 14 July 1983, three Swallow floats were deployed at a location approximately 50 miles west of San Diego, California and southeast of San Clemente Island (32°N, 118°W). Sea state during the deployment varied between 1 and 2. Water depth was approximately 1900 meters. Two of the floats deployed to a depth of about 1400 meters and the third deployed to the bottom. Measurements recorded by float 3 which deployed to 1400 meters have been analyzed and results are reported in this thesis. Ambient noise/Beam forming/Buoys/Deployment/Depth/Detectors/Drift/Dynamics/Floats/Measurement/Noise/Oceans/Particles/Parts/Position (Location)/Sea states/Theses/Time series analysis/Velocity/Very low frequency/Water/Oceanographic data/Acoustic arrays southeast of San Clemente Island/physical oceanography.

2123. Freel MR, Aceituno ME. Seabirds and marine mammals of the Southern California Bight. POCS Ref. Pap. No. I. Prep. for U.S. Dep. Interior, Minerals Management Service (BLM), Pacific OCS Region, Los Angeles, CA. 1978;:106. MINERALS MANAGEMENT SERVICE.

2124. Putt M, Prezelin BB. Observations of diel patterns of photosynthesis in cyanobacteria and nanoplankton in the Santa Barbara Channel during "El Nino". J. PLANKTON RES 1985;7(6):779-790.

During the 1983 El Nino, filter fractionation showed that over 80% of the chlorophyll-based phytoplankton biomass in the Santa Barbara Channel was < 5 μ m. Larger nanoplankton (5-30 μ m), accounted for the chlorophyll in the remaining fraction but, unlike other years, no significant quantities of net plankton > 30 μ m were detected. The population as a whole was dominated by chroococcalean cyanobacteria which were two times more abundant (123 plus or minus 24 x 10³ ml⁻¹) than previously reported for the California Current System (Krempin and Sullivan, 1981). Numbers of other types of bacteria were uniformly low (277 plus or minus 44 x 10³ cells ml⁻¹). Cyanobacteria and larger nanoplankton exhibited similar diurnal patterns of photosynthesis, i.e., maximal rates of light-saturated photosynthesis ($P_{sub(max)}$) occurred mid-day and day-night amplitudes were > 2.0.

El Nino phenomena/phytoplankton/primary production/Cyanophyta/USA/California/Santa Barbara Channel/marine environment/photosynthesis/diurnal variations/INE/Santa Barbara Channel/diel variations/El Nino phenomenon/ASFA.

2125. Ridlon JB. Pleistocene Holocene Deformation of the San Clemente Island Crustal Block, California. Geol. Soc. Am., Bull. 1972;83(6):p.1831 Serial Seismic-reflection profiles, submarine wave-cut terrace, Eel Ridge Submarine Canyon. B; Bibliography and Index of Geology (1969-present). California/Oceanography/Ocean basins/structure/seismic surveys/San Clemente Island/Geophysical surveys/United States/reflection/Quaternary/Eel Ridge Canyon/GEOREF.

2126. Estrada M, Blasco D. Two phases of the phytoplankton community in the Baja California upwelling. LIMNOLOGY AND OCEANOGRAPHY 1979 Nov;24(6):1065-1080 Instituto Investigaciones Pesqueras, Paseo Nacional s/n Barcelona, Spain I (INVESTIGATIVE/OBSERVATION). Principal component analysis was applied to quantitative data on 60 species (which are listed) of phytoplankton from the cruises MESCAL

I and MESCAL II. Dinoflagellate dominance in the phytoplankton was associated with upwelling of water of relatively low salinity and lower nutrients from below the minimum salinity core of the California Current. Diatom dominance was related to upwelling of deeper saline and high nutrient water from the California Undercurrent. AM. Algae/Phytoplankton/Baja California Coast/Upwelling/Quantitative data/Dinoflagellates/Pyrrophyta/Salinity/California Current/Diatoms/Chrysophyta/Nutrients/Undercurrents/principal component analysis/60 phytoplankton species/MESCAL I cruise/MESCAL II cruise/California Undercurrent/OceanAbstracts.

2127. Cummings D, Johnson TA, Gaal RA. Shallow structural geology, offshore Santa Maria River to Point Arguello, Central California. Geological Society of America, Cordilleran Section, 83rd annual meeting with the Paleontological Society of America, Pacific Coast Section. Abstracts with Programs - Geological Society of America 19(6). ; 1987. 369.
Address: Leighton and Assoc., Irvine, CA, USA; Calif. State Lands Comm. Conference: Geological Society of America, Cordilleran Section, 83rd annual meeting with the Paleontological Society of America, Pacific Coast Section. Hilo, HI May 20-22, 1987. tectonics/offshore/Hosgri fault zone/faults/Lompoc-Solvang Fault/Santa Ynez River Fault/Lions Head Fault/San Andreas Fault offshore Santa Maria River to Point Arguello, Central California/Santa Barbara County/geology/structural geology.

2128. Tegner MJ, Butler RA. Drift-tube study of the dispersal potential of green abalone (*Haliotis fulgens*) larvae in the southern California Bight: Implications for recovery of depleted populations. MAR. ECOL. (PROG. SER.) 1985;26(1-2):73-84. Drift tubes were released over the major past and present green abalone (*Haliotis fulgens*) beds in southern California, USA, to investigate the dispersal potential of this species' relatively short-lived larvae. Of the 1225 drift tubes released at the Channel Islands only 0.4% were found within a time span appropriate for green abalone larval life. The present status of mainland stocks suggests that recolonization by larvae originating elsewhere will be uncommon. Thus, in the absence of local brood stock, the present fishery closure is not likely to promote recovery of mainland populations of *H. fulgens* in the near future. molluscan larvae/biological drift/*Haliotis fulgens*/recruitment/INE/California Gulf/depleted stocks/ASFA.

2129. Wardlaw NC. Unusual Marine Evaporites with Salts of Calcium and Magnesium Chloride in Cretaceous Basins of Sergipe, Brazil. Econ. Geol. 1972;67(2):p.156
Serial Thick units of tachyhydrite, genetic processes, geochemistry, Aptian, Muribeca Formation, Ibura member, Santa Rosa de Lima and Taquari basins. B; Bibliography and Index of Geology (1969-present).
Evaporites/South America/Brazil/Sergipe/Cretaceous/Aptian/composition/genesis/Mine ral deposits/Tachyhydrite/Economic geology/Santa Rosa de Lima Basin/Taquari Basin/GEOREF.

2130. Simoneit BRT, Kaplan IR. Triterpenoids as molecular indicators of paleoseepage in Recent sediments of the Southern California Bight. MARINE ENVIRONMENTAL RESEARCH 1980 Apr;3(2):113-128
Univ. of California, Inst. of Geophysics and Planetary Physics, Los Angeles, CA 90024 I (INVESTIGATIVE/OBSERVATION) ; X (EXPERIMENTAL). Petroleum-derived hydrocarbons were identified in sediments by

analysis of the n-alkanes, aromatic hydrocarbons, and branched and cyclic components (humps). The detection of low levels of petroleum input to sediments can be ambiguous due to the presence of syngenetic biolipids. Triterpenoids, especially the (17 α H,21 β H)-hopanes, were proposed as sensitive molecular markers of petroleum pollution. Recent sediments from the bight to subbottom depths of =30 cm (preanthropogenic) contain lipids of syngenetic origin with major humps of branched and cyclic material and triterpenoids consisting mainly of the (17 α H,21 β H)-hopanes ranging from C27 to C35. Extended hopanes (>C31) are found as 1:1 mixtures of the 22R and 22S diastereomers. The 17 α (H),18 α (H), 21 β (H)-28,30-bisnorhopane is the dominant triterpane and appears to be a potential molecular marker characteristic of the Southern California petroleum. Extended tricyclic diterpanes ranging from C19 to C27 are also present and their structures make them further possible indicators of petroleum. The sediments appear to contain petroleum products from both seepage and anthropogenic activity. Recent sediments from other areas worldwide contain predominantly (17 β H,21 β H)-hopanes and hopenes, indicating recent synthesis and no petroleum pollution. AM.

Sediments/Hydrocarbons/Quaternary/Lipids/Biogenic elements/California Coast/Petroleum/Pollutant detection/Paleoceanography/Oil pollution/Recent/Southern California Bight/triterpenoids/paleoseepage/molecular markers/OceanAbstracts.

2131. Cushing J, Daily M, Noble E, Roth VL, Wenner A. Fossil mammoths from Santa Cruz Island, California. Quatern. Res. 1984;21(3):376-384 Address: Dep. Biol. Sci., Univ. California, Santa Barbara, CA 93106. Mammoth remains on Santa Cruz Island, one of the four Northern Channel Islands of California, are very sparse, in marked contrast to those reported from Santa Rosa and San Miguel Islands of the same island group. A probable major reason for this scarcity is that Quaternary deposits are greatly restricted on Santa Cruz Island. It is proposed, contrary to popular opinion, that fossils found on Santa Cruz Island were derived from animals which died on the island, and were not transported there by humans. Reasons for this conclusion are that the size and geological context of the fossils are similar to those of the largest mammoth fossils of Santa Rosa Island, and that, in spite of extensive investigations by many persons, mammoth remains have not been found in middens, either on the islands or on the adjacent mainland. Quaternary/mammoths /Elephantidae/Santa Cruz Island/paleoecology/paleontology.

2132. Fuhrman JA, Eppley RW, Hagstrom A, Azam F. Diel variations in bacterioplankton, phytoplankton, and related parameters in the Southern California Bight. Mar. Ecol. Prog. Ser. 1985;27:9-20.

MINERALS MANAGEMENT SERVICE.

2133. Coelho ML. Review of the influence of oceanographic factors on cephalopod distribution and life cycles. BIOLOGY AND ECOLOGY OF SQUIDS *Illex illecebrosus* AND *Loligo pealei* IN THE NORTHWEST ATLANTIC.; NAFO SCI. COUNC. STUD. 1985;(9):47-57. The general relationship between the ecology of cephalopods and their environments is briefly reviewed from available information on the fisheries, biology and physical environments of various species which constitute the major cephalopods resources of the world's oceans. The relationship is further examined by reviewing the features of two large-scale oceanographic systems and a relatively small-scale system. The large-scale systems are the Kuroshio Current in the Northwest Pacific relative to the ecology

of *Todarodes pacificus* and the Gulf Stream in the Northwest Atlantic relative to the ecology of *Illex illecebrosus*. The small-scale system is the California Current in the Northeast Pacific relative to the ecology of *Loligo opalescens*, for which association between life-history features and the physical oceanographic regime can also be identified.
geographical distribution/life cycle/marine ecology/Cephalopoda/*Todarodes pacificus*/*Illex illecebrosus*/*Loligo opalescens*/current forces/environmental effects/World Oceans/ASFA.

2134. Fleischer P. Mineralogy and sedimentation history, Santa Barbara Basin, California. *J. Sediment. Petrol.* 1972;42(1):p.49-58
Serial Holocene lutites, size analyses, mineral composition, provenance. B; Bibliography and Index of Geology (1969-present). California/Sedimentary petrology/Sediments/Santa Barbara Basin/Clastics/terrigenous/Size/mineral composition/provenance/Clay mineralogy/Areal studies/United States/Marine geology/GEOREF.

2135. Tsuchiya M. Inshore circulation in the Southern California Bight, 1974-1977. *DEEP-SEA RESEARCH* 1980 Feb;27(2A):99-118
SIO, P.O. Box 1529, La Jolla, CA 92093 I (INVESTIGATIVE/OBSERVATION). Nine cruises were made between Dana Point and Del Mar to study the circulation in the inshore region within ~40 km of the coast. Observations were usually along 3 lines, 37 km apart, nearly normal to the coast. On each line STD stations were occupied at intervals of 2 km over the sharp bottom slope in the inshore area and at intervals of 7 km in the deep water farther offshore. The geostrophic flow at the sea surface relative to 500 db was toward the S-SE along the coast in Mar. 1975, Mar. and June 76, and Apr. 77, and toward the N-NW in Sept. 74, Sept. and Dec. 75, and Oct. 76. It was weak and showed hardly any significant pattern near the end of Jan. 1977. This variation appears to represent the seasonal variation of the California Current, which extends close to the coast in Mar. and Apr. and stays offshore during the rest of the year. At depths of 200-300 m, near the core of the California Undercurrent, the geostrophic flow relative to 500 db was predominantly to the N-NW throughout the study period. Although there was a significant variation in its speed, it was not possible to determine its time scale. In Oct. 1976 and Jan. 77, temperature in the upper 300 m was higher (by 2-3degC at 0-100 m) than that normally expected during these months. At the same time, temperature-salinity curves shifted toward high salinity in the temperature range 9-12 or 13degC (depth 100-300 m) in Oct. 1976, and the shift (maximum exceeded 0.30/00) extended from 9degC (300 m) to the surface temperature in Jan. 77. This anomalous distribution is probably a coastal manifestation of a large-scale warming of the surface water in the eastern North Pacific that persisted from Sept. 1976 through Feb. 77. AM.
California Coast/Circulation processes/STD/Geostrophic flow/California Current/Seasonal variations/Southern California Bight/Dana Point/Del Mar/OceanAbstracts.

2136. Cushing J, Wenner AM, Noble E, Daily M. A groundwater hypothesis for the origin of fire areas on the northern Channel Islands, California, USA. *Quaternary Research* 1986;26(2):207-217
Address: DEP. BIOL. SCI., UNIV. CALIF., SANTA BARBARA, CALIF. 93106. Pleistocene areas of red sediments and carbonized vegetation on the Northern Channel Islands, California, have in the past been interpreted as caused by fires of either natural or human origin. Some are associated with darkened mammoth and bird fossils, and

these fossils have been considered as having been burned by early man. Reevaluation of these so-called "fire areas" indicates that the above phenomena are the result of low-temperature (100.degree. C), nonheating processes occurring in groundwater. Evidence for this conclusion is derived from field observations on fossil carbonized vegetation, and the geology of the areas. Additional evidence derives from experiments on the red sediments and fossil wood, X-ray diffraction analyses, magnetic analyses, studies on the clay minerals smectite and illite, and the demonstration that fossil mammoth bone contains sufficient Fe and Mn to account for their discoloration. Much of the carbonization of vegetation probably occurred in water rather than in fire.. Radiocarbon dates from the islands will probably need to be reevaluated. These data provide evidence contrary to the concept of the occurrence of significant fires, either natural or set by early man, on the Northern Channel Islands.

carbonized vegetation/low-temperature process/clay/mineral/Pleistocene/red sediment/radiocarbon date/x-ray diffraction/Quaternary/fire areas/geomorphology/ground water/paleobotany/sediment layers/fossil wood/radiocarbon dating/clay mineralogy/stratigraphy/areal studies/geochemistry/bones/x-ray data/smectite/clay minerals/sheet silicates/Mammalia/Elephantoidea/Proboscidea/Mammuthus/mammoth fossils/Aves/bird fossils/Homo sapiens fossils northern California Channel Islands/Santa Rosa Island/Santa Cruz Island physical anthropology/paleobotany/geography/paleontology/surficial geology/quaternary geology/geochemistry/chemistry.

2137. Wittman PA, Rienecker MM, Kelley EA, Mooers CNK. Hydrographic data from the OPTOMA (Ocean prediction Through Observations, Modeling and Analysis) program: OPTOMA9, 20-25 February 1984, OPTOMASF 3-4 March 1984, OPTOMA10 23-24 April 1984. 1985;

The OPTOMA (OCEAN Prediction Through Observations, Modeling and Analysis) Program, a joint Naval Postgraduate School/Harvard program, seeks to understand the mesoscale (fronts, eddies, and jets) variability and dynamics of the California Current System and to determine the scientific limits to practical mesoscale ocean forecasting. To help carry out the aims of this project, a series of cruises has been planned. The cruises OPTOMA9, OPTOMASF, and OPTOMA10 were undertaken to sample subdomains of the California Current System west of Monterey and west of Pt. Arena. This report presents the hydrographic data, acquired by XBT and CTD casts, from the cruises. Key words: Physical oceanography; Dynamic oceanography. hydrographic data/mesoscale features/dynamical oceanography/cruises/INE/ California Current/prediction/modeling/OPTOMA program/ASFA.

2138. Lerman A, Chung Y, Craig H. Transient Events and Time to Steady State in Oceanic Basins. Eos (Am. Geophys. Union, Trans.). 1972;53(4):p.403 Serial; Abstract B; Bibliography and Index of Geology (1969-present). Pacific Ocean/Oceanography/Sea water/Santa Barbara Basin/continental shelf/continental slope/Geochemistry/Radon/oxygen/nutrients/GEOREF.

2139. Hickey BM. The California current system-hypotheses and facts. PROGRESS IN OCEANOGRAPHY 1979;8(4):191-279 Univ. of Washington, Dept. of Oceanography, Seattle, WA 98195 I (INVESTIGATIVE/OBSERVATION).

The seasonal variation of the various currents which comprise the California Current System-the California Current, the California Undercurrent, the Davidson Current and the Southern California Countercurrent-are described and the dynamical relationships among

these currents are investigated qualitatively. Although the majority of information was derived from existing literature, previously unpublished data are introduced to provide direct evidence for the existence of a jet-like Undercurrent over the continental slope off Washington, to illustrate 'event'-scale fluctuations in the Undercurrent and to investigate the existence of the Undercurrent during the winter season. The existing literature is thoroughly reviewed and synthesized. In addition, geostrophic velocities are computed along several sections from the Columbia River to Cape San Lazaro from dynamic heights given by Wyllie (1966), Budinger, Coachman and Barnes (1964), and Reed and Halpern (1976). From these data and from long-term monthly wind stress data and vertical component of wind stress curl data (denoted curl tau) given by Nelson (1977), new conclusions are made. These conclusions are presented and discussed. AM.

California Current/Geostrophic velocity/Seasonal variations/Counter currents/Undercurrents/Washington Coast/US West Coast/Wind stress/Hydrodynamics/Oregon Coast/California Coast/Pacific Ocean Northeast/California Undercurrent/Davidson Current/Southern California Countercurrent/California Current System/OceanAbstracts.

2140. Cybulski JS. Possible pre-Columbian treponematosi s on Santa Rosa Island, California, USA. Am. J. Phys. Anthropol. 1981;54(2):212 Address: NATIONAL MUSEUM OF MAN, CAN. CONFERENCE PAPER: 50TH ANNUAL MEETING OF THE AMERICAN ASSOCIATION OF PHYSICAL ANTHROPOLOGISTS, DETROIT, MICH., USA, APRIL 22-25, 1981. adult crania/paleo pathology/skull/gulch site/radio-carbon dating/treponematosi s/Santa Rosa Island/physical anthropology.

2141. Finney BP, Huh CA. History of metal pollution in the Southern California Bight: An update. Environ. Sci. & Technol. 1989;23:294-303. text/chemical oceanography/Eganhouse/Venkatesan/metal pollution/seawater pollution/historical record/sediment metal/California/MINERALS MANAGEMENT SERVICE.

2142. Fuhrman JA, Ammerman JW, Azam F. Bacterioplankton in the coastal euphotic zone: Distribution, activity and possible relationships with phytoplankton. Mar. Biol. (Berl.) 1980;60(2-3):201-208. southern california bight/usa/plankton/microbe/atp/growth/predation/glucose/primary production/thymidine/density/Bray/Murray/Algae/Spermatophytes/peper/microbiology/geesey/hickey/physical oceanography/Hardy phytoplankton/TEXT/chemical oceanography/MINERALS MANAGEMENT SERVICE.

2143. Wittmann PA, Rienecker MM, Kelley EA, Mooers CNK. Hydrographic data from the OPTOMA (Ocean Prediction through Observations, Modeling and Analysis) Program: OPTOMA 11, 5 June-5 August 1984. NPS; MONTEREY, CA (USA) 1985; The six cruises and one aircraft flight comprising OPTOMA 11 were undertaken in June, July and August 1984 to sample two subdomains of the California Current. This presents the hydrographic data, acquired by XBT, AXBT and CTD casts, from the cruises and the flight. hydrographic data/T/S diagrams/cruises/aerial surveys/INE/California Current/ASFA.

2144. Stearns JG(. The offshore petroleum resource. Calif., Resour. Agency, Dep. Conserv. 192 p., illus. (incl. maps), 1971 1971 Resource development, pollution aspects, Santa Barbara Channel. B;

Bibliography and Index of Geology (1969-present).
California/Economic geology/Petroleum/Santa Barbara Channel/United States/resources/pollution/Environmental geology/GEOREF.

2145. Shanks AL, Trent JD. Marine snow: Microscale nutrient patches. LIMNOLOGY AND OCEANOGRAPHY 1979 Sep;24(5):850-854
SIO, Marine Life Research Group, A-800, P.O. Box 1529, La Jolla, CA 92093 I (INVESTIGATIVE/OBSERVATION).

Aggregates and the water surrounding them were sampled along the California coast in Monterey Bay, near the San Onofre Power Plant, and at 3 other stations in the Southern California Bight. Measurements of NH₃, NO₂, NO₃, and PO₄ indicate significant differences in nutrient concentrations associated with marine snow from those of the surrounding water. In 8 sets of nutrient measurements, NH₃ was more concentrated in aggregates in 7 sets, NO₂ in 3 sets, and NO₃ in 1 set. Phosphate was more concentrated in 1 set, but less concentrated in 3 sets. Aggregates represent nutrient micropatches ranging from <1 mm to several centimeters in diameter. AM FT.

Marine snow/Nutrients/Ammonia/Nitrites/Nitrates/Phosphates/Seawater analysis/California Coast/Monterey Bay/nutrient micropatches/Southern California Bight/San Onofre Power Plant/OceanAbstracts.

2146. Dabberdt WF, Viezee W. South Central Coast Cooperative Aerometric Monitoring Program (SCCCAMP). Bull. Am. Meteorol. Soc. 1987;68(9):1098 Address: Natl. Cent. Atmos. Res., Boulder, CO 80307.

The SCCCAMP field measurement program, conducted 3 September to 7 October 1985, is the most comprehensive mesoscale photochemical study of its type ever undertaken. The study area encompasses 2 x 10 super(4) km super(2) of coastal and interior south-central California including the Santa Barbara Channel. A review of earlier experimental and analytical studies in the area is followed by the organizational framework and planning for this cooperative program. The availability of the composite data base is indicated.

atmospheric boundary layer/photochemistry/research programs/monitoring/atmospheric chemistry/Santa Barbara Channel/photochemistry/chemistry/atmospheric chemistry.

2147. Willott JA, Sylvester AG, Greenwood CO, Greenwood JA. Geodimeter measurements for regional horizontal strain, Santa Barbara Channel, California. in Cordilleran Section, 68th Annual Meeting. Geol. Soc. Am. 1972;4(3):p.261 Serial; Abstract B; Bibliography and Index of Geology (1969-present).

California/Geophysical surveys/Geodetic surveys/Santa Barbara Channel/Deformation/Field studies/Horizontal strain/faults/United States/ground/GEOREF.

2148. Day R, Osman R. The significance of predation on a sessile species which colonises rapidly. p. p. 55.

Univ. of California, Santa Barbara, CA 93106 I (INVESTIGATIVE/OBSERVATION) ; X (EXPERIMENTAL).

Predation/Colonial organisms/Tubulipora/Patiria/Ectoprocta/California Coast/Pacific Ocean East/Starfish/Colonization/Southern California Bight/bryozoans/abstract only/P/miniata/OceanAbstracts.

2149. Smith CR. Food for the deep sea: Utilization, dispersal, and flux of nekton fall at the Santa Catalina Basin floor. DEEP-SEA RES 1985;32(4A):417-442. The submersible Alvin and free vehicles were used to assess experimentally the fate and flux of nekton falls at a depth of 1310 m in the Santa Catalina Basin. Parcels of dead fish placed on the basin floor rapidly attracted

large aggregations of fish and invertebrate scavengers. The most strongly attracted megafaunal scavenger was the ophiuroid *Ophiophthalmus normani*, the dominant megabenthic species in the background epifaunal assemblage. *O. normani* attained densities of 700 m super(-2) in aggregations containing thousands of individuals. Benthic standing-crop and turnover-rate estimates for nekton falls suggest that perhaps 11% of benthic community respiratory requirements are met by nekton carcasses reaching the basin floor; the flux of energy to the deep sea through such fall events thus merits further study.
food availability/abyssobenthic zone/nekton/benthos/sinking/INE/USA/ California/Santa Catalina Basin/ASFA.

2150. Platt JP. The Catalina schist, Santa Catalina Island, California. in Cordilleran Section, 68th Annual Meeting. Geol. Soc. Am., Abstr. 1972;4(3):p.219 Serial; Abstract B; Bibliography and Index of Geology (1969-present).
California/Petrology/Schists/Catalina schist/Santa Catalina Island/Metamorphic rocks/Mineral assemblages/structural analysis/Interpretation/Foliation/schistosity/United States/GEOREF.

2151. Tegner MJ. Regulation of red sea urchin population in southern California. p. pp. 8-9.
SIO, P.O. Box 1529, La Jolla, CA 92093 I
(INVESTIGATIVE/OBSERVATION). Sea urchins/California Coast/Strongylocentrotus/Population dynamics/ Spatial distribution/Channel Islands/Fisheries management/Predation/Mortality/Pacific Ocean East/S/franciscanus/southern California bight/size-frequency distribution/abstract only/Santa Barbara and San Clemente islands/reruitment rates/Santa Rosa and San Miguel islands/OceanAbstracts.

2152. Davis P. The late Quaternary geomorphology of Santa Catalina Island and Avalon Canyon, California. E.M. Gath, M.M. Bottoms. Geology of Santa Catalina Island. : South Coast Geol. Soc.; 1985. 60-72.
stratigraphy/shore features/Quaternary/changes of level/landform evolution/upper Quaternary/guidebook/eustacy/glaciation/marine terraces Santa Catalina Island/Avalon Canyon/surficial geology/quaternary geology/geomorphology.

2153. Vetter RD. Elemental sulfur in the gills of three species of clams containing chemoautotrophic symbiotic bacteria: A possible inorganic energy storage compound. MAR. BIOL 1985;88(1):33-42.
Sulfur content and fine structure were studied for tissues of three species of clams, *Lucinoma annulata*, *Calyptogena elongata* and *Lucina floridana*, which inhabit sulfide-rich environments and whose gills harbor symbiotic sulfur bacteria. When examined by freeze-etch microscopy, sulfur globules were found only within bacteria and not in the animal host cytoplasm. Sulfur globules were confined to the periplasmic space of the bacteria. *C. elongata* and *Lucina floridana* resembled *Lucinoma annulata* in the physical form and distribution of elemental sulfur. The absence of elemental sulfur in the animal cytoplasm suggests that its formation from sulfide is not a detoxification scheme to protect animal tissue from sulfide toxicity. The sulfur deposits probably represent inorganic energy reserves that permit the symbiotic bacteria to function even during the temporary absence of external sulfide.
symbionts/sulfur/bacteria/gills/ultrastructure/Bivalvia/*Lucinoma annulata*/*Lucina floridana*/INE/USA/California/Santa Barbara Basin/ASW/ USA/Florida/Saint Joseph Bay/USA Coasts/*Calyptogena*

elongata/ASFA.

2154. Greene HG, Wolf SC, Blom KG. Late Cenozoic structure and sedimentary history of southeastern Santa Barbara Channel region, California. in Cordilleran Section, 68th Annual Meeting. Geol. Soc. Am., Abstr. 1972;4(3):p.164-165 Serial; Abstract B; Bibliography and Index of Geology (1969-present). California/Structural geology/Tectonics/Santa Barbara Channel/Evolution/Cenozoic/United States/sedimentation/structure/upper Cenozoic/Controls/Tectonic controls/faults/folds/Distribution/Systems/Synclinoria/GEOREF.

2155. Pedrick RA, Ingham MC, McLain DR, Favorite F, Lynn RJ. Marine environmental conditions off the coasts of the United States, January 1977-March 1978. MARINE FISHERIES REVIEW 1979 May;41(5-6):31-69
NMFS, Resource Assessment Div., 3300 Whitehaven St. NW, Washington, DC 20235 D (DESCRIPTIVE) ; I (INVESTIGATIVE/OBSERVATION).
The marine environmental conditions off the US coasts were examined by oceanographers to determine climate relationship to marine fisheries resources. In the analysis marine environmental conditions off the Atlantic and Gulf coasts, Jan. 1977-Mar. 1978 include the following: atmospheric variations circulation and air temperature, river runoff, wind-driven transport, oceanographic variation on Gulf of Maine, Georges Banks, Middle Atlantic conditions, South Atlantic conditions, Gulf of Mexico, Eastern Gulf Loop Current, and Mississippi River Discharge. In the analysis of marine environmental conditions off the Pacific coast, Jan. 1977-Mar. 1978, the following elements were discussed: atmospheric variations, gradient and vector winds, ocean surface transport and upwelling, sea surface temperature, Eastern Bering Sea, Aleutian Islands to Icy Bay, Icy Bay to Strait of Juan De Fuca, Strait of Juan De Fuca to Gulf of California, California current and transition zone, Eastern Tropical Pacific Conditions, and tuna fishing conditions. FT.
Environmental conditions/Climatology/Fisheries resources/US East Coast/Gulf Coast/Atmosphere-ocean system/River discharges/US West Coast/Wind circulation/Surface temperatures/California Current/Gulf s/OceanAbstracts.

2156. Davis PH, Spies RB. The Infaunal Benthos of a Natural Oil Seep in the Santa Barbara Channel. Marine Biology 1979;50(3):227
Benthos/infaunal/natural oil seep/Santa Barbara Channel/marine biology/petroleum/water quality/resource management/pollution.

2157. van PH. (*Gecarcinus* (*Johngarthia*) *planatus* Stimpson, 1860 (Crustacea, Gecarcinidae) new record for Colombia and notes on its zoogeography in the American Pacific.). AN. INST. INVEST. MAR. PUNTA DE BETIN. 1983;(13):143-148. The gecarcinid crab *Gecarcinus* (*Johngarthia* @*planatus*) is a new record for Gorgona Island, thus extending its distributional range more than 3,200 km to the south. The zoogeography of the crab and the role of the California Current and Equatorial Countercurrent in its distribution, are briefly discussed.
new records/biogeography/*Gecarcinus* (*Johngarthia*) *planatus*/animal morphology/geographical distribution/crustaceanlarvae/current direction/ISE/Colombia/ASFA.

2158. Gibson JM, Prenskey S. Paleoclimatic and faunal events recorded in Holocene/late Pleistocene marine sediments of the San Clemente Basin, California borderland and their possible tectonic significance. in Cordilleran Section, 68th Annual Meeting. Geol.

Soc. Am., Abstr. 1972;4(3):p.161-162

Serial; Abstract B; Bibliography and Index of Geology (1969-present). Pacific

Ocean/Stratigraphy/Quaternary/paleoclimatology/San Clemente Basin/foraminifera/Radiolaria/Rotaliina/Faunal studies/Temperature/Sedimentation/Rates/Marine/Sediments/Carbonate sediments/Composition/GEOREF.

2159. Holliday DV, Larsen HL. Thickness and depth distributions of some epipelagic fish schools off Southern California. U. S. NATIONAL MARINE FISHERIES SERVICE. FISHERY BULLETIN 1979 Apr;77(2):489-494

Tracor, Inc., San Diego Lab., 3420 Kenyon St., San Diego, CA 92110 I (INVESTIGATIVE/OBSERVATION) ; M (METHODOLOGICAL).

Engraulis/Trachurus/Scomber/Anchovies/Mackerels/Fish schools/Epipelagic fauna/California Coast/Vertical distribution/Population density/California Current/Sonar systems/Measuring methods/Echo sounding/Depth data/locating methods/bottom bounce data/E/mordax/T/symmetricus/S/ japonicus/OceanAbstracts.

2160. Davis TL, Yerkes RF. The Whittier Narrows earthquake (M = 5.9) and its relationship to active folding and thrust faulting along the northern margin of the Los Angeles Basin. Eos, Transactions, American Geophysical Union 1988;69:16 note: American Geophysical Union, 1987 fall meeting Address: 3937 Roderick Rd., Los Angeles, CA, USA; U. S. Geol. Surv., Menlo Park, CA. earthquakes/ Los Angeles County/ Pacific Coast/ Western U.S./United States/Whittier Narrows earthquake 1987/folds/thrust faults/faults/ Los Angeles Basin/ Transverse Ranges/Channel Islands/Santa Monica Mountains/seismicity/California Channel Islands/Los Angeles Basin geology/seismology.

2161. Gautier C, Simpson JJ, Somerville R, Vallis G, White W, Holland W. The Scripps ocean modeling and remote sensing program: Nowcasting the California current. EOS, Trans., Am. Geophys Union 1986;67(44):1055.

MINERALS MANAGEMENT SERVICE.

2162. Genin A, Haury L, Greenblatt P. Interactions of migrating zooplankton with shallow topography: Predation by rockfishes and intensification of patchiness. Deep-Sea Res. Part A Oceanogr. Res. Pap. 1988;35(2):151-175. euphausia-pacifica/sebastes-spp/chaetognath/abundance/density/biomass/diurnalit y/southern california bight/usa/ecology/animal/behavior/biology/general comparative behavior/behavior biology/animal behavior metabolism/energy/respiratory/metabolism/nutrition/general studies/nutritional status/methods/invertebrate/morphology/physiology/pathology/chaetognatha/invertebrate/morphology/physiology/pathology/crustacea/circadian/rhythm /periodic cycles/ecology/oceanography/movement/soil science/general studies/methods/malacostraca/chaetognatha/osteichthyes/text/fish/ MINERALS MANAGEMENT SERVICE.

2163. Forman JA, Edwards LN, Terpening JN. Upper Miocene volcanic rocks, Fisherman's Cove area, Santa Catalina Island, California. in Cordilleran Section, 68th Annual Meeting. Geol. Soc. Am., Abstr. 1972;4(3):p.159 Serial; Abstract B; Bibliography and Index of Geology (1969-present). California/Petrology/Igneous rocks/volcanic/Santa Catalina Island/Miocene/United States/upper Miocene/Intrusions/GEOREF.

2164. Saur JFT, Eber LE, McLain DR, Dorman CE. Vertical sections of semimonthly mean temperature on the San Francisco-Honolulu route: From expendable bathythermograph observations, June 1966-December 1974. NATIONAL MARINE FISHERIES SERVICE. TECHNICAL REPORT NMFS SSRF. ; 1979 Jan.

SIO, P.O. Box 1529, La Jolla, CA 92093 I

(INVESTIGATIVE/OBSERVATION) ; T (THEORETICAL/MATHEMATICAL).

Results are depicted in a set of semimonthly vertical sections of mean temperatures to 500 m and in a set of corresponding sections of 30-d mean temperature changes to 200 m. Seasonal cycles at selected depths are included along with mean monthly vertical profiles for 7 typical locations along the route. The analyses reveal geographic and temporal facets of the mean thermal structure, including the following: depth of the surface mixed layers in winter; growth and decay of the seasonal thermocline; decrease in depth of the permanent thermocline from Oahu to the California coast; a region of temperature inversions or very weak vertical temperature gradients that develop between 50 and 100 m during the spring in the Transition Zone; and the location and movement of warming and cooling regions during the year. Vertical mixing is probably the dominant process along most of the route for transmitting the annual surface warming and cooling cycle downwards to depths of 100 to 150 m. Advective processes are active in the California Current. AM.

Seasonal cycles/Temperature variations/Vertical profiles/Pacific Ocean Northeast/Surface waters/Thermocline/California Coast/Hawaii Coast/California Current/Bathythermographs/Mathematical models/Vertical exchange/San Francisco/Honolulu/OceanAbstracts.

2165. Goodman D, Eppley RW, Reid FMH. Summer phytoplankton assemblages and their environmental correlates in the Southern California Bight. J. MAR. RES 1984;42(4):1019-1049.

Weekly observations of chemical and physical variables, and of phytoplankton abundances, were made over a 21-week period at three stations in the Southern California Bight. Principal component analysis was employed to resolve four phytoplankton assemblages among the 25 taxa with the highest variances for their log transformed abundances. Two of these components were described by the abundance of tax characteristic of upwelling assemblages--both dominated by diatoms. A third assemblage was dominated by the "red tide" dinoflagellate, *Gonyaulax polyedra*, along with some small diatoms and a coccolithophorid. Canonical correlation analysis of the four phytoplankton components against 13 environmental variables revealed distinct sets of temperature-salinity-nutrient conditions associated with periods of abundance of each assemblage. The species assemblages defined by the principal components analysis exhibited episodes of abundance of a duration of 2-3 weeks at a given location. Current meter records, from nearby stations, but from another year, suggest that a persistence time of 2-3 weeks at a stationary site corresponds to a spatial patch scale of 20-40 km. California Bight/phytoplankton/species composition/water temperature/water salinity/nutrient concentrations/salinity/nutrients/nutrients (mineral)/INE/Southern California Bight/abundance/environmental conditions/community composition/ASFA.

2166. Berger WH, Soutar A. Preservation of Plankton Shells in an Anaerobic Basin off California. Calif., Univ. Scripps Inst. Oceanogr., Contrib. 1970;40(part 2):p.1332-1330

Serial Calcareous assemblages, accumulation rates and mechanisms, comparison with oxygenated assemblages: reprint of an article originally appearing in Geol. Soc. Amer., Bull., Vol. 81, p.

275-282, 1970. B; Bibliography and Index of Geology (1969-present).

California/Oceanography/Sediments/Santa Barbara basin/Organic sediments/Genesis/accumulation/preservation/environmental analysis/plankton tests/United States/GEOREF.

2167. Methot RD,J, Kramer D. Growth of northern anchovy, *Engraulis mordax*, larvae in the sea. U. S. NATIONAL MARINE FISHERIES SERVICE. FISHERY BULLETIN 1979 Apr;77(2):413-423 NMFS, Southwest Fisheries Center, La Jolla Lab., P.O. Box 271, La Jolla, CA 92038 I (INVESTIGATIVE/OBSERVATION).

E. mordax larvae from 12 samples collected at 13.0deg-16.2degC in the Southern California Bight were aged using daily growth increments in sagittal otoliths, and growth rates were calculated from size at age data. In 9 samples, growth rate at 8 mm was very similar, ranging from 0.34 to 0.40 mm/d. Growth in the other 3 samples ranged from 0.47 to 0.55 mm/d. There was no correlation between growth rate and temperature within this set of field samples, but the range of growth rates was similar to the range expected from laboratory rearing experiments in this temperature domain. In no case was growth in the sea as slow as growth in the laboratory on severely limited rations. Anchovy larvae which obtain enough food to survive apparently obtain enough food to grow rapidly. AM. Growth rates/Anchovies/Engraulis/California Coast/Fish larvae/Laboratory rearing/Temperature responses/In situ measurements/Age determination/Otoliths/E/mordax/Southern California Bight/laboratory rearing vs/sea rearing/daily growth increments/OceanAbstracts.

2168. Davis WS, Junak S. Natural hybridization between self-compatible perennial *Malacothrix* and self-compatible annual *Malacothrix* on San Nicolas Island, California, USA. Am. J. Bot. 1985;72(6):949

CONFERENCE PAPER: ANNUAL MEETING OF THE BOTANICAL SOCIETY OF AMERICA, GAINESVILLE, FLA., USA, AUG. 11-15, 1985. Address: DEP. BIOL., UNIV. LOUISVILLE, LOUISVILLE, KY. 40292.

hybridization/perennial/annual/*Malacothrix incana*/*Malacothrix polycephala*/San Nicolas Island/terrestrial biology/botany.

2169. Keller BR. Structural discontinuity within the southern California continental margin: Seismic and gravity models of the western transverse ranges. DISS. ABST. INT. PT. B - SCI. & ENG 1985;46(3).

Crustal models of P wave velocity structure and bulk density along a north-south profile across the western Transverse Ranges of California are based on published seismic reflection profiles, a seismic refraction experiment using shots at sea to receivers on land and at sea, Ph and teleseismic arrivals at permanent seismic stations, and published gravity data on land and at sea. Moho depth decreases from 31 km under the Santa Ynez Range to 23 km under the outer Borderland, with a step or ramp shaped offset under Santa Barbara Channel. Variations observed in teleseismic arrival times are substantially accounted for by the crustal velocity model. The western Transverse Ranges are not in isostatic balance, the south side being heavier than the north side. continental margins/seismic reflection profiles/seismic refraction profiles/discontinuity layers/INE/USA/California/ASFA.

2170. Pollard DD, Sylvester AG. Establishment of sea level datum in the Santa Barbara Channel region, California. Natl. Coastal Shallow Water Res. Conf. 1971;2:p.184
Serial; Abstract B; Bibliography and Index of Geology (1969-

present). Oceanography/Instruments/Sea level/measurement/GEOREF.

2171. Brinton E. Parameters relating to the distributions of planktonic organisms, especially euphausiids in the eastern tropical Pacific. PROGRESS IN OCEANOGRAPHY 1979;8(3):125-189
SIO, P.O. Box 1529, La Jolla, CA 92093 D (DESCRIPTIVE) ; I (INVESTIGATIVE/OBSERVATION) ; T (THEORETICAL/MATHEMATICAL).
Zooplankton was sampled through 8 depth intervals above =500 m along a transect of the eastern tropical Pacific (ETP), 23degN to 3degS, encompassing the following 4 environments: the California Current-ETP transition off Baja California and the mouth of the Gulf of California, inhabited by California Current species at their southern limits and the galatheid 'red crab' Pleuroncodes planipes together with euphausiids (e.g., Euphausia eximia); the zone 22deg to 10degN harbors euphausiids of 2 groups: the vertically migrating tropical species (e.g. E. diomedea); the zone of the North Equatorial Countercurrent maintains high densities of 3 groups: the widely-ranging, ETP-adapted tropical species and the 4 common Stylocheiron species at the equator (93degW), easterly ranging species (e.g. E. paragibba) and westerly Nyctiphanes simplex appear to migrate between equatorial currents which differ in direction with depth, thereby maintaining their narrow ranges along the equator. Ontogenetic strengthening of vertical migration capability is demonstrated by many species, with older larvae, juveniles, and adults showing ranges, respectively, increasing from a few meters to <=400 m. Regional distribution of euphausiid volume (wet displacement biomass) tended to agree with zooplankton volume, with maxima at the equator, 8degN, and at some localities off Baja California and the Gulf of California where red crab volume peaked.
AM. Distribution/Population parameters/Euphausiacea/Pacific Ocean East/ Baja California Coast/Zooplankton/Habitats/California Current/Euphausia/Nyctiphanes/Stylocheiron/Pleuroncodes/Statistical analysis/Crabs/Density/Zoogeography/E/eximia/N/simplex/P/planipes/E/diomedea e/species range/OceanAbstracts.

2172. Dawson WR, Bennett AF. Field and laboratory studies of the thermal relations of hatchling Western Gulls *Larus occidentalis wymani*. Physiol. Zool. 1981;54(1):155-164
Address: DIV. OF BIOL. SCI., UNIV. OF MICHIGAN, ANN ARBOR, MICH. 48109. Field and laboratory studies were undertaken on thermoregulatory capabilities during the 1st 24 h after hatching in chicks of the western gull (*L. occidentalis wymani*). Body temperatures (T_b) of 12 hatchlings brooded in their nests on San Nicolas Island, California [USA], averaged 38.0 \pm 0.60 SE.degree. C between 0900-2000 h. Hatchlings unprotected by a parent heated rapidly (up to 1 C/min) in midday sun and commenced panting at $T_b > 40$.degree. C. Panting did not stabilize T_b and coordination and equilibrium were lost at 44-45.degree. C. One chick recovered from a T_b of 46.2 C. Still higher T_b could develop with prolonged exposure to direct sunlight. Unlike new hatchlings, unprotected older chicks (.gtoreq. 15 h) moved to the shelter provided by vegetation when risk developed of overheating in the sun. Unbrooded hatchlings (> 24 h) became hypothermic at night with air and soil temperatures of 16-17.degree. C. Laboratory observations indicated that chicks in this age class could tolerate T_b as low as 14-18.degree. C. Body temperatures at which various motor patterns reappeared during passive rewarming from such T_b were determined. During 1st day after hatching, western gulls had insulative capacities below those anticipated for adult birds of similar size, despite the luxuriant character of the chicks's down. Basal metabolic rate (BMR) for western gull. hatchlings (mean body mass, 58.0 g) was 8.26 mW/g, which approximated values predicted

for an adult nonpasserine bird of similar size. Chicks < 1 day old could increase metabolic rate to 1.9 times. BMR at cooler ambient temperatures (T_a). They increased evaporative cooling at 42.9-44.0.degree. C sufficiently to dissipate heat produced in metabolism. Parental attentiveness normally prevented large fluctuations of T_b of hatchling gulls under cool T_a at night or direct insolation during the day. Such protection was important during the latter period, owing to the relatively narrow interval between normal and upper lethal T_b for young chicks.

chick/nonpasserine bird behavior/panting/bioclimateology/motor patterns/feathers/age/thermoregulation/metabolism/panting/hypothermia/hyperthermia/parental care/Western Gull/Larus occidentalis wymani/San Nicolas Island/terrestrial biology/ornithology.

2173. Hauksson E, Teng T, Henyey TL, McRaney JK, Hsu L. Earthquake hazard research in the Los Angeles Basin and its offshore area (October 1, 1983 to September 30 1984). 1985; The Geophysics laboratory at the University of Southern California is conducting a comprehensive investigation of seismicity in the greater Los Angeles Basin and its offshore area under U.S.G.S. Contract No. 14-08-0001-21858. As a part of this investigation, U.S.C. operates a seismic network in the Los Angeles basin area. During the 1984 fiscal year the authors have concentrated on seismotectonic analysis of the seismicity recorded in the Los Angeles Basin during the last 10 years. A comprehensive study of earthquakes along the Newport-Inglewood fault is in progress and the authors report the latest results. The authors are also reanalyzing the January 1, 1979 Malibu earthquake and its aftershocks. A substantial swarm of small earthquakes that occurred in the Santa Barbara Channel during 20-25 April 1984 offers new understanding of active tectonics in southern California coastal zone offshore oil fields. earthquakes/hazard assessment/seismicity/tectonics/geophysical exploration/coastal zone/INE/USA/California/Los Angeles Basin/INE/Santa Barbara Channel/ASFA.

2174. Mikolaj PG. Natural oil seepage in the Santa Barbara Channel, California; physiocochemical aspects. Natl. Coastal Shallow Water Res. Conf. 1971;2:p.157
Serial; Abstract B; Bibliography and Index of Geology (1969-present). California/General/Pollution/Santa Barbara Channel/Environmental geology/Oil/seepage/natural/United States/GEOREF.

2175. Heinbokel JF, Beers JR. Studies on the functional role of tintinnids in the Southern California Bight. III. Grazing impact of natural assemblages. MARINE BIOLOGY 1979;52(1):23-32
Johns Hopkins Univ., Chesapeake Bay Inst., Baltimore, MD 21218 I (INVESTIGATIVE/OBSERVATION) ; X (EXPERIMENTAL).
Tintinnids were identified and enumerated in samples from 100 stations in the Southern California Bight. Spring and summer samples were collected at weekly intervals at 3 locations off La Jolla, California in 1967. Samples were taken at considerably wider spatial and temporal intervals during 4 cruises in the fall and winter of 1974-75. Ninety-one species of tintinnids were identified, comprising assemblages ranging in density to $>18 \times 10^6$ tintinnids/m³. Previously published accounts of the feeding rates and behavior of tintinnids were applied to this tintinnid assemblage in order to estimate their impact on the flow of C through the planktonic food web. For both surveys, <4% of the daily primary production was consumed by the observed tintinnid stocks, although at 14 stations calculated ingestion by tintinnids was >10% and at 4 stations it was >20% of the measured daily primary

production. Other ciliates in the 1967 samples combined were approximately as abundant as the tintinnids; if their grazing rates were comparable, the consumption by the total ciliate assemblage would be double that of the tintinnids alone. The high tintinnid growth efficiencies previously observed and the relatively high efficiency with which tintinnids can be grazed by larger consumers indicates that relatively little of the energy and material fixed by the nanno-phytoplankton may be lost to the larger consumers by the insertion of a ciliate 'extra link' into the food chain. AM. California Coast/Pacific Ocean East/Ciliata/Feeding habits/Carbon/Food chains/Primary production/Southern California Bight/tintinnids/grazing impact/La Jolla/planktonic food web/OceanAbstracts.

2176. Dayton PK, Currie V, Gerrodette T, Keller BD, Rosenthal, R., Ven Tresca D. Patch dynamics and stability of some California USA kelp communities. *Ecol. Monogr.* 1984;54(3):253-290
Address: SCRIPPS INSTITUTION OF OCEANOGRAPHY, LA JOLLA, California 92093. J

This paper considers 3 concepts of stability as they relate to the dynamics of distinctive patch types of algal canopy guilds in southern and central California kelp communities: persistence of a patch through more than 1 generation of the dominant species, which was evaluated by using life tables and observations of patch borders; inertia or the resistance of different patches to invasion or disturbance, which was evaluated by artificially enhancing gametophytes by transplanting sporogenic material, by removing canopy, and by evaluating some important disturbance processes; and resilience or recoverability of a patch following a perturbation sufficient to allow invasion of different species, which was studied by defining some of the mechanisms of successful invasion or succession. By working in distinct habitats in southern (Pt. Loma and Santa Catalina Island) and central (Pt. Piedras Blancas) California, different types of physical stresses as they related to these stability concepts could be evaluated. Taller perennial canopy guilds were dominant competitors for light, but were more susceptible to physical wave stress. Dominance hierarchies in the competition for light appeared to be reversed in areas exposed to increasing wave stress. The main causes of mortality at Pt. Loma were entanglement with storm-dislodged *Macrocystis* plants and, in some areas, sea urchin grazing. Mortality in central California was due to winter storms. In most cases, distinct patches resisted invasion for > 10 yr. The mechanisms of resistance involved (1) competition for light and, possibly, nutrients, and (2) limits to spore dispersal. When succession occurred, it was often mediated by many factors, including seasonality of spore production, which coincided with winter storm-related mortalities; mechanisms of kelp dispersal, which were most effective via drifting plants and fragments of fertile material held against the substrate by invertebrates; and survivorship of gametophytes and small sporophytes, which was influenced by local scour and grazing. Appropriate spatial scales, stability, and succession studies in these kelp communities were determined by the size of the disturbed area, which varied from the free space resulting from detachment of single plants to the free space resulting from catastrophes such as overgrazing or unusual storms. Temporal scales were influenced by seasonality of disturbance and algal reproductive condition and aperiodic episodes of cool, nutrient-rich water advected into the patch. There appeared to be conflicting morphological adaptations of the canopy guilds: exploitation of light was enhanced at higher canopy levels, whereas the lower canopy levels were better adapted to tolerate stress from wave surge. The adaptations of the algae appeared to form 4

distinct groups of tactics: ruderals or plants, such as *Nereocystis* and *Desmarestia*, with opportunistic life histories; kelps, such as *Macrocystis*, adapted to exploitative competition for light and nutrients; kelps (*Eisenia*, *Dictyoneurum*) adapted to physical stress such as wave surge; and those algae, such as corallines and *Agarum*, adapted to heavy grazing. Within any given area, the relative patch stability was determined by biological relationships; between areas, the patch stability patterns were attributable to physical differences.

stability/kelp communities/persistence/life
tables/disturbance/transplant/perturbation/succession/competition
/dominance hierarchies/wave stress/sea urchin
grazing/persistence/invasion
resistance/resilience/mortality/light/nutrients/*Macrocystis*
pyrifera/giant kelp/Pt. Loma/Santa Catalina Island/Pt. Piedras
Blancas/marine biology/ecology.

2177. Colton MC, Mooers CNK. Meteorological data from the OPTOMA (Ocean Prediction through Observations, Modeling and Analysis) Program OPTOMA 11, Leg D11. 30 June - 10 July, 1984. 1985;

The OPTOMA (Ocean Prediction Through Observations, Modeling and Analysis) Program seeks to understand the mesoscale (front, eddies, and jets) variability and dynamics of the California Current System and to determine the scientific limits to practical mesoscale ocean forecasting. This report presents the meteorological data acquired by twenty-six radiosondes launched during the hydrographic cruise OPTOMA11, Leg D11 (30 June to 10 July, 1984). To compare the prevailing atmospheric and oceanic conditions, the radiosonde potential temperature and specific humidity profiles are plotted with nearly coincident XBT temperature profiles.

meteorological data/mesoscale features/ocean-atmosphere
system/radiosondes/OPTOMA/ASFA.

2178. Fischer PJ. Natural hydrocarbon seeps, northern shelf, Santa Barbara Basin, California. Natl. Coastal Shallow Water Res. Conf. 1971;Abstr.(2):p.70 Serial; Abstract B; Bibliography and Index of Geology (1969-present). Pacific Ocean/Oceanography/Marine geology/Santa Barbara Basin/Petroleum/seepage/Sediments/Lithostratigraphy/Sedimentation /Transport/Marine transport/Continental shelf/United States/California/GEOREF.

2179. Cullen JJ, Renger EH. Continuous measurement of the DCMU-induced fluorescence response of natural phytoplankton populations. MARINE BIOLOGY 1979;53(1):13-20
SIO, Inst. of Marine Resources, P.O. Box 1529, La Jolla, CA 92093
I (INVESTIGATIVE/OBSERVATION).

The effect of 3×10^{-6} M DCMU (3-(3,4-dichlorophenyl)-1, 1-dimethylurea), a photosynthesis inhibitor, on in vivo chlorophyll a fluorescence was observed in nearshore waters of the Southern California Bight. Fluorescence readings in the presence and absence of this inhibitor are compared using parallel flow-through fluorometers. The increase in fluorescence induced by DCMU is expressed as the FRI (fluorescence response index). Theory and laboratory studies on batch cultures of phytoplankton suggest that the FRI is correlated with photosynthetic efficiency and/or physiological state, however other studies have produced results in apparent conflict with this interpretation. Although sufficient information does not exist to justify the use of fluorescence response as a precise physiological indicator in the field, very low FRI values may be a manifestation of photosynthetic debility in a sample. Vertical profiles showed a wide range of the FRI. At a

station close to shore, low FRI values were observed well below the 1% light level, but the fluorescence response of the phytoplankton throughout the euphotic zone was similar to that of growing cultures. Farther offshore, the FRI was depressed near the surface, but increased in the enhanced nutrient conditions of the lower euphotic zone. The patterns observed were strong, and consistent with hypotheses which relate low values of the FRI to diminished photosynthetic capacity. AM.

Phytoplankton/Fluorescence/Chlorophylls/Photosynthesis/Light fields/California Coast/Southern California Bight/DCMU/(3-(3,4-dichlorophenyl)-1, 1-dimethylurea)/chlorophyll a/fluorescence response index/photosynthesis inhibition/OceanAbstracts.

2180. Dayton PK, Tegner MJ. The importance of scale in community ecology: a kelp forest example with terrestrial analogs. P.W. Price, C.N. Slobodchickoff, W.S. Gaud. A new ecology: novel approaches to interactive systems. New York: John Wiley & Sons, Inc; 1984. 457-481.

This paper describes a study of community structure and demography of important kelp and invertebrate species. Included are discussion of stability of small patches in kelp forests, importance of urchin grazing, nutrient transport, larval transport, & the influence of man on the kelp forest ecosystem.

scale/community ecology/patch stability/invasion/competition/grazing/disturbance/Macrocyctis pyrifera/giant kelp/Strongylocentrotus/sea urchin/Point Loma/San Diego County/Santa Catalina Island/Bird Rock/Point Piedras Blancas/San Luis Obispo County/marine biology/ecology.

2181. Wittmann PA, Kelley EA, Mooers CNK. Hydrographic data from the OPTOMA (Ocean Prediction Through Observations, Modeling and Analysis) Program: OPTOMA 15, 24 January to 23 February 1985. REP. U.S. NAV. POSTGRAD. SCH 1985; The two cruises, Leg DI and DII, and one AXBT flight Leg P were undertaken in January and February 1985. This report presents the hydrographic data acquired by XBT, AXBT and CTD casts, from the cruises and the flight.

hydrographic data/CTDs/water temperature/salinity/oceanographic data/INE/USA/INE/California Current/ASFA.

2182. Drake DE. The distribution and transport of suspended matter in Santa Barbara Channel, California. Natl. Coastal Shallow Water Res. Conf., Abstr. 1971(2):p.58

Serial; Abstract B; Bibliography and Index of Geology (1969-present). California/Sedimentary petrology/Transport/Santa Barbara Channel/Sedimentation/Marine transport/United States/Continental shelf/GEOREF.

2183. Christensen NJ, Rodriguez S. N. A study of sea level variations and currents off Baja California. JOURNAL OF PHYSICAL OCEANOGRAPHY 1979 May;9(3):631-638

Centro de Investigacion Cientifica y de Educacion Superior de Ensenada, Ensenada, Baja California, Mexico.

Baja California Coast/Currents/Sea levels/Pacific Ocean Northeast/Hydrographic data/Tidal data/California Current/California Countercurrent/OceanAbstracts.

2184. de Violini R. Tidal and lunar data for Point Mugu, San Nicolas Island, and the Barking Sands area during 1980. : Pacific Missile Test Center, Point Mugu, CA. PMTC-TP-80-04; 1979. 68.

Basic lunar and tidal data for Point Mugu, San Nicolas Island, CA, and the Barking Sands, HI, area during 1980 are provided. The data presented are (1) tidal data, (2) times of moonrise and moonset, and (3) times of lunar phases. Ocean tides/Moon/Seasonal

variations/Time/Oceanographic
data/Moonrise/Moonset/Ephemerides/California Channel
Islands/Hawaii/meteorology/ Oceanography/astronomy.

2185. Anderson SL. The ridgeback prawn fishery. ADVANCES IN AQUACULTURE AND FISHERIES RESEARCH. REPORT OF A CALIFORNIA SEA GRANT SYMPOSIUM, MAY 18 to 20, 1983, HELD AT THE UNIVERSITY OF CALIFORNIA, DAVIS.; REP. CALIF. SEA GRANT COLL. PROGRAM 1985; The ridgeback prawn fishery is a small, newly developed fishery in the Santa Barbara Channel area. In 1979, 356,000 lb were landed. Landings have declined each year since 1979 to 141,000 lbs in 1982. Ex-vessel prices range from \$0.85-2.25 per pound depending on market conditions. Most fishing occurs on day trips from Santa Barbara Harbor. Until recently, almost nothing was known about the ridgeback prawn *Sicyonia ingentis*. Our natural history investigations demonstrate repeated spawning activity by individual prawns throughout a long spawning season (June-September). No intervening molt or mating is required to produce a fertile spawn. Most females progress synchronously through a single molt cycle beginning in mid-May and ending in mid-November.
sexual reproduction/life history/fishery industry/shellfish
fisheries/*Sicyonia ingentis*/INE/USA/California/Santa Barbara/ASFA.

2186. Schultz FE. Exploration history of the Santa Barbara Channel. in Exploration today; energy tomorrow (SEG Annual Int. Meet., 41st), [Program and Abstracts], Soc. Explor. Geophys. Houston, 1971. 1971:p.61-62 Abstract B; Bibliography and Index of Geology (1969-present). California/Geophysical surveys/Seismic surveys/Santa Barbara Channel/United States/marine/Petroleum/exploration/Mineral exploration/Seismic methods/history/GEOREF.

2187. Eppley RW, Renger EH, Harrison WG. Nitrate and phytoplankton production in southern California coastal waters. LIMNOLOGY AND OCEANOGRAPHY 1979 May;24(3):483-494
SIO, Inst. of Marine Resources, A-018, La Jolla, CA 92093.
The transport of nitrate (NO₃⁻) into the euphotic zone appears to be a major factor regulating the standing stock and production of phytoplankton in southern California coastal waters. The rate of photosynthetic C assimilation is proportional to the rate of NO₃⁻ assimilation and to the ratio of NO₃⁻:total N assimilated. The phytoplankton standing stock (g C/m³) and its production rate are related to the depth of the vertical NO₃⁻ concentration gradient. The chemical composition of the particulate organic matter, as the POC:PON ratio, is related to the C:N assimilation ratio of the phytoplankton. Regenerated production, measured as ammonium assimilation, is proportional to the NO₃⁻ assimilation rate, implying parallel and concurrent increases in the production of heterotrophic microplankton and phytoplankton attending new inputs of NO₃⁻ into the euphotic zone. The vertical diffusion of NO₃⁻, when calculated from the vertical NO₃⁻ concentration gradients and NO₃⁻ assimilation rates, gives reasonable estimates of the vertical eddy diffusivity coefficient for NO₃⁻. AM.
Nitrates/Phytoplankton/Primary production/California Coast/Coastal waters/Assimilation/Statistical analysis/Mathematical models/OceanAbstracts.

2188. de Violini R. Tidal and lunar data for Point Mugu, San Nicolas Island, and the Barking Sands area during 1979. : Pacific Missile Test Center, Point Mugu, CA. PMTC-TP-7912; 1979. 64.
Basic lunar and tidal data for Point Mugu, San Nicolas Island, and the Barking Sands area during 1979 are provided. The data presented are (1) tidal data, (2) times of moonrise and moonset, and (3)

times of lunar phases. Tides/Moon/Moonrise/Moonset/Ocean tides/Ephemerides/San Nicolas Island/Point Mugu/Barking Sands/oceanography/meteorology/oceanography/astronomy.

2189. Goodman D, Eppley RW, Reid FMH. Summer phytoplankton assemblages and their environmental correlates in the Southern California Bight USA. J. Mar. Res. 1984;42(4):1019-1050. gonyaulax/polyedra/diatom/coccolithophorid/temperature/salinity/nutrient/upwelling/current/principal component analysis/canonical/correlation analysis/algae/spermatophytes/Bray/Eganhouse/geochemistry/chemical oceanography/phytoplankton/salinity/nutrients/minerals/community composition/Hardy/phytoplankton/MINERALS MANAGEMENT SERVICE.

2190. Sholkovitz ER, Gieskes JM. A physical chemical study of the flushing of the Santa Barbara Basin. Limnol. Oceanogr. 1971;16(3):p.479 Serial First direct evidence for flushing in a California basin, 1970 cruises. B; Bibliography and Index of Geology (1969-present). Pacific Ocean/Oceanography/Circulation/California/Santa Barbara Basin/Oceans/United States/flushing/1970/GEOREF.

2191. Omori M, Gluck D. Life history and vertical migration of the pelagic shrimp *Sergestes similis* off the southern California coast. U. S. NATIONAL MARINE FISHERIES SERVICE. FISHERY BULLETIN 1979 Jan;77(1):183-198 UNESCO, Div. of Marine Sciences, Place de Fontenoy, 75700 Paris, France. *S. similis* in the southern California eddy was observed with respect to reproduction, daily and ontogenetic vertical migrations, growth, and longevity. The period of highest spawning activity occurs between late Dec. and early Apr., but small pulses of spawning are occasionally observed in late spring and summer. The release of eggs takes place close to shore above the continental slope, then the eggs sink to 0200 m. Nauplius larvae ascend and protozoal and zoeal larvae stay mostly above 100 m. The daily vertical migration becomes evident after the second protozoal stage. Adults are abundant between 50 and 200 m at night and 250 and 600 m in the daytime. The spawning activity of *S. similis* becomes highest during the period when the vertical thickness of the optimum temperature zone (10deg-15degC) is the greatest. The local population off the southern California coast may be joined by the subarctic population. It is possible that multiple spawnings occur from females of the southern California population. The lifespan of *S. similis* is 2.0-2.5 yr for females and 1.5 yr for males. Sexual maturity is reached at 1 yr in both sexes. Females reproduce in 2 successive spawning seasons, and males seem to accomplish multiple fertilizations. Growth trends are similar to those reported for *S. similis* off Oregon. Growth rates are described using growth curves fitted by the von Bertalanffy and logistic equations. AM. Life histories/Migration/Vertical distribution/Shrimps/*Sergestes*/California Coast/Spawning/Pacific Ocean Northeast/Ontogeny/Larval stages/Growth rates/Seasonal cycles/*S. similis*/OceanAbstracts.

2192. Delong RL. Population biology of northern fur seals at San Miguel Island, California [dissertation]. Berkeley, California, USA: University of California; 1982. 203. The Adams Cove, San Miguel Island fur seal colony was discovered in 1968; the Castle Rock colony was discovered in 1972. Adams Cove fur seal population data for years 1969 through 1978 are presented. Total numbers of males increased from 12 in 1969 to 44 in 1978. Females outnumbered males more than 10 to 1 in all years and their numbers increased at an average of 19%

annually. Only 28 pups were born in 1969 and 635 were born in 1978. Of 33 females observed on San Miguel Island which had been tagged as pups, 23 were from the Pribilofs, 6 were from the Commanders, and 4 were from Robben Island. During the years 1969-1971 small adult males accomplished over 35% of breeding, but as large males became more abundant, they accounted for an increasing proportion of observed copulations, and excluded small adult males from access to reproductive females. The mean pupping date ranged from 21 to 29 June and averaged about 2 weeks earlier than on St. Paul Island. Parturient females were bred about 6 days after birth of the pup; nonparturient females entered estrus and were bred 7 days after their arrival on land. Interspecific competition for rookery space occurred between California sea lions and northern fur seals. Seventy-six percent of boundary displays initiated by territorial northern fur seal males were directed toward California sea lions; 95% of 671 boundary displays resulted in sea lions being displaced. Interspecific breeding behavior was observed and an apparent hybrid California sea lion/northern fur seal was born to a fur seal female in 1972. The San Miguel environment is much warmer than that of the Pribilof Islands. Minimum temperatures at San Miguel Island are warmer than average maximum temperatures at St. Paul Island. Fur seals show the same behavioral thermoregulatory responses on the Pribilofs and at San Miguel Island. At San Miguel Island fur seal adults accommodate the thermoregulatory requirements by shifting reproductive activity primarily to the cooler hours of the day and night. Newborn fur seal pups died of heat prostration on hot days. Pups are susceptible to heat prostration until they learn to move to the splash zone when heat-stressed. population biology/thermoregulation/northern fur seals/Callorhinus ursinus/marine mammals/pinnipeds/ Otariidae/California sea lions/Zalophus californianus/San Miguel Island/Adams Cove/marine biology.

2193. Curran JF, Hall KB, Herron RF. Geology, Oil Fields, and Future Petroleum Potential of Santa Barbara Channel Area, California. in Future petroleum provinces of the United States; their geology and potential, Am. Assoc. Pet. Geol., Mem. 1971;1(15):p.192-211

Serial B; Bibliography and Index of Geology (1969-present). California/Economic geology/Petroleum/gas/Santa Barbara Channel/United States/structure/reserves/Sedimentary rocks/Lithostratigraphy/Tectonics/structural complexes/Tertiary/Mesozoic/Pleistocene/GEOREF.

2194. Gorsline DS. Sedimentologic history and characteristics of continental margin basins: California borderland. Am. Assoc. Pet. Geol. Bull. 1980;64(3):442-443. California/sedimentation/sediments/Hickey/physical oceanography/deposition/environmental analysis/basins/continental margin/United States/continental borderland/mass movements/turbidity currents/marine transport/provenance/textures/fine-grained materials/coarse-grained materials/rates/marine environment/sedimentary basins Eganhouse/geochemistry/chemical oceanography/sedimentation/continental margin/borderland/turbidity currents/grain size/MINERALS MANAGEMENT SERVICE.

2195. Lasker R. The relation between oceanographic conditions and larval anchovy food in the California current: Identification of factors contributing to recruitment failure. p. pp. 212-230.

NMFS, Southwest Fisheries Center, P.O. Box 271, La Jolla, CA 92038.
Anchovies/Larvae/Diet/California Coast/California Current/Engrauli
s/Environmental conditions/Feeding habits/Population
dynamics/E/mordax/recruitment failure/OceanAbstracts.

2196. DeMartini EE, Coyer JA. Cleaning and scale-eating in
juveniles of the kyphosid fishes, *Hermosilla azurea* and *Girella*
nigricans. *Copeia* 1981;1981(4):785-789
Juvenile zebraperch and opaleye were observed in the field to clean
and otherwise nip the sides of other fish. The most frequent
clients of both species were atherinid fishes, probably *Atherinops*
affins. Juvenile zebraperch were also observed servicing a small
embiotocid fish, *Cymatogaster* sp., juvenile opaleye and other
juvenile zebraperch. Gut analyses of observed cleaners and museum
specimens confirmed that juveniles of both species ingest
ectoparasites and scales of other fishes. Both cleaning behavior
in general and the specific incidence of scale-eating, the latter
indicated by the negative responses of host fish and by the absence
of ectoparasites/presence of scales in the guts of cleaner fish,
was higher among juvenile zebraperch than among juvenile opaleye.
Apparently those individuals that do engage in these behaviors tend
to do so frequently. These data further generalize Hobson's (1971)
observation that cleaning is widespread among small-mouthed,
"picker-type" fishes and support Hobson's theory that in at least
some species cleaning is performed by just a relatively few
specialized individuals.
cleaning behavior/scale-eating/ectoparasites/*Hermosilla*
azurea/zebraperch/*Girella nigricans*/opaleye/Santa Catalina
Island/Big Fisherman Cove/marine biology/ecology.

2197. Gorsline DS. Deposition in active margin basins: With
examples from the California continental borderland. Deposition in
Active Margin Basins, Pacific Section, Soc. Econ. Paleontol.
Mineral. Short Course 1987;54:33-52. text/chemical
oceanography/Eganhouse/Venkatesan/MINERALS MANAGEMENT SERVICE.

2198. Gorsline DS, Douglas RG. Analysis of sedimentary
systems in active-margin basins: California continental
borderland. Cenozoic Basin Development of Coastal California.
Rubey Memorial Vol. VI 1987;:64-80. introduction/MINERALS
MANAGEMENT SERVICE.

2199. Gorsline DS, Emery KO. Turbidity-current deposits in
San Pedro and Santa Monica Basins off southern California. Geol.
Soc. Am. Bull. 1959;70:279-290. introduction/MINERALS MANAGEMENT
SERVICE.

2200. Gorsline DS, Pao GA. High resolution studies of basin
sedimentation related to climatic oceanographic changes over the
past 50,000 years in the California Continental Borderland. Paper
Presented at Society of Economic Paleontologists and Mineralogists
Research Symposium, New Orleans, LA (USA), 25 May 76. 1976;:32.
sedimentology/climate/marine
geology/anderson/anthropogenic/sediments/sedimentation/deep
depth/core sampling/climate/cycles/carbon/carbonates/chemical
composition/rates/variations/basins geographic/continental
shelves/california/algae/spermatophytes/Bray/MINERALS MANAGEMENT
SERVICE.

2201. Gorsline DS, Prenskey SE. Paleoclimatic inferences for
late Pleistocene and Holocene from California Continental
Borderland basin sediments. 1976;:11.
sedimentology/climate/marine

geology/anthropogenic/anderson/determination/ocean
currents/upwelling/intensity/sedimentation/carbonates/chemical
composition/cycles/variations/basins geographic/continental
shelves/california/MINERALS MANAGEMENT SERVICE.

2202. Weller RA. Near-surface velocity variability at
inertial and subinertial frequencies in the vicinity of the
California Current. J. PHYS. OCEANOGR 1985;15(4):372-385.
In this paper a recent set of velocity observations taken in the
upper 150 m of the ocean in the vicinity of the California Current
is presented. The horizontal velocity data were collected from the
Research Platform ELIP as it drifted off the coast of Baja
California in April and May of 1980. Local winds and other
meteorological parameters were measured on board FLIP during the
experiment. The intent of the experiment was to collect data that
would permit investigation of the response of the upper ocean to
local atmospheric forcing. The purpose of this paper is to report
and discuss the observed velocity variability, with emphasis on
that at near-inertial frequencies.
atmospheric forcing/near-surface currents/variability/inertial
oscillations/INE/California Current/ASFA.

2203. Gorsline DS, Teng LS-. The California continental
borderland. The Geology of North American, The Eastern Pacific
Ocean and Hawaii (in press) 1989;N. text/chemical
oceanography/Eganhouse/Venkatesan/MINERALS MANAGEMENT SERVICE.

2204. Smith PE. Precision of sonar mapping for pelagic fish
assessment in the California Current. INTERNATIONAL COUNCIL FOR THE
EXPLORATION OF THE SEA. JOURNAL DU CONSEIL 1978 Apr;38(1):33-40
NMFS, Southwest Fisheries Center, La Jolla, CA 92038.
A large scale sonar map of fish schools in the Los Angeles Bight is
described and used to determine the amount of sampling required to
estimate the number of schools at various levels of precision.
About 8 nm² (2,744 ha) must be directly surveyed to get an estimate
of fish schools with a 25% level of precision: 47 nm² (16,121 ha)
must be sampled for a 10% level of precision. Although spatial
autocorrelation indicates independent observations can be taken at
5 nm (9 km) spacing or greater, there is a possibility of exclusion
or reduction of the number of schools at 7-15 nm (13-28 km) range
which should be further investigated. AM. Fish schools/Stock
assessment/California Current/Spatial distribution/Sampling
systems/Sonar/Statistical analysis/Sampling methods/California
Coast/Los Angeles Bight/sonar mapping/OceanAbstracts.

2205. Department of the Interior. Bureau of Land
Management. Proposed 1979 outer continental shelf oil and gas lease
sale, OCS sale No. 48, offshore Southern California. Los Angeles,
California: Department of the Interior. Bureau of Land
Management.; 1979. 5 Volumes.

Note: USDA EMPLOYEES REQUEST DOCUMENTS FROM NATIONAL AGRICULTURAL
LIBRARY OTHERS ORDER FROM INFORMATION RESOURCES PRESS, 1700 NORTH
MOORE STREET, SUITE 70 ARLINGTON, VA 22209 Date: JANUARY 1979
(EPA: JANUARY 31, 1979). (PUR)LEASING OF 217 TRACTS (1.1 MILLION
ACRES) ON THE OUTER CONTINENTAL SHELF (OCS) OFFSHORE OF
SOUTHERN CALIFORNIA FOR EXPLORATION, DEVELOPMENT, AND
PRODUCTION OF OIL AND GAS RESOURCES IS PROPOSED. THE TRACTS ARE
LOCATED IN THE VICINITY OF THE SANTA BARBARA CHANNEL
(544,693 ACRES), SANTA ROSA (34,560 ACRES), SANTA BARBARA
ISLAND (23,980 ACRES), SAN PEDRO BAY (116,020 ACRES), TANNER-
CORTES (275,825 ACRES), AND DANA POINT-SAN DIEGO (146,740
ACRES). WATER DEPTHS ARE 25:N-750 METERS. CONSTRUCTION O.
AQUATIC SYSTEMS (IMPACTS)/CONTINENTAL SHELVES/CRUDE OIL/EMPLOYMENT

(IMPACTS)/ENDANGERED SPECIES (ANIMALS)/FISHERIES (IMPACTS)/GAS EXPLORATION/LEASING/MATRIX ANALYSES OF IMPACTS/NATURAL GAS/OFFSHORE ENERGY SOURCES/OIL EXPLORATION/PACIFIC OCEAN/PIPELINES/WETLANDS (IMPACTS)/WHALES/WILDLIFE (IMPACTS)/OUTER CONTINENTAL SHELF LANDS ACT OF 1953 - PROJECT AUTHORIZATION/Santa Barbara Channel/Santa Rosa Island/Santa Barbara Island/San Pedro Bay/Tanner-Cortes/Dana Point, San Diego/geology/petroleum/offshore oil/energy resources.

2206. Gorsline DS, Kolpack RL, Karl HA, Drake DE, Fleischer P, Thornton SE, Schwalbach JR, Savrda CE. Studies of fine-grained sediment transport processes and products in the California continental borderland. Fine-grained sediments: Deep-water processes and facies 1984;:395-415.
introduction/text/physical oceanography/MINERALS MANAGEMENT SERVICE.

2207. Gorsline DS, Nardin TR, Edwards BD, Drake DE, Thornton SE, Day PC. Influence of current scour on basin sills; Anacapa Passage, California borderland. Geol. Soc. Am. Bull. 1982;14(7):499-500.
California/sedimentation/oceanography/environment/Hickey/physical oceanography/marine environment/United States/Anacapa Passage/Pacific Ocean/Santa Barbara Basin/Santa Monica Basin/suspended materials/scour/currents/ocean circulation/Pliocene/Neogene/Tertiary/Cenozoic/Pleistocene/Quaternary/submarine canyons/Santa Clara River/Ventura River/sand/clastic sediments/Hueneme Fan/remote sensing/Landsat/imagery/transmissometry/sills/intrusions/basin sills/continental shelf/MINERALS MANAGEMENT SERVICE.

2208. Gorsline DS, Prenskey SE, Pao GA. Late Pleistocene sedimentary history of continental borderland basins off Baja California and southern California: Changes in terrigenous and biogenic sedimentation rates. Interim Rept. for period ending Aug. 1976. 1976;:12.
sedimentology/marine geology/anthropogenic/deposition/sediments/sedimentation/rates/geologic age/determination/climate/cycles/carbon/carbonates/chemical composition/variations/basins geographic/continental shelves/california/Anderson/Eganhouse/chemical oceanography/MINERALS MANAGEMENT SERVICE.

2209. Anon. ARCO to revamp offshore California field development. OIL GAS J 1985;83(17):46.
ARCO Oil & Gas Co.'s fault block extension to South Elwood oil field could change the configuration of the company's planned Coal Oil Point giant field development in California's Santa Barbara Channel state waters. ARCO has withdrawn temporarily its permit application for a pair of drilling/production platform complexes to develop Coal Oil Point. The move stems from its test of an apparent west extension to South Elwood field. ARCO plans more drilling near the well and has chosen locations for two more Monterey wildcats on state tracts in the area. oil and gas industry/drilling/coastal zone/INE/USA/California/ASFA.

2210. Smith SV. Budget of calcium carbonate, southern California continental borderland. J. Sediment. Petrol. 1971;41(3):p.798 Serial Carbonate sedimentation in the neritic environment. B; Bibliography and Index of Geology (1969-present). Pacific Ocean/Marine geology/Sedimentation/calcium carbonate/California/Environment/Marine/GEOREF.

2211. Jan TK, Young DR. Chromium speciation in municipal

wastewaters and seawater. WATER POLLUTION CONTROL FEDERATION. JOURNAL 1978 Oct;50(10):2327-2336 Southern California Coastal Water Research Project, El Segundo, CA 90245. Important aspects are discussed of the specificity, recovery, and blank values of a Cr speciation technique that would apply to the complex matrix of seawater samples and be sensitive to variations of j20 ng/L in seawater. Results obtained on the physical/chemical state of Cr in major municipal wastewaters and coastal seawater from outfall discharge sites and control stations in the Southern California Bight are presented. The majority of dissolved Cr found in clean coastal seawater off Southern California is Cr+6. The median concentration of dissolved Cr+3 and Cr+6 measured .045 and .14 lg/L, respectively. Subsurface seawater samples taken from the JWPCP wastewater plume contained concentrations of particulate Cr N100 times greater than control levels. The concentrations of dissolved Cr+3 in the plume samples were only 1.5-3.0 times greater than background values. A relatively high natural background of dissolved Cr+6 in coastal seawater is apparent. The low percentage of municipal wastewater Cr occurring in the toxic form (Cr+6) and the apparent lack of conversion of other forms of Cr to it in Los Angeles effluents, suggests that significant increases in seawater concentrations of Cr+6 do not result from ocean discharges of the wastewaters in the Southern California Bight. FT. Chromium/Wastewaters/California Coast/Toxicity/Measuring methods/T race minerals/Pollutant analysis/Contaminant measurements/Seawater analysis/Southern California Bight/Cr(III)/Cr(VI)/OceanAbstracts.

2212. Department of the Interior. Bureau of Land Management. Proposed 1982 outer continental shelf oil and gas lease sale offshore Southern California. Los Angeles, California: Department of Interior. Bureau of land management.; 1981. 2 Volumes.

Note: USDA EMPLOYEES REQUEST DOCUMENTS FROM NATIONAL AGRICULTURAL LIBRARY OTHERS ORDER FROM INFORMATION RESOURCES PRESS, 1700 NORTH MOORE STREET, SUITE 70 0, ARLINGTON, VA 22209.
(PUR)SALE OF OIL AND GAS LEASES ON 218 TRACTS CONTAINING 1.1 MILLION ACRES OF OUTER CONTINENTAL SHELF LANDS OFFSHORE OF SOUTHERN CALIFORNIA IS PROPOSED. THE TRACTS ARE BETWEEN 3 AND 84 GEOGRAPHIC MILES OFFSHORE AND IN WATER DEPTHS RANGING FROM 150 TO 4,900 FEET. THE TRACTS LIE IN THREE SUBAREAS, NAMELY, THE SANTA BARBARA CHANNEL, INNER BANKS, AND OUTER BANKS. DEVELOPMENT OF THE LEASE TRACTS WOULD INVOLVE 19-179 EXPLORATORY WELLS, 35-199 DELINEATION WELLS, 40-339 PLATFORM WELLS, 3-12 PLATFORMS, 0-7 SUBSEA COMPLETIONS, 96 MILES OF OFFSHORE PIPELINE, AND 2 MILES OF ONSHORE PIPELINE. ESTIMATED COST OF DEVELOPING OIL AND GAS RESOURCES WITHIN THE TRACTS IS \$2.1 BILLION. (POS)DEVELOPMENT OF THE RESOURCES WITHIN THE TRACTS WOULD RESULT IN THE PRODUCTION OF 230 MILLION BARRELS OF OIL AND 662 BILLION CUBIC FEET OF NATURAL GAS. OIL AND GAS PRODUCED BY THE TRACTS WOULD DECREASE THE NATION'S DEPENDENCY ON FOREIGN SOURCES OF OIL. DIRECT EMPLOYMENT LEVELS OVER THE 25-YEAR PRODUCTIVE LIFE OF THE TRACTS WOULD PEAK IN 1986 AT 400 JOBS, WHILE TOTAL DIRECT AND INDIRECT EMPLOYMENT WOULD ACCOUNT FOR NEARLY 4,526 ADDITIONAL JOBS AT THE PEAK OVERALL EMPLOYMENT YEAR OF 1992. INCOME FROM THE SALES WOULD INCREASE FEDERAL REVENUE. (NEG)DEVELOPMENT ACTIVITIES WOULD RESULT IN A STATISTICALLY ESTIMATED 1.1 SPILLS OF GREATER THAN 1,000 BARRELS AND 0.5 SPILLS GREATER THAN 10,000 BARRELS DURING THE LIFE OF THE LEASES. TRENCHING FOR PIPELINES AND OTHER ACTIVITIES ASSOCIATED WITH PIPELINE CONSTRUCTION AND OPERATION WOULD RESULT IN RELEASE OF 230 MILLION BARRELS OF FORMATION WATER, 220 MILLION BARRELS OF DRILL MUDS, AND 393.5 MILLION BARRELS OF CUTTINGS. ACTIVITIES AT OIL PLATFORMS AND DRILLING RIGS WOULD DEGRADE WATER QUALITY WITHIN 2,500 METERS OF

THESE STRUCTURES. LARGE OIL SPILLS WOULD RESULT IN SEVERE WATER QUALITY DEGRADATION IN RESTRICTED BAYS, SUCH AS UPPER NEWPORT BAY, AND IN SEVERE DEGRADATION OF SENSITIVE INTERTIDAL AREAS. RELEASE OF SULFUR DIOXIDE, CARBON MONOXIDE, HYDROGEN SULFIDE, AND PAR. CONTINENTAL SHELVES/CRUDE OIL/CULTURAL RESOURCES/ENERGY SOURCES/EXPLORATION/FISHERIES/LEASING/NATURAL GAS/OFFSHORE ENERGY SOURCES/OIL PRODUCTION/OIL SPILLS/PIPELINES/WELLS/OUTER CONTINENTAL SHELF LANDS ACT OF 1953 - PROGRAM AUTHORIZATION/petroleum/impacts/Santa Barbara Channel/petroleum/environmental biology/resource management.

2213. Anon. Union confirms find in marine sanctuary off California. OIL GAS J 1985;83(7):50. Union Oil Co. of California has confirmed a 15 year old oil and gas field discovery in a Santa Barbara Channel marine sanctuary off California. Unocal is evaluating test results and mulling possible development plans for the field underlying Block 203 in the eastern channel. The strike may be an extension to Hueneme field, currently producing from Platform Gina 3 miles to the northeast, outside the sanctuary. Unocal's efforts to further confirm its Block 203 discovery were embroiled in a battle with the California Coastal Commission (CCC), which had sought to block drilling in or near the Channel Islands Marine Sanctuary. Congress established the sanctuary after the 1969 channel oil spill and after Unocal drilled the first four wells and a redrill to delineate the field. oil and gas fields/sanctuaries/oil and gas industry/INE/Santa Barbara Channel/environmental protection/ASFA.

2214. Fischer PJ, Kolpach RL. Marine geology of the northern shelf of the Santa Barbara basin; Holocene faulting, natural oil seeps, and sediments. Geol. Soc. Am., Abstr. 1971;3(7):p.565 Serial; Abstract B; Bibliography and Index of Geology (1969-present). California/Marine geology/Sediments/structure/Santa Barbara basin/United States/oil seepage/natural/GEOREF.

2215. Cooke TS. Outer continental shelf oil spill impact on southern California resources. p. p. 257. Bureau of Land Management, 300 N. Los Angeles St., Los Angeles, CA 90012. Outer continental shelves/Oil spills/Environmental impact/California Coast/Oil pollution/US West Coast/Southern California Bight/OceanAbstracts.

2216. Gower JFR, Denman KL, Holyer RJ. Phytoplankton patchiness indicates the fluctuation spectrum of mesoscale oceanic structure. Nature (Lond) 1980;288(5787):157-159. GULF STREAM/ATLANTIC OCEAN/CALIFORNIA/USA/CURRENT/PACIFIC OCEAN/SATELLITE/THERMAL/IR/IMAGERY/MAPPING/MAMMAL/BONNELL/Pieper/MINERALS MANAGEMENT SERVICE.

2217. Rienecker MM, Mooers NKC, Hagan DE, Robinson AR. A cool anomaly off northern California: An investigation using IR imagery and in situ data. J. GEOPHY. RES. (C OCEANS) 1985;90(C3):4807-4818. Satellite IR imagery and in situ hydrographic data are used to understand better the mesoscale variability of the California Current system and to explore the relation of its surface and subsurface thermal structures. In August 1982, one of the cool filaments commonly seen in satellite IR images during summer of northern California was sampled hydrographically during an OPTOMA (Ocean Prediction Throught Observation, Modeling, and Analysis) cruise. Based on the cool anomaly seen in a series of IR images and the in situ hydrographic data, and based on geostrophic calculations, a jet entrained upwelled coastal water and advected

it rapidly through the warmer waters offshore, providing an important cross-shore transfer process.
thermal structure/temperature anomalies/INE/California Current/cool filaments/ASFA.

2218. Drake DE, Kolpack RL. Sediment transport on the Ventura shelf, Santa Barbara channel, California. Geol. Soc. Am., Abstr. 1971;3(7):p.549-550 Serial; Abstract B; Bibliography and Index of Geology (1969-present). California/Sedimentary petrology/Santa Barbara/Ventura shelf/Sedimentation/Transport/Flood/United States/GEOREF.

2219. Department of the Interior. Minerals Management Service. Proposed Southern California lease offering, February 1984. Los Angeles, California: Department of the Interior, Minerals Management Service; 1983. 641. (PUR)SALE OF OIL AND GAS DEVELOPMENT LEASES ON 11.6 MILLION ACRES OF OUTER CONTINENTAL SHELF LANDS IN THE PACIFIC OCEAN OFF SOUTHERN CALIFORNIA IS PROPOSED. LEASE AREAS ARE LOCATED IN THE SANTA BARBARA CHANNEL, INNER BASIN, AND OUTER BASIN AND BANKS AREAS. DEVELOPMENT OF THE LEASED AREAS UNDER THE PREFERRED SCHEME WOULD INVOLVE 44 TO 154 EXPLORATORY WELLS BETWEEN 1984 AND 1988, 55 TO 186 DELINEATION WELLS BETWEEN 1985 AND 1989, 215 TO 950 DEVELOPMENT WELLS BETWEEN 1989 AND 1994 OR 1998, 7 TO 27 PLATFORMS BETWEEN 1989 AND 1991 OR 1995, 75 TO 423 MILES OF PIPELINE BETWEEN 1989 AND 1991 OR 1995, AND 6 TO 30 SUBSEA COMPLETIONS BETWEEN 1992 AND 1995 OR 1997. OIL AND GAS PRODUCTION WOULD BEGIN IN 1989 AND CONTINUE THROUGH 2008. ALL HIGH AND LOW DEVELOPMENT ESTIMATES WERE PRODUCED ACCORDING TO EXTREMES IN THE ESTIMATES OF AVAILABLE RESOURCES IN THE AREA. ESTIMATES FOR TOTAL HYDROCARBON RESOURCES RANGE FROM 320 MILLION TO 1.55 TRILLION BARRELS OF OIL AND 640 TRILLION TO 3,680 TRILLION CUBIC FEET OF GAS. (POS)DEVELOPMENT OF OIL AND GAS RESOURCES WITHIN THE LEASE AREAS WOULD ENHANCE THE NATION'S ABILITY TO PROVIDE FOR ITS OWN HYDROCARBON NEEDS, REDUCING DEPENDENCE ON FOREIGN SOURCES OF OIL.

AIR QUALITY STANDARDS VIOLATIONS/CONTINENTAL SHELVES/EMPLOYMENT/FISHERIES/HISTORIC SITES SURVEYS/IMPACT ASSESSMENT METHODOLOGY/LEASING/MILITARY OPERATIONS (JOINT)/NATURAL GAS/OIL PRODUCTION/OIL SPILLS/PIPELINES/REEFS/OUTER CONTINENTAL SHELF LANDS ACT OF 1953 - PROJECT AUTHORIZATION/Santa Barbara Channel.

2220. Harrod RL. Observations of the California Countercurrent. 1984; This thesis describes results from moored current meters, 150-350 m, for a region over the continental slope off Cape San Martin, California, from January 1979 to April 1980. The California Countercurrent was found to be present in the study area during the entire period and was substantially stronger during the spring. Frequent current reversals and oscillations occurred between equatorward and poleward flow, less often at the nearshore station. Preferred low frequency energy peaks were found at periods of about 10 days. The intensity of the countercurrent increased with increasing coastal upwelling index, and the cross-slope flow also appeared to be related to the local coastal upwelling index.
ocean circulation/current data/water currents/countercurrents/upwelling/INE/USA/California Countercurrent/ASFA.

2221. Merifield PM, Lamar DL, Stout ML. Geology of central San Clemente island, California. Geol. Soc. Am., Bull. 1971;82(7):p.1989-1994 Serial B; Bibliography and Index of Geology (1969-present). California/Areal geology/San Clemente

island/Igneous
rocks/Andesite/Petrology/absolute
age/dates/K/Ar/Faults/Patterns/United States/Tectonics/GEOREF.

2222. Department of the Interior. Minerals Management Service. Proposed 1983 outer continental shelf oil and gas lease sale No. 73, offshore Central California. Los Angeles, California: Department of the Interior, Minerals Management Service; 1983. 514.

Note: USDA EMPLOYEES REQUEST DOCUMENTS FROM NATIONAL AGRICULTURAL LIBRARY OTHERS ORDER FROM INFORMATION RESOURCES PRESS, 1700 NORTH MOORE STREET, SUITE 70 0, ARLINGTON, VA 22209 Date: MARCH 1983 (EPA: MARCH 4, 1983). (PUR)LEASING OF 360 OIL AND GAS DEVELOPMENT TRACTS CONTAINING APPROXIMATELY TWO MILLION ACRES OF OUTER CONTINENTAL SHELF (OCS) LANDS IN THE SOUTHERN SANTA MARIA BASIN OFF THE COAST OF CENTRAL CALIFORNIA IS PROPOSED. THE TRACTS, LOCATED OFF SANTA BARBARA AND SAN LUIS OBISPO COUNTIES, LIE BETWEEN IMAGINARY LINES EXTENDING WEST FROM A POINT JUST NORTH OF MORRO BAY AND JUST SOUTH OF POINT ARGUELLO IN WATER DEPTHS RANGING FROM 50 METERS TO MORE THAN 1,000 METERS. DEVELOPMENT OF RESOURCES WITHIN THE BASIN WOULD INVOLVE 12 TO 80 EXPLORATION WELLS, 9 TO 40 DELINEATION WELLS, 155 TO 800 DEVELOPMENT WELLS, 5 TO 30 PLATFORMS, 114 TO 253 MILES OF PIPELINE, AND UP TO 2 SUBSEA STRUCTURES; THE FIGURES IN EACH PAIR REPRESENT REQUIREMENTS FOR THE MOST LIKELY RESOURCE ESTIMATES AND CONDITIONAL MEAN, RESPECTIVELY. THESE ESTIMATES ARE FOR 291 AND 970 MILLION BARRELS OF OIL AND 285 AND 950 TRILLION CUBIC FEET OF NATURAL GAS, RESPECTIVELY. EXPLORATION WOULD BEGIN IN 1983 AND END IN 1982; DELINEATION WOULD BEGIN IN 1984 AND END IN 1992; DEVELOPMENT WOULD BEGIN IN 1987 AND END IN 1999. (POS)EXPLOITATION OF OIL AND GAS RESOURCES WITHIN THE BASIN WOULD HELP THE NATION MEET DOMESTIC DEMAND FOR HYDROCARBON PRODUCTS, THEREBY REDUCING THE NATION'S DEPENDENCE ON FOREIGN SOURCES OF OIL AND IMPROVING THE BALANCE OF TRADE. EMPLOYMENT ROLLS WITHIN THE COASTAL AREA WOULD INCREASE BY ONE TO THREE PERCENT. (NEG)POTENTIAL OIL SPILLS RESULTING FROM DEVELOPMENT OF RESOURCES COULD DAMAGE COASTAL RESOURCES, IF OIL REACHED SHORE, AND OIL SPILLS WOULD MOST LIKELY HAVE A DELETERIOUS EFFECT ON FUR SEALS AROUND THE NORTHERN CHANNEL ISLANDS. COASTAL REGIONS ADJACENT TO DEVELOPMENT ACTIVITIES WOULD BE AFFECTED BY EMISSION OF AIR POLLUTANTS. COMPETITION FOR VESSEL BERTHING SPACE WOULD RESULT IN STRESS ON PORT SAN LUIS, AND THE INFLUX OF WORKERS AND THEIR FAMILIES INTO THE COASTAL AREA WOULD PLACE SOME SHORT-TERM STRESS ON LOCAL AREAS. BENTHOS WOULD BE DESTROYED BY CONSTRUCTION ACTIVITIES. THE COMMERCIAL TRAWL FISHER. CONTINENTAL SHELVES/EMPLOYMENT/HARBORS/LEASING/MARINE MAMMALS/NAVIGATION/NATURAL GAS/OIL PRODUCTION/OIL SPILLS/PIPELINES/OUTER CONTINENTAL SHELF LANDS ACT OF 1953 - PROJECT AUTHORIZATION/Santa Barbara Channel/petroleum.

2223. Green KA. Ecosystem description of the California Current. Rep. to U.S. Marine Mammals Commission, MMC-77/11. Contract MM7 AC026 1978;:73. ecosystem interrelationships/text/birds/MINERALS MANAGEMENT SERVICE.

2224. Greenblatt PR. Distribucion de la biomasa de zooplancton en pequena escala en la Corriente. (Small scale distributions of zooplankton biomass in the California current). Resumenes. 5 Reunion de Los Centros de Investigacion de Baja California y Scripps Institution de Oceanography. (Summaries. 5th Meeting of the Investigation Centers of Baja California and the Scripps Institute of Oceanography). La Paz, Baja California Sur (Mexico), Nov. 2, 1979 1979;:2. zooplankton/biomass/INE/California

Current/ISE/California Current/horizontal distribution/diurnal variations/zooplankton/Pieper/MINERALS MANAGEMENT SERVICE.

2225. Greenblatt PR. Small scale horizontal distributions of zooplankton taxa. Mar. Biol. (Berl.) 1982;67(1):97-112. COPEPOD/EUPHAUSIID/CHAETOGNATH/PTEROPOD/DIURNAL/VERTICAL MIGRATION/ABUNDANCE/BIOMASS/CALIFORNIA CURRENT/Marine MAMMAL/BONNELL/zooplankton/pieper/horizontal distribution/vertical migration/circadian/rhythm/MINERALS MANAGEMENT SERVICE.

2226. Greenblatt PR. Distribuciones de categorías taxonomicas de zooplancton en la corriente de California. (Distribution of taxonomic categories of zooplankton in the California current). Meeting of the Centros de Investigacion de Baja California and Scripps Institution of Oceanography, La Jolla, CA (USA), Dec. 1980. Trans. Cibcasio. 1982;6:48-50. zooplankton/taxonomy/horizontal distribution/vertical migrations/currents/INE/California Current/Marine/zooplankton/Pieper/MINERALS MANAGEMENT SERVICE.

2227. Johnson DL. Beachrock (water tablerock) in southern California. Assoc. Pac. Coast Geogr., Yearb. 1970;32:p.179 Serial; Abstract B; Bibliography and Index of Geology (1969-present). California/Sedimentary petrology/San Miguel island/carbonate rocks/Sedimentary rocks/Petrology/genesis/beachrock/United States/GEOREF.

2228. Greenblatt PR, Feng DF, Zirino A, Losee JR. Observations of planktonic bioluminescence in the euphotic zone of the California current. Mar. Biol. 1984;84(1):75-82. plankton/bioluminescence/INE/California Current/euphotic zone/plankton/Pieper/Hardy/Phytoplankton/MINERALS MANAGEMENT SERVICE.

2229. Smith CR. Food for the deep sea: Utilization, dispersal, and flux of nekton falls at the Santa Catalina Basin floor. DEEP-SEA RES 1985;32(4A):417-442. The submersible Alvin and free vehicles were used to assess experimentally the fate and flux of nekton falls at a depth of 1310 m in the Santa Catalina Basin. The most strongly attracted megafaunal scavenger was the ophiuroid *Ophiophthalmus normani*, the dominant megabenthic species in the background epifaunal assemblage. Scavengers consumed bait parcels so rapidly and then dispersed so broadly that energy from nekton falls apparently reaches infaunal benthos only in very attenuated form, yielding at most minor community enhancement. Benthic standing-crop and turnover-rate estimates for nekton falls suggest that perhaps 11% of benthic community respiratory requirements are met by nekton carcasses reaching the basin floor; the flux of energy to the deep sea through such fall events thus merits further study. benthos/food availability/deep water/abysobenthic zone/INE/Santa Catalina Basin/ASFA.

2230. Gorsline DS. General characteristics of nearshore sediments from El Capitan to Ventura, California, 1960-70. in Biological and oceanographical survey of the Santa Barbara Channel oil spill 1969-1970; Physical, chemical and geological studies, sketch maps. Univ. South. Calif., Allan Hancock Found. [Los Angeles], 1971. 1971;2:p.296-317 B; Bibliography and Index of Geology (1969-present). California/Sedimentary petrology/El Capitan/Ventura/sediments/Petrology/GEOREF.

2231. Gregg MC. Microstructure and intrusions in the California current. Tech. Rept. 1975;:27.
ocean currents/Hickey/physical oceanography/shallow water/Pacific Ocean/microstructure/turbulence/oceanographic data/thermoclines/probability distribution functions/California/reprints/MINERALS MANAGEMENT SERVICE.

2232. Greenblatt PR, Feng DF, Zirino A, Losee JR. Observations of planktonic bioluminescence in the euphotic zone of the California Current. MAR. BIOL 1984;84(1):75-82.
The distributions of bioluminescence, temperature, salinity, oxygen, pH, and chlorophyll a were measured at 10 m intervals, to a depth of 100 m at a station (33 degree 46'N; 119 degree 36'W) in the California Current from 17 to 20 July 1982. The distribution of bioluminescence showed a marked day-night change which was consistent over the sampling period. The nighttime maximum was at the surface, and the daytime maximum was between 30 and 40 m. Day to night differences in the color spectrum at the depth of maximum bioluminescence suggest that the luminescent organisms differed from day to night.
euphotic zone/bioluminescence/vertical distribution/diurnal variations/plankton/INE/California Current/ASFA.

2233. Kolpack RL, Mattson JS, Mark HBJ, Yu TC. Hydrocarbon content of Santa Barbara Channel sediments. in Biological and oceanographical survey of the Santa Barbara Channel oil spill 1969-1970; Physical, chemical and geological studies, illus. (incl. sketch maps). Univ. South. Calif., Allan Hancock Found. [Los Angeles], 1971. 1971;2:p.276-295
B; Bibliography and Index of Geology (1969-present).
California/Sedimentary petrology/Santa Barbara channel/sediments/Composition/hydrocarbons/Organic materials/GEOREF.

2234. Deutsch M, Estes JE. Landsat detection of oil from natural seeps. Photogramm. Eng. Remote Sensing 1980;46(10):1313-1322
Address: US Geol. Surv., Reston, VA 22090, USA; University of CA, Santa Barbara, CA 93101.
Oil on the ocean surface from the natural seeps in the Santa Barbara Channel, California, could not be detected on frames of any of the four bands of standard Landsat positive or negative film transparencies, nor could the slicks be detected using digital scaling, density slicing, or ratioing techniques. Digital contrast-stretch enhancement, however, showed the distribution of oil on the surface. Aerial observations made within a few hours of the Landsat overpass confirmed the distribution of floating oil. The detection (on Landsat images) of floating oil from submarine seeps indicates a potentially valuable application for offshore oil exploration and environmental monitoring.
LANDSAT/oil seepages/remote sensing/oil slicks/aerial photographs/digital contrast/stretch enhancement/natural seeps/Santa Barbara Channel/ petroleum/geology.

2235. Sinclair M, Tremblay MJ, Bernal P. El Nino events and variability in a Pacific mackerel (*Scomber japonicus*) survival index: Support for Hjort's second hypothesis. CAN. J. FISH. AQUAT. SCI 1985;42(3):602-608.
From 1928 to 1965 the higher survival rates to age 1 for Pacific mackerel (*S. japonicus*) in the California Current occurred during years of decreased southward transport (as indicated by sea level), which in turn is related to El Nino events. During such years, plankton biomass was relatively low. Conversely, Pacific mackerel

survival rates to age 1 were low during periods of increased southward transport, when plankton biomass was high. The authors conclude that survival rates during the early life history may be more influenced by hydrographic processes in a direct manner than by biological interactions. This interpretation is consistent with Hjort's second hypothesis to explain interannual variability in recruitment to fish populations.

survival/recruitment/Scomber japonicus/environmental effects/El Nino phenomenon/population dynamics/INE/California Current/food availability/ASFA.

2236. Drake DE, Fleischer P, Kolpack RL. Transport and deposition of flood sediment, Santa Barbara channel, California. Biological and oceanographical survey of the Santa Barbara Channel oil spill 1969-1970; Physical, chemical and geological studies, illus. (incl. sketch maps). Univ. South. Calif., Allan Hancock Found. [Los Angeles], 1971. 1971;2:p.181-217
B; Bibliography and Index of Geology (1969-present). California/Sedimentary petrology/Santa Barbara channel/sedimentation/Transport/GEOREF.

2237. Dibblee TW, J. Geology of the Channel Islands, Southern California. Geology and mineral wealth of the California Transverse Ranges; Mason Hill volume. : South Coast Geol. Soc.; 1982. 27-39. Address: 316 East Mission St., Santa Barbara, CA.
rift
zones/tectonics/basement/stratigraphy/petrology/faults/California Channel Islands/Southern California/western Transverse Ranges/Transverse Ranges/San Miguel Island/Santa Rosa Island/Santa Cruz Island/areal geology.

2238. Grossman EL. Stable isotopes in live benthic Foraminifera from the southern California borderland. Dissertation, Univ. South. Calif., Los Angeles 1982;
eganhouse/geochemistry/chemical oceanography/isotopes/carbon/oxygen/paleoecology/foraminifers/c-13/c-12/o-18/o-16/stable isotopes/benthonic/taxa/continental borderland/MINERALS MANAGEMENT SERVICE.

2239. Grossman EL. Stable isotope fractionation in live benthic foraminifera from the Southern California Borderland. Palaeogeogr. Palaeoclimatol. Palaeoecol. 1984;47(3-4):301-327.
foraminifera/isotope fractionation/oxygen 18/foraminifera/carbon 13/foraminifera/Thompson/invertebrates/Bolivina argentea/Cassidulina braziliensis/Cassidulina limbata/Cassidulina tortuosa/foraminifera/Globobulimina pacifica/Globobulimina/Hoeglundina elegans/Lenticulina cushmani/pyrgo/Quinqueloculina vulgaris/Quinqueloculina/taxonomy/Triloculina trigonula/Uvigerina curtica/Quinqueloculina peregrina/Eganhouse/geochemistry/chemical oceanography/isotopes/foraminifers/carbon/oxygen C-13/C12/O-18/O-16/continental benthonic taxa fractionation/dissolved inorganic/carbon sediments/aragonite/MINERALS MANAGEMENT SERVICE.

2240. Kubodera T, Jefferts K. Distribution and abundance of the early life stages of squid, primarily Gonatidae (Cephalopoda, Oegopsida), in the northern North Pacific. Part 1. BULL. NATL. SCI. MUS., TOKYO, SER. A 1984;10(3):91-106. Cephalopods collected with micronekton nets in the Subarctic North Pacific are shown to be primarily young stages of the family Gonatidae. Regional and seasonal changes of abundance of cephalopods in the northern North Pacific are discussed. A pattern of low winter abundance with a

rapid early summer increase and gradual autumn decrease is evident. Distribution patterns of species in the family Gonatidae show good correlation with large scale oceanographic features. The distribution types include pan-Subarctic forms of two kinds, including and excluding the Sea of Okhotsk; northeastern Pacific endemics; California Current endemics; western Subarctic endemics; and species localized within the Sea of Okhotsk. The Sea of Okhotsk and California Current showed distinctive faunal and gonatid species composition. Species of the family Gonatidae are classified into four groups according to the geographical pattern of relative abundance of the early life stages. developmental stages/population levels/zooplankton/Pacific Ocean North/Gonatidae/geographical distribution/quantitative distribution/seasonal variations/IN/North Pacific/ASFA.

2241. Kolpack RL. Oceanography of the Santa Barbara channel. Biological and oceanographical survey of the Santa Barbara Channel oil spill 1969-1970; Physical, chemical and geological studies, illus. (incl. sketch maps). Univ. South. Calif., Allan Hancock Found. [Los Angeles], 1971. 1971;2:p.90-180
B; Bibliography and Index of Geology (1969-present).
California/Marine geology/General/Santa Barbara channel/GEOREF.

2242. Dierhauf LA, Vandebroek DJ, Roletto J, Koski M, Amaya L, Gage LJ. An epizootic of Leptospirosis in California sea lions *Zalophus Californianus*. J. Am. Vet. Med. Assoc. 1985;187(11):1145-1148
Address: 33 MARTIN DR., NOVATO, CALIF. 94947.
Between May and December 1984, an epizootic of leptospirosis in California sea lions (*Z. californianus*) occurred along the West Coast of the USA from Monterey County, Calif, northward to Seattle, Wash. Clinical signs observed were severe depression, excessive thirst, and tucked-up posturing, with associated leukocytosis and increased globulin, BUN, and creatinine values. Effective antibiotic therapy consisted of tetracycline (22 mg/kg of body weight every 8 hours, orally) or potassium penicillin G (44,000 U/kg every 12 hours, orally or IM) for 10 to 14 days. Sixty-six sea lions were treated successfully and released. Necropsies of animals that died indicated marked kidney swelling, darkened reniculi, and poorly differentiated cortices and medullae, thick, black bile in gallbladders, thick, pale yellow pericardial fluid, and friable hemorrhagic mesentery. Primary histologic lesions were tubular nephritis and glomerulonephritis. Darkfield microscopy of kidney macerates and/or urine, and results of the microscopic agglutination test, using *Leptospira* serovar pomona-killed antigen led to a presumptive diagnosis of leptospirosis. Bacteriologic isolation and identification is ongoing. The epizootic primarily affected juvenile or subadult male California sea lions migrating northward from breeding rookeries of southern California's Channel Islands. tetracycline/potassium/penicillin g/antibacterial drug/depression/thirst/posture/leukocytosis/mortality/California sea lions/*Zalophus Californianus*/California Channel Islands/marine biology/mammalogy/parasitology.

2243. Thornton SE. Basin model for hemipelagic sedimentation in a tectonically active continental margin: Santa Barbara Basin, California continental borderland. FINE-GRAINED SEDIMENTS: DEEP-WATER PROCESSES AND FACIES.; GEOL. SOC. SPEC. PUBL. 1984;(15). A variety of Holocene sedimentary processes and depositional environments in Santa Barbara Basin may serve as a model for terrigenously-dominated hemipelagic basins devoid of submarine canyons: (1) suspensate transport; (2) turbidity current transport; (3) mass movement on the lower slope; (4) the imprint of current

patterns on both fine-grained suspended load and bedload transport; and (5) preservation of resulting stratigraphy on the deep basin floor by anoxic water conditions which result in annual varves plus turbidites and flood suspensate layers. Silt patterns define a river-derived suspensate pathway driven by surface currents, which coincides with the distribution of 1969 flood layer sediments. A "hemipelagic core" is present on the western portion of the basin floor, where terrigenous and biogenous input are most balanced. continental borderland/active margins/sedimentation/INE/Santa Barbara Basin/ASFA.

2244. Kolpack RL. Physical characteristics of sandy beaches in the Santa Barbara Channel area. Biological and oceanographical survey of the Santa Barbara Channel oil spill 1969-1970; Physical, chemical and geological studies, illus. (incl. sketch map). Univ. South. Calif., Allan Hancock Found. [Los Angeles], 1971. 1971;2:p.7-63

B; Bibliography and Index of Geology (1969-present). California/Geomorphology/Santa Barbara channel/shore features/Beaches/GEOREF.

2245. Dixon R. Tidal and Lunar Data for Point Mugu, San Nicolas Island, and the Barking Sands Area during 1985. : Pacific Missile Test Center, Point Mugu, CA. PMTC-TP-000029; 1984. 40. The data presented are (1) tidal data, (2) times of moonrise and moonset, (3) times of lunar phases, and (4) times of sunrise and sunset. Oceanographic data/Ocean tides/Moon/Time/tidal records/lunar tides/Sunset/Sunrise/Moonrise/Moonset/Lunar phases California/Hawaii/oceanography/astronomy/meteorology/atmospheric sciences.

2246. Mueller JL. Effects of water reflectance at 670 nm on coastal zone color scanner (CZCS) aerosol radiance estimates off the coast of central California. OCEAN OPTICS VII.; PROC. SOC. PHOTO-OPT. INSTRUM. ENG 1984;489:179-186.

An algorithm is presented and evaluated for estimating water radiance at 670 nm in CZCS images of highly reflective eddies and other oceanic features in the upwelling region of the California Current System. Such an estimate is necessary for proper atmospheric correction of CZCS images over such water masses. In the present algorithm, the measured signal at 670 nm (less the Rayleigh component) is partitioned between $L_{sub}(W)(670)$ and $L_{sub}(a)(670)$ by iterative adjustment until phytoplankton pigment concentrations calculated with the ratios of water radiance at 443 and 550 nm agree reasonably well with those calculated using the ratio of water radiances at 520 and 550 nm.

reflectance/irradiance/satellite sensing/aerosols/sea surface/algorithms/INE/California Current/ASFA.

2247. Kolpack RL(. Biological and oceanographical survey of the Santa Barbara Channel oil spill 1969 1970. Physical, chemical and geological studies., Univ. South. Calif., Allan Hancock Found., illus. (incl. sketch maps), [Los Angeles], 1971. (Sea Grant Publication No. 2). 1971;II

Papers within the scope of this Bibliography are cited under the individual authors. B; Bibliography and Index of Geology (1969-present). Environmental geology/Pollution/California/Santa Barbara channel/oil spill/General/GEOREF.

2248. Dixon R. Tidal and lunar data for Point Mugu, San Nicolas Island, and the Barking Sands area during 1987. Annual rept. : Tech. Publ. Pac. Missile Test Cent. PMTC-TP-000038; 1986. 40.

Address: Pacific Missile Test Cent., Point Mugu, CA (USA) Note:
Report ID = PMTC-TP-000038.

Basic lunar and tidal data for Point Mugu, San Nicolas Island, and the Barking Sands Area during 1987 are provided. The data presented are: (1) tidal data (2) times of moonrise and moonset (3) times of lunar phases and (4) times of sunrise and sunset.
almanacs/tide tables/astronomy Point Mugu/San Nicolas Island/Barking Sands Area oceanography/astronomy.

2249. Mitchell BG, Iturriaga R, Kiefer DA. Variability of particulate spectral absorption coefficients in the eastern Pacific Ocean. OCEAN OPTICS VII.; PROC. SOC. PHOTO-OPT. INSTRUM. ENG 1984;489:113-118.

As part of the Optical Dynamics Experiment (ODEX), the spectral absorption coefficient (400-700 nm.) was measured for marine particles sampled at stations in the California current and the eastern edge of the North Central Pacific Gyre. By normalizing the spectral absorption coefficients to the concentration of chlorophyll plus phaeopigments, variability in both the spectral shapes and magnitudes of the specific coefficient can be assessed. Comparisons between samples indicated large variability vertically (mixed layer versus deep euphotic zone), horizontally (near shore versus central gyre) and seasonally (fall versus spring).
absorption spectra/absorption coefficient/suspended particulate matter/chlorophylls/variability/IN/North Pacific Gyre/INE/California Current/ASFA.

2250. Drake DE, Gorsline DS. Turbid layer distribution and fine grained sediment transport, Santa Barbara channel, California continental borderland. Geol. Soc. Am., Abstr. 1971;3(2):p.112-113 Serial; Abstract B; Bibliography and Index of Geology (1969-present). California/Sedimentary petrology/Santa Barbara channel/sedimentation/Turbidity currents/GEOREF.

2251. Dixon R. Tidal and lunar data for Point Mugu, San Nicolas Island, and the Barking Sands Area during 1988. Annual Report. : Pacific Missile Test Center, Point Mugu, CA. PMTC-TP 000045; 1987. 43.

Address: Pacific Missile Test Center, Point Mugu, CA.
Basic lunar and tidal data for Point Mugu, San Nicolas Island, and the Barking Sands Area during 1988 are provided. The data presented are (1) Tidal data, (2) times of moonrise and moonset, (3) time of lunar phases, and (4) times of sunrise and sunset.
Moon/Phase/Sunrise/Sunset/Tides/Time/Ocean tides/Tables(Data)
Moonrise/Moonset/California Channel Islands//Point Mugu/San Nicolas Island/Barking Sands Area/Hawaii oceanography/astronomy/celestial mechanics.

2252. Levin LA, Smith CR. Response of background fauna to disturbance and enrichment in the deep sea: A sediment tray experiment. DEEP-SEA RES 1984;31(11A):1277-1285.
Free-vehicle sediment trays were deployed on the floor of the SantaCatalina Basin (1300 m) to study the response of deep-sea infauna to defaunation and algal enrichment. We recovered three trays that had been filled with frozen basin sediment: one otherwise untreated, one enriched with 20 g of powdered *Macrocystis pyrifera* (kelp) and containing oxidized sediment, and one kelp-enriched and anoxic. After 4.7 months on the basin floor, macrofaunal density in the unenriched tray was 10% ($x@u- = 3.8$ individuals per 100 cm super(2)) of that in the surrounding sea floor. Most colonists belonged to species dominant in the background basin community. Juveniles and mature individuals were present, suggesting short maturation times or post larval dispersal

ability in some species. The kelp-enriched (oxidized) tray contained a single macrofaunal mite (Arachnida: Acarina), suggesting avoidance of kelp-enriched sediment by available colonists. The anoxic, kelp-enriched tray contained two dorvilleid polychaetes apparently adapted to high sulphide environments. burrowing organisms/ecosystem disturbance/abysobenthic zone/colonization/zoobenthos/deep water/environmental surveys/INE/USA/ California/Santa Catalina Basin/ASFA.

2253. Doyle LJ. 29 degrees 30'N to 32 degrees N; hole in the southern California borderland. Geol. Soc. Am., Abstr. 1971;3(2):p.112 Serial; Abstract B; Bibliography and Index of Geology (1969-present). California/Seismic surveys/South/Crustal studies/GEOREF.

2254. Dixon RW. Tidal and Lunar Data for Point Mugu, San Nicolas Island, and the Barking Sands Area during 1984. : Pacific Missile Test Center, Point Mugu, CA. PMTC-TP-000014; 1983. 66. Basic lunar and tidal data for Point Mugu, San Nicolas Island, and the Barking Sands area during 1984 are provided. The data presented are (1) tidal data, (2) times of moonrise and moonset, and (3) times of lunar phases. Ocean tides/Moon/Range (Extremes)/Height/Diurnal variations/Seasonal variations/Time/Graphs/Tables/Moonrise/Moonset California Channel Islands/San Nicolas Island/Point Mugu/Barking Sands (California)/meteorology/astronomy/oceanography/atmospheric sciences.

2255. Gorsline DS, Drake DE, Barnes PW. Holocene sedimentation in Tanner Basin, California continental borderland. Geol. Soc. Am. Bull. 1968;79:659-674. chemical oceanography/eganhouse/venkatesan/MINERALS MANAGEMENT SERVICE.

2256. Coale KH, Bruland KW. super(234)Th: super(238)U disequilibria within the California Current. LIMNOL. OCEANOGR 1985;30(1):23-33. Profiles of dissolved and particulate super(234)Th were determined at several stations within the California Current. Modeling of the disequilibria between the super(234)Th and super(238)U within the surface waters provides for estimates of the residence time of dissolved thorium with respect to particle scavenging ($\tau_{sub(d)}$ varies from 6 to 50 days), the particle residence time ($\tau_{sub(p)}$ varies from 2 to 20 days), and the particulate super(234)Th flux exiting the surface layer. The model-derived, first-order scavenging rate constant for dissolved thorium is observed to be proportional to the rate of primary production. Particle residence times seem to be governed by the rate of zooplankton grazing and the types of zooplankton present. Model-derived particulate super(234)Th fluxes are in good agreement with direct measurements by sediment traps. residence time/thorium/dissolved chemicals/particulate matter/INE/ California Current/ASFA.

2257. Smith SV. Budget of calcium carbonate sedimentation, southern California continental borderland. Am. Assoc. Pet. Geol., Bull. 1971;55(2):p.364 Serial; Abstract B; Bibliography and Index of Geology (1969-present). Sedimentation/Rates/California/carbonate/south/Marine geology/Sediments/Pacific Ocean/GEOREF.

2258. Dixon R. Tidal and lunar data for Point Mugu, San Nicolas Island, and the Barking Sands Area during 1986. : Pacific Missile Test Center, Point Mugu, CA. PMTC-TP-00035; 1985. 40. Basic lunar and tidal data for Point Mugu, San Nicolas Island, and

the Barking Sands Area during 1986 are provided. The data presented are (1) tidal data, (2) times of moonrise and moonset, (3) times of lunar phases, and (4) times of sunrise and sunset.

Ocean

tides/Moon/Phase/Sunrise/Sunset/Moonrise/Moonset/Tables(Data)/Tides/Lunar data/Tide tables Hawaii/California/Point Mugu/San Nicolas Island/Barking Sands/oceanography/meteorology/astronomy/atmospheric sciences.

2259. Hacker ES. Stomach content analysis of short-finned pilot whales (*Globicephala macrorhynchus*) and northern elephant seals (*Mirounga angustirostris*) from the Southern California Bight. NOAA-NMFS-SWFC Admin. Rep. No. LJ-86-08C 1986;:34.
TEXT/BONNELL/DAILEY/MARINE MAMMALS/MINERALS MANAGEMENT SERVICE.

2260. Wakeham SG, Lee C, Farrington JW, Gagosian RB. Biogeochemistry of particulate organic matter in the oceans: Results from sediment trap experiments. DEEP-SEA RES 1984;31(5A):509-528.

Particulate organic matter collected in sediment traps from various oceanic regimes-Sargasso Sea, equatorial North Atlantic, central North Pacific, California Current, and Peru coastal upwelling-have been analyzed for their lipid and amino acid composition and flux. Despite rapid settling of the large particles through the water column and a relatively small depth gradient for total organic carbon flux, there are major changes in the composition and flux of lipids and amino acids associated with the particles. The rapid disappearance of the more labile compounds, such as amino acids and polyunsaturated fatty acids, with increasing depth indicates that the major sources of such compounds are in the upper part of the water column and that they are readily degraded as the particles sink. On the other hand, the intermittent appearance of large amounts of wax ester, along with the changing fatty acid composition of the particles, points to deep-water sources for some of these compounds.

particulate matter/organic matter/biogeochemical cycle/sediment traps/World Oceans/ASFA.

2261. Davis JR. Sedimentation of Pliocene sandstones in Santa Barbara channel, California. Am. Assoc. Pet. Geol., Bull. 1971;55(2):p.335 Serial; Abstract B; Bibliography and Index of Geology (1969-present). California/Sedimentary petrology/Southwest/Santa Barbara channel/Ventura basin/turbidite/Sedimentary rocks/Petrology/provenance/Pliocene/Repetto formation/Pico formation/GEOREF.

2262. Dixon RW. Tidal and Lunar Data for Point Mugu, San Nicolas Island, and the Barking Sands Area during 1981. Technical publication. : Pacific Missile Test Center, Point Mugu, CA. PMTC-TP-81-09; 1980. 65.

Ocean tides/Diurnal variations/Seasonal variations/Moon/Time/Moonrise/Moonset California Channel Islands/Point Mugu/San Nicolas Island/Barking Sands (Hawaii) meteorology/Oceanography/Astronomy.

2263. Smith KLJ, Baldwin RJ. Vertical distribution of the necrophagous amphipod, *Eurythenes gryllus*, in the North Pacific: Spatial and temporal variation. DEEP-SEA RES 1984;31(10A):1179-1196.

Necrophagous amphipods of the species *Eurythenes gryllus* were caught at distances up to 1400 m above the sea floor during 23 deployments of baited trap lines. The fishing efforts at four

abyssal stations along a transect of the central and eastern North Pacific yielded a total of 718 amphipods in June and an additional 749 amphipods at the westernmost station (CNP) in November 1982. *E. gryllus* was caught at higher altitudes in the deeper more oligotrophic stations of the central gyre area. Maximum catch rates occurred near the bottom at altitudes less than or approximate to 50 m, but decreased above 50 m at the three western stations. Catch rates in June, summed for all altitudes, were highest at Sta. F on the western boundary of the California Current (37.27 plus or minus 15.38 amphipods (fishing day) super(-1) substation super(-1)) and lowest at Sta. C, the station closest to the California coast (1.15 plus or minus 1.09 amphipods (fishing day) super(-1) substation super(-1)). Larger animals were caught at the higher altitudes across the transect.

vertical distribution/abyssopelagic zone/*Eurythenes gryllus*/Malacostraca/IN/North Pacific/spatial variations/temporal variations/ASFA.

2264. Curran JF, Hall KB, Herron RF. Geology, oil fields, and future petroleum potential of Santa Barbara channel region, California. *Am. Assoc. Pet. Geol., Bull.* 1971;55(2):p.334
Serial; Abstract B; Bibliography and Index of Geology (1969-present). California/Economic geology/Petroleum/gas/southwest/Santa Barbara channel/reserves/structure/natural/GEOREF.

2265. Dixon RW. Tidal and lunar data for Point Mugu, San Nicolas Island, and the Barking Sands area during 1982. Technical publication. : Pacific Missile Test Center, Point Mugu, CA. PMTC-TP-82-02; 1981. 67.
Basic lunar and tidal data for Point Mugu, San Nicolas Island and the Barking Sands area during 1982 are provided. The data presented are (1) tidal data, (2) times of moonrise and moonset, and (3) times of lunar phases. Ocean tides/California/Diurnal variations/Seasonal variations/Moon/Time/Tables(Data)/Graphs Moonrise/Moonset/Tide tables/TX California Channel Islands/Point Mugu/San Nicolas Island/Barking Sands(Hawaii)/meteorology/Oceanography/atmospheric sciences.

2266. Barnes PW. Marine geology and oceanography of Santa Cruz basin off southern California [dissertation]. ; 1971. Thesis; Abstract B; Bibliography and Index of Geology (1969-present). *Diss. Abstr. Int, Vol. 31, No. 7, p. 4134B.*
Pacific Ocean/Marine geology/Bottom features/Santa Cruz basin/Sedimentation/circulation/Oceanography/Environment/Marine/GEOREF.

2267. Dixon RW. Tidal and lunar data for Point Mugu, San Nicolas Island, and the Barking Sands Area during 1983. Technical publication. : Pacific Missile Test Center, Point Mugu, CA. PMTC-TP-000006; 1982. 67.
note: See also AD-A110 411.
Basic lunar and tidal data for Point Mugu, San Nicolas Island, and the Barking Sands area during 1983 are provided. The data presented are (1) tidal data, (2) times of moonrise and moonset, and (3) times of lunar phases. Ocean tides/California/Hawaii/Diurnal variations/Seasonal variations/Moon/Phase/Time/Moonrise/Moonset/Lunar data/Point Mugu/San Nicolas Island/Banking Sands (Hawaii).

2268. Halliwell G, Williams RG, Vierra K, Mooers CNK. Ocean currents. A Climatology and Oceanographic Analysis of the California Pacific Outer Continental Shelf Region 1981;:4.1-4.72.

wind-driven currents/ocean circulation/wind fields/wind stress/upwelling/oceanic eddies/Hickey/physical oceanography INE/USA/California/INE/California Current/INE/Southern California Bight/INE/Davidson Current/MINERALS MANAGEMENT SERVICE.

2269. Anderson VC. Anomalous absorption. REP. SCRIPPS INST. OCEANOGR. MAR. PHYS. LAB 1979;

The primary objective of this program is to observe and correlate in a quantitative manner the anomalous frequency dependent acoustic absorption caused by fish and fish larvae with the type and abundance of the fish and larvae population as determined by net hauls. Such a characterization of the absorption will allow tactical sonar performance prediction to draw on fisheries surveys of regional productivity as a data bank for prediction of anomalous absorption in the mobile passive sonar band. Cooperative support has been offered by the National Bureau of Fisheries for the program by way of ship time on the David Starr Jordan for deploying and recovering the buoy systems and in collecting and supplying net haul data at the buoy station during the data collection period. The scope of the program includes the design, fabrication and testing of the automatic data collection buoy system in the first year, followed by a two year program of data collection in the southern California Current.

acoustics/fish detection/echo surveys/sonar/INE/California Current/ASFA.

2270. Hawkins JW, Allison EC, Macdougall D. Volcanic petrology and geologic history of Northeast Bank, southern California borderland. Geol. Soc. Am., Bull. 1971;82(1):p.219-227 Serial B; Bibliography and Index of Geology (1969-present). Pacific Ocean/Petrology/California/Northeast Bank/volcanics/Igneous rocks/Pliocene/GEOREF.

2271. Domning DP. Sirenian evolution in the North Pacific Ocean. Calif., Univ., Publ. Geol. Sci. 1978;118:176 Cenozoic/evolution/new

taxa/Miocene/Neogene/Tertiary/Pliocene/Pleistocene/Quaternary/Mammalia/Sirenia/ Dusisiren reinharti/Dusisiren jordani/Hydrodamalis cuestae/Dioplotherium allisoni/Orange County/Santa Barbara County/Santa Cruz County/Los Angeles County/San Luis Obispo County/San Diego County/Kern County/Marin County/North Pacific/Asia/North America/United States/Alaska/Amchitka Island/Bering Island/Commander Island/Copper Island/Baja California/Nagano Prefecture/vertebrate paleontology.

2272. Anderson VC. Anomalous absorption. Management report for the period 1 April-30 June 1980. REP. SCRIPPS INST. OCEANOGR. MAR. PHYS. LAB 1980; acoustics/sonar/fish detection/fishery surveys/INE/California Current/ASFA.

2273. Smith SV. Calcium carbonate budget of the southern California continental borderland. Hawaii inst. geophysics (rept.) hig-70-11, 174 p, 1970 1970

N; Bibliography of North American Geology (1785-1970). calcium carbonate sedimentation budg/california/continental borderland/continental border/genesis/limestone/sedimentary petrology/sedimentary rocks/southern/GEOREF.

2274. Dorman CE. Winds between San Diego and San Clemente Island. Geophysical Research 1982;87(C12):9636-9646 Wind/North Pacific Ocean/California/Coastal regions/Wind velocity/Stresses/Diurnal variations/Seasonal variations/Wind stress/North Pacific Ocean/California/San Diego/San Clemente

Island/California bight/ atmospheric sciences/meteorology.

2275. Hams JE. Turbidite sedimentation in a modern basin floor environment: San Nicolas Basin, California borderland. Master's Thesis, Calif. State Univ., Los Angeles, CA 1987;:162. text/chemical oceanography/Eganhouse/Venkatesan/MINERALS MANAGEMENT SERVICE.

2276. Hanan DA. Analysis of the common thresher shark, *Alopias vulpinus*, in the California Bight. NOAA-NMFS-SWFC Admin. Rep. LF-84-10C 1984;:34. Thresher shark/*Alopias vulpinus*/fishery/mortality/fish/Cross/MINERALS MANAGEMENT SERVICE.

2277. Anderson VC. Anomalous absorption. Management report for the period 30 September-31 December 1980. REP. SCRIPPS INST. OCEANOGR. MAR. PHYS. LAB 1980; fish detection/acoustics/sonar/fishery surveys/INE/California Current/ASFA.

2278. Johnson DL. Beachrock (water table rock) in southern California. Assoc. Pacific Coast Geographers Yearbook, 1970;32:p.179
Abstract N; Bibliography of North American Geology (1785-1970). beachrock/calcareous eolianite/california/depositional environments/genetic relation/san miguel island/sedimentary petrology/sedimentary rocks/water table/GEOREF.

2279. Dorsey JH. A new species of Syllides (Polychaeta: Syllidae) with notes on *Amblyosyllis speciosa* Izuka from San Clemente Island, California. Bull. South. Calif. Acad. Sci. 1978;77(1):22-27
Address: Dep. Zool., Univ. Melbourne, Parkville, Vic. 3052, Australia. A new species of Syllides is described and *Amblyosyllis speciosa* is recorded for the first time from California. Both species were taken from shallow rocky areas at San Clemente Island. new species/morphology/new records/taxonomy/zoogeography/biogeography/rocky shores/meristics/distribution
Polychaeta/Syllidae/Syllides/*Amblyosyllis speciosa*/Syllides reishi/San Clemente Island/Wilson Cove/marine biology.

2280. Hanor JS, Marshall NF. Quantitative analysis of worm burrowing and sediment mixing in some recent southern California borderland sediments [abstr.]. Geol. Soc. Am., Abstr. 1970;2(7):568.
Marine geology/California/Hickey/physical oceanography/sedimentary structures/Sediments/General/Biogenic/Bioturbation/Eganhouse/geochemistry/chemical oceanography/sediments/bioturbation/MINERALS MANAGEMENT SERVICE.

2281. Anderson VC. Anomalous absorption. Management report for the period 1 January 1981 thru 31 March 1981. REP. SCRIPPS INST. OCEANOGR. MAR. PHYS. LAB 1981; fish detection/sonar/acoustics/fishery surveys/INE/California Current/ASFA.

2282. Curry RR. Santa Barbara and beyond, in geologic hazards and public problems (r. a. Olson and m. m. Wallace, editors) (U.S.) Office Emergency Preparedness, Region 7, Conf., San Francisco, Calif., 1969, Proc. Washington, D.C., U.S. Govt. Printing Office. ; 1969. p. p.251-263.
N; Bibliography of North American Geology (1785-1970). California/causes/engineering geology/geologic hazards/natural/oil

leaks/petroleum spills/pollution/santa barbara channel/GEOREF.

2283. Dowling JA, Hanley ST, Curcio JA, Trusty GL, Cosden TH. Results of laser-calibrated high-resolution transmission measurements and comparisons with broadband transmissometer data: San Nicolas Island, California, May 1979. Final rept. : Naval Research Lab., Washington, DC. NRL-8618; 1982. 99. Atmospheric transmission was measured along a 4.07 km overwater path in May 1979 at San Nicolas Island (SNI), California. A deuterium fluoride (DF) laser and a high-resolution Fourier transform spectrometer (FTS) system were used to generate high-quality transmission spectra of the 4.07 km path accurate to + or - 3 to 5% in absolute transmission. Details and procedures used and results obtained in the absolute transmission calibration of the spectra are presented. Path-integrated values for water vapor density have been derived from the FTS spectra and show good agreement with fixed-location dew-point hygrometer measurements. Comparisons of measured DF laser extinction coefficients with calculated molecular absorption values are presented which suggest modifications to existing water vapor continuum absorption models and which also provide a measure of infrared aerosol extinction. The aerosol extinction values thus derived have been found to show little correlation with concurrent measurements of visibility, windspeed, and relative humidity. Comparisons of spectral-band-averaged FTS data with Pacific Missile Test Center broadband transmissometer measurements show good average agreement with significant scatter in the data attributable in part to sizable fluctuations in transmission occurring during the time scales used to acquire the FTS data. Atmospheric windows/Light transmission/Fourier spectrometers/Laser beams/Infrared lasers/ave propagation/Transmittance/Visibility/Aerosols/Transmissometers/Extinction/Measurement/Broadband/Value/Deuterium compounds/Wind velocity/Molecular properties/Humidity/Dual mode/Correlation techniques/Fluorides/Infrared radiation/Atmospheres/High resolution/Calibration/Fourier transformation/Lasers/Deuterium fluoride lasers/San Nicolas Island/atmospheric sciences/meteorology.

2284. Anderson VC. Anomalous absorption. Management report for the period 1 July-30 September 1980. REP. SCRIPPS INST. OCEANOGR. MAR. PHYS. LAB 1980; fish detection/sonar/acoustics/fishery surveys/INE/California Current/ASFA.

2285. Scott RW. The santa barbara channel, in how humble plans to produce oil in the santa barbara channel. World oil 1970;171(7):p.40 N; Bibliography of North American Geology (1785-1970). califonia/economic geology/gas/natural/natural gas/occurrence/petroleum/santa barbara channel/ventura basin/GEOREF.

2286. Hardwick JE. Review of the pelagic wet fisheries during the 1966-67 season. Calif. Coop. Oceanic Fish. Invest. Rep. 1968;12:22-23. pelagic fishes/catch statistics/fisheries/California Current/zooplankton/Pieper/MINERALS MANAGEMENT SERVICE.

2287. Anderson VC. Anomalous absorption. REP. SCRIPPS INST. OCEANOGR. MAR. PHYS. LAB 1980; The primary objective of this program is to observe and correlate in a quantitative manner the anomalous, frequency dependent acoustic absorption caused by fish and fish larvae with the type and abundance of the fish and larvae population as determined by

net hauls. Such a characterization of the absorption will allow tactical sonar performance prediction to draw on fisheries surveys of regional productivity as a data bank for prediction of anomalous absorption in the mobile passive sonar band. Cooperative support for the program has been offered by the National Bureau of Fisheries by way of ship time on the David Star Jordan for deploying and recovering the buoy stations during the data collection period. The scope of the program includes the design, fabrication and testing of the automatic data collection buoy system in the first year, followed by a two year program of data collection in the southern California Current.
acoustics/sonar/fishery surveys/fish detection/INE/California Current/ASFA.

2288. Morin RW. Late quaternary biostratigraphy of cores from beneath California Current. Am. Assoc. Petroleum Geologists Bull. 1970;54(3):p.559 Abstract N; Bibliography of North American Geology (1785-1970). biostratigraphy/california current area/cores/deep sea cores/foraminifera/pacific ocean/paleontology/quaternary/GEOREF.

2289. Ebeling AW, Laur DR. Foraging in surfperches: Resource partitioning or individualistic responses? Envir. Biol. Fish. 1986;16:123-133 foraging biology/foraging behavior/resource partitioning/surfperches/Embiotocidae/Santa Barbara Channel/marine biology/ecology/ichthyology.

2290. Alldredge AL, Robinson BH, Fleminger A, Torres JJ, King JM, Hamner WM. Direct sampling and in situ observation of a persistent copepod aggregation in the mesopelagic zone of the Santa Barbara Basin. MAR. BIOL 1984;80(1):75-81. Observations from a one-person submersible (Wasp) in fall, 1982, revealed a persistent aggregation of non-migrating, Stage V copepodites of *Calanus pacificus californicus* Brodsky in a band 20 plus or minus 3 m thick at a depth of 450 m, about 100 m above the bottom of the Santa Barbara Basin, California. Copepod abundances, yielded maximum densities of 26×10^6 copepodites m^{-1} . Quiescent behavior, low laminarinase activity, low protein content, high lipid content and evidence of low excretion rate all suggest that these copepodites were in a state of diapause. Both the submersible observations and the net collections suggest that the dense aggregation of diapausing copepods the authors observed in the Santa Barbara Basin was a phenomenon associated with seasonal upwelling cycles.
mesopelagic zone/organism aggregations/*Calanus pacificus californicus*/Leuroglossus stilbius/food availability/population number/diapause/predation/INE/USA/California/Santa Barbara Basin/ASFA.

2291. Sylvester AG. Fluid pressure variations and prediction of shallow earthquakes. Science (AAAS). 1970;169(3951):p.1231 Serial Earthquake triggering mechanism, detection of tectonically induced fluid pressure increase, suggested use of deep well pressure measurements, Santa Barbara channel area as example (California). B; Bibliography and Index of Geology (1969-present). California/Earthquakes/Santa Barbara channel/prediction/genesis/fluid pressure/variations/shallow earthquakes/GEOREF.

2292. Ebeling AW, Cailliet GM, Ibara RM, DeWitt FA, Brown DW. Pelagic communities and sound scattering off Santa Barbara, California. G.B. Farquhar. Proceedings of an international symposium on biological sound scattering in the ocean. Washington,

D.C.: Maury Center for Ocean Science Rep. 5; 1971. 1-19.
pelagic/sound scattering/Santa Barbara Channel/marine
biology/ichthyology.

2293. Eppley RW, Stewart E, Abbott MR, Heyman U. Estimating ocean primary production from satellite chlorophyll: Introduction to regional differences and statistics for the Southern California Bight. J. PLANKTON RES 1985;7(1):57-70. The prospect of estimating primary production (P_i , $\text{mg C m}^{-2} \text{d}^{-1}$) from chlorophyll pigment concentrations ($C_{\text{sub}(k)}$, mg m^{-3}) near the ocean surface is appealing, now that chlorophyll concentrations can be extracted from satellite images. Earlier work has shown a proportionality between P_i and $C_{\text{sub}(k)}$ (P_i proportional to F multiplied by $C_{\text{sub}(k)}$) but with large variance in the proportionality factor F . A cursory overview of global data suggests part of this variability is regional. For example, F for subtropical open ocean regions exceeds that of temperate coastal regions. In the richest waters, F approaches a minimum limit value, of $100 \text{ (mg}^{-2} \text{d}^{-1}) \text{ (mg C}_{\text{sub}(k)} \text{ m}^{-3})^{-1}$. Some of the variability in the relation over time and space in the Southern California Bight is related to environmental variables. In the simplest systems, F is proportional to insolation. The variability in F may be of ecological interest beyond its utility in relating water column production to near-surface chlorophyll as an additional descriptive characteristic of pelagic ecosystems.
marine environment/primary production/remote
sensing/chlorophylls/satellites/Southern California
Bight/USA/California/ISE/California Bight/ASFA.

2294. Drake DE, Fleischer P, Kolpack RL. Transport and deposition of flood sediment, Santa Barbara basin, California. Eos (Am. Geophys. Union, Trans.). 1970;51(11):p.767
Serial; Abstract B; Bibliography and Index of Geology (1969-present). Sedimentation/Floods/California/Santa
Barbara/Rivers/Sediment transport/Sedimentary petrology/GEOREF.

2295. Ebeling AW, DeWitt FA, Werner W, Cailliet GM. Santa Barbara Oil Spill: Fishes. Santa Barbara oil symposium, offshore petroleum production, and environmental inquiry. Santa Barbara, CA: University of California, Marine Science Institute; 1972. 136-164.
oil spill/petroleum production/environmental protection/Santa
Barbara Channel/marine biology/petroleum.

2296. Keller B, Prothero WAJ, Trehu AM, Stierman DJ. Ray trace model of the Santa Barbara, California, land-sea seismic refraction experiment. GEOPHYS. RES. LETT 1983;10(10):933-936.
A seismic refraction profile utilizing shots at sea and receivers on land on the ocean bottom lies on a north-south line from the southernmost Coast Ranges, across the western Transverse Ranges, to the northern Borderland at the longitude of Santa Barbara. Computer ray tracing to model the data from this profile shows significant lateral P velocity variations extending to at least 15 km depth. A deep low velocity trough underlies the Montalvo trend in the Santa Barbara Channel. Lateral velocity variations suggest that earthquake hypocenters and fault plane solutions calculated assuming a laterally homogenous crust-model may be significantly in error.
seismic refraction profiles/crustal structure/INE/Santa Barbara
Channel/ASFA.

2297. Morin RW. Paleotemperature increase about 11,000 years ago beneath the California current; paleontological evidence.

American Quaternary Association, meeting, 1st, Amer. Quat. Ass.
[Seattle, Washington], 1970. 1970:p.95 Abstract B; Bibliography
and Index of Geology (1969-present).
Paleoclimatology/Quaternary/Pacific Ocean/California/GEOREF.

2298. Harrod RL. Observations of the California
countercurrent. 1985; ocean currents/Hickey/physical oceanography
oceanographic data/spectrum analysis/seasonal
variations/reversible/periodic variations/ocean
surface/subsurface/boundaries/california/coastal-
regions/upwelling/oscillation/ continental
slopes/intensity/offshore/theses/time series analysis/vector
analysis/MINERALS MANAGEMENT SERVICE.

2299. Ebeling AW, Ibara RM, Lavenberg RJ, Rohlf FJ.
Ecological groups of deep-sea animals off southern California.
Bull. Los Angeles city Mus. Nat. Hist. Sci. 1970;6:1-43
deep-sea animals/Southern California/marine biology/ichthyology.

2300. Hartman B, Hammond DE. Use of carbon and sulfur
isotopes as correlation parameters for the source identification of
beach tar in the southern California borderland. Geochim. &
Cosmochim. Acta. 1981;45(3):309-319.
Isotopes/carbon/sulfur/pollutant dispersion/marine pollution/oil
pollution/California Coast/tar/beach pollution/US/West
Coast/pollutant
dispersal/algae/Spermatophytes/Bray/Anthropogenic/anderson/MINERALS
MANAGEMENT SERVICE.

2301. Simpson JJ. Large-scale thermal anomalies in the
California Current during the 1982-1983 El Nino. GEOPHYS. RES. LETT
1983;10(10):937-940. The large-scale thermal structure of the
California Current during 1982-83 shows several anomalous
conditions: warm sea surface temperature anomalies (similar to 1-2
degree C), depression of the thermocline by 50 m or more, and
pronounced subsurface warming (similar to 3-4 degree C) relative
to the 30-year mean. The subsurface anomaly is much greater than
the surface anomaly. These persistent (>6 months) structures,
coupled with unusually high sea levels along the North American
coast, show that a major Californian "El Nino" occurred during
1982-83. The data support the conclusion that the expansion and
intensification of the Aleutian low and the decrease in strength of
the Pacific high produced an anomalous basin-wide atmospheric
circulation which coupled directly to the large-scale oceanic wind-
driven circulation to produce the Californian "El Nino."
temperature anomalies/El Nino/thermal structure/INE/California
Current/ISE/California Current/ocean-atmosphere system/ASFA.

2302. Kolpack RL, Mattson JS, Mark HBJ, Drake DE, Surface
ST,W, Morin RW. Santa Barbara channel, California marine
environment. Geol. Soc. Am., Abstr. 1970;2(7):p.747-748
Serial; Abstract B; Bibliography and Index of Geology (1969-
present). Environmental geology/Pollution/Pacific Ocean/Santa
Barbara channel/petroleum/Marine
geology/General/Oceanography/GEOREF.

2303. Hartmann AR. Movement of scorpionfishes (Scorpaenidae:
Sebastes and Scorpaena) in the Southern California Bight. Calif.
Fish Game 1987;73:68-79. TEXT/CROSS/ALLEN/FISH/MINERALS MANAGEMENT
SERVICE.

2304. Simpson JJ. A simple model of the 1982-83 Californian
"El Nino". GEOPHYS. RES. LETT 1984;11(3):243-246.

Steric height, steric height anomaly, sea level and sea level anomaly show that the 1940-41 and the 1982-83 Californian "El Nino" events were resonant responses of the California Current to the expansion and intensification of the Aleutian low and decrease in strength of the North Pacific high. In both cases, the subsurface anomalies were dynamically produced by onshore transport of Subarctic water and a downward tilt of the inshore thermocline. Sea surface temperature anomalies, however, resulted from thermodynamic as well as dynamic process. Most previous Californian "El Nino" or "anti-El Nino" events probably were resonant or anti-resonant responses of the seasonal cycle of the California Current to anomalous large-scale atmospheric forcing.
atmospheric forcing/El Nino/El Nino/INE/California Current/ISE/California Current/ASFA.

2305. Hanor JS, Marshall NF. Quantitative analysis of worm burrowing and sediment mixing in some recent southern California borderland sediments. Geol. Soc. Am., Abstr. 1970;2(7):p.568
Serial; Abstract B; Bibliography and Index of Geology (1969-present). Marine
geology/Sediments/Bioturbation/California/Oceanography/General/Sedimentary structures/Biogenic/GEOREF.

2306. Ebeling AW, Larson RJ, Alveizon WS, Bray RN. Annual variability of reef fish assemblages in kelp forests off Santa Barbara California, USA. U.S. Natl. Mar. Fish. Ser. Fish. Bull. 1980;78(2):361-378
Address: DEP. BIOL. SCI., MAR. SCI. INST., UNIV. CALIF., SANTA BARBARA, CALIF. 93106.
Assemblages of kelp-bed fishes that live in and about the kelp canopy or over the reef bottom were censused by movie strips (cinetransects) every Sept. from 1971-1974 at rock reefs off Santa Barbara, southern California. Cinetransects provided an adequate and efficient way to estimate species composition (order of relative or ranked species abundances), diversity and numbers of fish for yearly comparison between canopy and bottom habitats at mainland and Santa Cruz Island study sites. Canopy assemblages were simpler and more variable than bottom assemblages. They differed less in composition between sites. Between-site differences in fish assemblages reflected differences in structural habitat between mainland and island. Variation in species composition was less among years than between habitats or sites in the sense that site- and habitat-specific composition of assemblages persisted in the course of significant yearly changes in counts of fish and species per transect. Despite these changes, annual variation, as measured by variance of year-to-year log10 ratios of numbers of 16 common species, was relatively small. Its size was characteristic of stable communities in predictable environments. As a group, planktivores, which form dense aggregations in midwater, fluctuated most in numbers. Perhaps fish responded directly to local changes in water clarity, temperature, currents and density of giant kelp [*Macrocystis pyrifera*]. Coincident changes in fish counts at mainland and island sites indicated that these local environmental factors, which did not vary accordingly, were not the only causes of annual variability in fish abundance.
species
diversity/temperature/current/density/feeding/cinetransect/kelp-bed fishes/reefs/annual variations/community composition/community structure giant kelp/*Macrocystis pyrifera*/rock reefs off/Santa Barbara/Santa Cruz Island/marine biology/ichthyology.

2307. Hartwig EO. Physical, chemical and biological aspects of nutrient exchange between the marine benthos and the overlying

water. Dissertation, Univ. of Calif., San Diego 1974;:189.
nutrients/benthos/marine biology/marine
microorganisms/algae/bacteria/plankton/primary biological
productivity/water quality/ammonia/nitrate
deposits/nitrites/phosphorus/inorganic compounds/phosphorus/organic
compounds/California/La Jolla
Bight/Eganhouse/chemical oceanography/MINERALS MANAGEMENT SERVICE.

2308. Simpson JJ. El Nino-induced onshore transport in the
California Current during 1982-1983. GEOPHYS. RES. LETT
1984;11(3):241-242. Persistent (> 9 month) large-scale positive
temperature (3-4 degree C), negative salinity (0.1-0.3 ppt) and
positive dissolved oxygen (0.5-1 ml/l) subsurface anomalies
characterize the El Nino-induced onshore transport in the
California Current during 1982-83. These anomalies, characteristic
diagrams, and sign reversals in the salinity and oxygen anomalies
are consistent only with enhanced onshore transport of Subarctic
water from the offshore California Current. Onshore transport
excludes poleward propagating Kelvin waves as a generation
mechanism for the 1982-83 Californian "El Nino". The data, however,
support the conclusion (Simpson, 1983) that an anomalous basinwide
atmospheric circulation produced the Californian "El Nino".
anomalies/hydrography/atmospheric forcing/El Nino phenomena/El
Nino/INE/California Current/ISE/California Current/ASFA.

2309. Sylvester AG, Smith SW, Scholz CH. Earthquake swarm in
the Santa Barbara channel, California, 1968. Seismol. Soc. Am.,
Bull. 1970;60(4):p.1047 Serial B; Bibliography and Index of
Geology (1969-present). Earthquakes/California/1968/Santa
Barbara/swarm/GEOREF.

2310. Ebeling AW, Laur DR. The influence of plant cover on
surfperch abundance at an offshore temperate reef. Env. Biol. Fish.
1985;11:169-179 cover/temperate
reefs/abundance/surfperches/Embiotocidae/Santa Barbara
Channel/marine biology/ecology/ichthyology.

2311. Haury LR. A comparison of zooplankton patterns in the
California current and north Pacific central gyre. Mar. Biol.
1976;37(2):159-167. Pacific ocean north/horizontal
distribution/spatial distribution/california
current/zooplankton/north pacific/central gyre/community
structure/small scale distribution/Pieper/MINERALS MANAGEMENT
SERVICE.

2312. Haury LR. Small scale pattern of a California current
zooplankton assemblage. Mar. Biol. 1976;37(2):137-157.
sampling methods/zooplankton/California Current/Guadelupe
Island/Baja California coast/vertical distribution/horizontal
distribution/zooplankton/Pieper/MINERALS MANAGEMENT SERVICE.

2313. Haury LR. An offshore eddy in the California current
system. Part IV: Plankton distribution. Prog. Oceanogr.
1984;13:95-111. zooplankton/MINERALS MANAGEMENT SERVICE.

2314. Ikeda M, Emery WJ. Satellite observations and modeling
of meanders in the California Current system off Oregon and
northern California. J. PHYS. OCEANOGR 1984;14(9):1434-1450.
Infrared satellite images from the west coasts of Oregon and
northern California are used to identify meander patterns in sea
surface temperature which appear as large cold tongues extending
offshore. Two relatively long series of images from 1982 and a few
examples from 1980 and 1983 demonstrate the evolution of the cold

tongues from an initial variety of scales (60-200 km), to the fastest growing waves (110-130 km) and then finally to tongues with longer wavelengths (400 km). This is observed to occur over periods of about three months in summer and fall when the coastal circulation is composed of a southward surface current over a northward undercurrent.
current rings/current observations/infrared imagery/satellite mosaics/INE/California Current/ASFA.

2315. Yeats RS. Stratigraphic evidence for Catalina schist basement north of Channel Islands, California. Geol. Soc. Am., Bull. 1970;81(7):p.2147 Serial Miocene San Onofre breccia contains blueschist clasts of the Catalina schist facies, southern margin of basement near the Santa Cruz Island fault. B; Bibliography and Index of Geology (1969-present). California/Petrology/Channel Islands/schist/Metamorphic rocks/Distribution/Catalina schist basement/GEOREF.

2316. Ebeling AW, Laur DR. Fish populations in kelp forests without sea otters: Effects of severe storm damage and destructive sea urchin grazing. G.R. VanBlaricom, J.A. Estes. The community ecology of sea otters. Berlin Heidelberg: Springer-Verlag; 1988. 169-191.
disturbance/storm damage fishes/Enhydra lutris/sea otters/Strongylocentrotus/sea urchins/Santa Barbara Channel/marine biology/ichthyology/mammalogy/ecology.

2317. Haury LR, Schulenberger E. Balance del fosfato en la corriente de California. (Phosphate balance in the California current). Resúmenes. 5 Reunion de Los Centros de Investigacion de Baja California y Scripps Institution of Oceanography. (Summaries, 5th Meeting of the Investigation Centers of Baja California and Scripps Institution of Oceanography). La Paz, Baja, California Sur (Mexico), Nov. 2 1979 1979;:2.
phosphates/transport processes/seasonal variations/water currents/upwelling/plankton/vertical distribution/zooplankton/Pieper/MINERALS MANAGEMENT SERVICE.

2318. Haury LR, Shulenberger E. Horizontal transport of phosphorus in the California Current. Calif. Coop. Oceanic Fish. Invest. Rep. 1982;23:149-159. Hardy/phytoplankton/MINERALS MANAGEMENT SERVICE.

2319. Haury LR, Simpson JJ, Pelaez J, Koblinsky CJ, Wiesenhahn D. Biological consequences of a recurrent eddy off Point Conception, California. J. Geophys. Res. 1986;91:12, 937-12, 956.
all/MINERALS MANAGEMENT SERVICE.

2320. Yeats RS. Stratigraphic evidence for Catalina schist basement north of Channel Islands, California. Geol. Soc. Amer., Abstr. 1970;2(2):p.160 Serial; Abstract B; Bibliography and Index of Geology (1969-present). California/Sedimentary petrology/Santa Cruz island/San Onofre breccia/Breccia/provenance/Tertiary/Miocene/Catalina schist/Sedimentary rocks/Metamorphic rocks/Schist/Distribution/Channel Islands/GEOREF.

2321. Ebeling AW, Laur DR, Rowley RJ. Severe storms, sea urchins, and disturbance-driven kelp forests. G.R. St. Amant. The marine environment of Santa Barbara and its coastal waters: A symposium/workshop. NOAA Technical Memorandum NOS/MEMD No. 23. ; 1988. 32-43.
In some West Coast kelp forests, energy flows from kelp and other

macroalgae that produce large amounts of detached algal drift, through sea urchins and other herbivores that eat this drift when it is available but living plants when it is not, to sea otters and other top consumers that eat the herbivores. Wherever sea otters are absent at the top trophic level, ineffective regulation of sea urchin numbers at the middle level may cause local extinctions of kelp at the bottom level. Off southern California, for example, large numbers of urchins may outstrip their supply of drift and graze back the living forest. Here a severe storm disturbance can either destroy kelp biomass and the source of drift, or decimate the urchin population and reduce the grazing pressure. Thus, severe storms can promote either overgrazing or forest recovery, depending on the previous history of the site. Deleting kelp transforms the forest into a barrens dominated by grazing sea urchins; deleting sea urchins from a barrens does the reverse, given proper conditions for kelp recruitment. This happens because the rate of grazing by large numbers of urchins exceeds the rate of recolonization by kelp. The high rate of grazing continues because (1) urchins are long-lived and can exploit marginal food supplies and (2) their numbers are not regulated by effective predation.

disturbance/storms/Strongylocentrotus/sea urchins/Macrocyctis pyrifera/giant kelp/Santa Barbara Channel/marine biology/ecology.

2322. Hunt GLJ, Newman AL, Warner MH, Wingfield JC, Kaiwi J. Comparative behavior of male-female and female-female pairs among western gulls prior to egg-laying. CONDOR 1984;86(2):157-162. The behavior of male-female (M-F) and female-female (F-F) paired western gulls (*Larus occidentalis*) before egg laying was examined on Santa Barbara Island, California to test the hypothesis that one female in a F-F pair may assume a male role. In M-F pairs, no behaviors were performed exclusively by either sex, although males mounted more often, females head-tossed more often and males acted more aggressively toward intruders. Within F-F pairs, neither partner consistently showed masculine behavior. In a comparison of behavior toward intruders, both members of F-F pairs resembled the female in M-F pairs, and were generally significantly different from males. The authors therefore reject the hypothesis that female-female pairing is the result of either the adoption of a "male" behavioral role by one or both partners, or an extreme "female" role by one member.

egg laying/mating behavior/aggressive behavior/courtship/breeding/*Larus occidentalis*/ASFA.

2323. Yeats RS, Cole MR, Merschat WR. Eocene paleogeography of the southern California borderland. Geol. Soc. Amer., Abstr. 1970;2(2):p.159 Serial; Abstract B; Bibliography and Index of Geology (1969-present). Tertiary/California/Santa Cruz/Santa Nicolas/Santa Miguel/Santa Rosa/islands/Eocene/paleogeography/Sedimentation/Environment/Marine/GEOREF.

2324. Ebeling AW, Laur DR, Rowley LRJ. Severe storm disturbances and reversal of community structure in a southern California kelp forest. Mar. Biol. 1985;84:287-294

storm disturbances/disturbance/community structure/kelp forest/*Macrocyctis pyrifera*/giant kelp/Santa Barbara Channel/marine biology/ecology.

2325. McGowan JA. The California El Nino, 1983. OCEANUS 1984;27(2):48-51. Since 1949, the California Cooperative Fisheries Investigations (CalCOFI) has monitored temperature, salinity, oxygen, and zooplankton abundance of a regular schedule in the California Current. It is evident that the periods of strong

transport from the north led to low temperatures, low salinity, and high zooplankton, while lessened southward transport led to high temperatures, high salinity, and low zooplankton. One of the low-transport warm-water episodes that stands out very clearly in these data is that of 1957-59. This is the largest signal in the entire 30-year series and it occurred almost synchronously with a major equatorial El Nino.

El Nino phenomena/water

temperature/salinity/INE/USA/California/anomalies/ASFA.

2326. Hawkins JWJ, Allison EC. Volcanic petrology and paleontology of Northeast Bank, southern California borderland. Geol. Soc. Amer., Abstr. 1970;2(2):p.99-100
Serial; Abstract B; Bibliography and Index of Geology (1969-present). Pacific Ocean/Marine geology/Paleontology/igneous rocks/California/Northeast Bank/volcanics/Petrology/Oceanography/GEOREF.

2327. Ebeling AW, Werner W, DeWitt FA, Cailliet GM. Santa Barbara Oil Spill: Short-term analysis of macroplankton and fish. U.S. Environmental Protection Agency Water Pollution Research Series 1971;14-12-534:1-68 pollution/oil spill/environmental effects/Santa Barbara Channel/marine biology/petroleum/pollution.

2328. Hein FJ, Longstaffe FJ. Controls on geotechnical properties of fine-grained mass flow deposits, California borderland. Eleventh International Congress on Sedimentology, Hamilton, Ont. (CAN), Aug. 22-27, 1982 1982;:166. California/soil mechanics/organicmaterials/oceanography/materials/properties/geoc hemistry/conti nental slope/marinesediments/UnitedStates/materials/properties/X-raydata/sedimentation /transport/massmovements/debris flows/silt/clastic sediments/clay/Santa Barbara Basin/Santa Cruz Basin/San Nicolas Basi/plasticity/Atterberglimits/smectite/sheetsilicates/silicates /vermiculite/i llite/chlorite/kaolinite/North American Pacific/Hickey/physical oceanography/MINERALS MANAGEMENT SERVICE.

2329. Heinbokel JF, Beers JR. Studies on the functional role of tintinnids in the Southern California Bight part 3: Grazing impact of natural assemblages. Mar. Biol. (Berl.) 1979;52(1):23-32. USA/ciliate/phyto/plankton/plankton carbon flow/energy/zooplankton/Pieper/Dawson/MINERALS MANAGEMENT SERVICE.

2330. Sherman K, Lasker R, Richards W, Kendall AWJ. Ichthyoplankton and fish recruitment studies in large marine ecosystems. MAR. FISH. REV 1983;45(10-12):1-26.
Within the Fishery Management Zone of the United States, seven large marine ecosystems (LME's) -- Insular Pacific, Eastern Bering Sea, Gulf of Alaska, California Current, Gulf of Mexico, Southeast Atlantic Shelf, and Northeast Atlantic Shelf -- support multibillion-dollar fisheries, operating at different trophic levels. To improve abundance for ecasts of recruitment success of incoming year classes, two assessmen t strategies are used by NMFS in the LME's: 1) Fisheries independent surveys of fish eggs and larvae on mesoscale grids of 20-100 km at fr equencies of two to twelve times a year to obtain estimates of the si ze of the spawning adult stocks, and 2) other studies within the meso scale survey matrix aimed at discovering the processes controlling th e annual recruitment success of new year classes.
ichthyoplankton/recruitment/fishery management/fishery surveys/Pisces/zooplankton/USA/Fishery Management Zone/ASFA.

2331. Berger WH, Soutar A. Preservation of plankton shells in an anaerobic basin off California. Geol. Soc. Amer., Bull. 1970;81(1):p.275-282 Serial B; Bibliography and Index of Geology (1969-present). Marine geology/Paleontology/Pacific Ocean/Santa Barbara basin/Pteropoda/Foraminifera/diatoms/Radiolaria/Quaternary/Holocene/Oceanography/GEOREF.

2332. Helvey M, James R. The influence of water current on the fish communities associated with two water intake structures. Report for phase I habitat modification study, 316(b) demonstration. Southern California Edison Research and Development Series 81-RD-13 1979;:44. fish/MINERALS MANAGEMENT SERVICE.

2333. Edwards BD, Gorsline DS. New evidence of current winnowing activity on Hueneme Sill, California continental borderland. Am. Assoc. Pet. Geol., Bull. 1978;62(3):511 Address: Univ. South. Calif., Los Angeles, Calif. Conference: AAPG-SEPM annual meeting. Oklahoma City, Okla., April 9-12, 1978. sedimentation/transport/continental shelf/marine transport/continental borderland/basins/winnowing/channels/upper Pleistocene/Pleistocene/Quaternary/Holocene/sand/clastic sediments/Hueneme Sill/California Channel Islands/marine geology/oceanography.

2334. Hemingway GT. A description of the California current ecosystem by factor analysis. Calif. Coop. Oceanic Fish. Invest. Rep. 1979;20:164-183. ecosystems/physicochemical properties/nutrients (mineral/water mixing/hydrography/current measurements/environmental data/data processing/trophic relationship/plankton/chlorophylls/zooplankton/Pieper Hickey/physical oceanography/MINERALS MANAGEMENT SERVICE.

2335. Bernal PA, Chelton DB. (Low-frequency, large-scale biological variability in the California Current, 1949-1978). PROCEEDINGS OF THE EXPERT CONSULTATION TO EXAMINE CHANGES IN ABUNDANCE AND SPECIES COMPOSITION OF NERITIC FISH RES, SAN JOSE, COSTA RICA, 18-29 APRIL 1983. A PREPARATORY MEETING FOR THE FAO WORLD CONFERENCE ON FISHERIES MANAGEMENT AND DEVELOPMENT.; FAO FISH. REP./FAO, INF. PESCA. 1983;3(291):713-729. The pelagic ecosystems of the California Current show biological responses dominated by large scale, low frequency changes. This study shows that they are strongly associated with inter-annual fluctuations of the transport of the California Current. Zooplankton biomass time series were strongly correlated with the temperature field. This indicated that horizontal and vertical advection play primary roles in these changes. The biomass fluctuations are most highly correlated with current transport five months prior to the changes. At the same time, these changes are associated with fluctuations of thermal anomalies in the eastern tropical Pacific indicative of "El Nino" events, with a 4 month lag. Density independent factors controlling populations in eastern boundary currents are discussed, emphasizing the importance of incorporating parameter estimations for the oceanographic fluctuations in fishery management models. zooplankton/fishery oceanography/current observations/INE/California Current/ISE/California Current/ASFA.

2336. U S. Geological Survey. Geology, petroleum development, and seismicity of the Santa Barbara channel region, California. U.S. Geol. Surv., Prof., illus. (incl. colored geol. map 1:250,000), 1969. 1969;paper no.697 Serial Compilation of four

reports (cited separately under the respective authors). B;
Bibliography and Index of Geology (1969-present). Marine
geology/Pacific Ocean/Santa Barbara
channel/General/Oceanography/GEOREF.

2337. Eganhouse RP, Young DR. Total and organic mercury in
benthic organisms near a major submarine wastewater outfall system.
Bulletin of Environmental Contamination and Toxicology
1978;19(6):758-766 Address: Southern California Coastal Water
Research Project, 1500 E. Imperial Highway, El Segundo, CA 90245.
Benthic organisms from off Palos Verdes Peninsula and Santa
Catalina Island were analyzed for total and organic Hg by cold
vapor atomic absorption. Mean values for all tissues in no case
exceeded the FDA guideline of 0.5 ppm of Hg. While muscle tissue
for most of the species showed high percentages of organic Hg, the
mean levels were 10.05 mg/wet kg. The mean level of total Hg in
Dover sole muscle was statistically indistinguishable from that of
sole caught off the Oregon Coast and the Nova Scotia Banks.
Apparently, in spite of the marked contamination of sediments in
the area, tissue concentrations in these benthic outfall organisms
are low and similar to those found for related animals from other
parts of the world. This may be explained by recent findings that
Hg in Palos Verdes sediments is largely refractory, and that the
transfer of Hg from them is prevented by its fixation in the
nondegradable fraction of the sediments.
Mercury/Fish/Benthic organisms/Tissues/Contaminant
measurements/Water pollutants/Sediments/California Coast/Mercury
compounds/Organic compounds/Mollusca/Arthropoda/Osteichthyes/Palos
Verdes Peninsula/Santa Catalina Island/water
quality/pollution/marine biology/resource management.

2338. Weaver DW, Doerner DP, Nolf B. (and others). geology
of the northern channel islands, southern california borderland.
(los angeles, calif.) am. assoc. petroleum geologists and soc.
econ. paleontologists and mineralogists, pacific secs., 200 p.,
geol. maps, 1969. 1969
N; Bibliography of North American Geology (1785-1970).
areal geology/california/cretaceous
tertiary/cretaceous/foraminifera/maps/geologic/structure/northern
channel islands/paleontology/san miguel island/santa cruz
island/santa rosa island/southern/tertiary/GEOREF.

2339. Pilmanis AA, Given RR, Borgh BC. Unique design of the
new NOAA/USC saturation diving system. OCEANS '84 CONFERENCE
RECORD: INDUSTRY, GOVERNMENT, EDUCATION. DESIGNS FOR THE FUTURE.
1984;2:539-543.
Under a cooperative agreement, NOAA and the University of Southern
California (USC) have designed, and are currently constructing an
underwater habitat/saturation diving system as a national facility
to provide extended time and depth capability to marine scientists.
It is expected to be in operation in early 1986, and to be
initially located at the USC Catalina Marine Science Center on
Santa Catalina Island, 26 miles offshore from Los Angeles, CA. The
state-of-the-art design of this system will enable scientists to
perform in situ research in depths of 50 to 200 FSW in relative
comfort, with up-to-date equipment, and with on-campus academic
support.
diving bells/diving chambers/design/saturation diving/ASFA.

2340. Weaver DW. The pre tertiary rocks, in geology of the
northern channel islands, southern california borderland (by d. w.
weaver and others). (los angeles, calif.) am. assoc. petroleum
geologists and soc. econ. paleontologists and mineralogists,

pacific sec. 1969:p.11

N; Bibliography of North American Geology (1785-1970).
absolute age/dates/california/diorite/general description/igneous
rocks/k ar/metamorphic rocks/petrology/pre tertiary rocks/santa
cruz island/santa cruz island schist/schist/willows diorite/GEOREF.

2341. Eichenberg T. California oil case tests state-federal
coastal role. *Oceanus* 1986;29(3):81
Petroleum industry/Court decision/Government regulation/state
regulation/federal regulation/Offshore development/Santa Barbara
Channel/petroleum/policy.

2342. Eggers DE, Thompson DT. An evaluation of the marine
magnetic gradiometer. *GEOPHYSICS* 1984;49(6):771-779.
This study examines the ability of a marine gradiometer to produce
diurnal-free total magnetic intensity data. Using Gulf's research
vessel Hollis Hedberg, an experimental program was carried out in
the Santa Barbara channel offshore California. A shore-based
station was operated continuously during the survey period to
monitor the temporal magnetic activity. The gradiometer data are
adversely affected by the magnetic field of the towing vessel. An
analysis of gradiometer bias as a function of ship's heading and
deployment distance show remarkable agreement with a model of the
ship's magnetic field proposed by Bullard and Mason in 1961. Based
upon this model, analytic azimuth correction factors are developed
and applied to the gradiometer data. Comparisons are made among
single-sensor, shipminus-shore, and integrated total magnetic
intensities. Residual magnetic statistics, contour maps, and profile
plots form the basis of the comparison.
magnetic intensity/magnetic fields/INE/Santa Barbara
Channel/measuring devices/performance assessment/ASFA.

2343. Weaver DW. Paleogeographic implications and geologic
history, in geology of the northern channel islands, southern
california borderland (by d. w. weaver and others). (los angeles,
calif.) *am. assoc. petroleum geologists and soc. econ.
paleontologists and mineralogists*, pacific sec. 1969:p.115 N;
Bibliography of North American Geology (1785-1970).
california/cenozoic/cretaceous tertiary/cretaceous/geologic
history/history/northern channel
islands/paleogeography/stratigraphy/GEOREF.

2344. Emerson KC, Price RD. New records of chewing lice
Mallophaga trichodectidae found on North American wild foxes of
Mexico. *J. Kans. Entomol. Soc.* 1987;60(2):332-333
A summary of trichodectid records is given for the five species of
North American foxes, including finding *Neotrichodectes mephitidis*
(Packard), a common louse on the Striped Skunk, on the Island Gray
Fox from three of the off-shore Channel Islands and on the Gray Fox
in Santa Barbara County, California [USA]. mammalian parasites
chewing lice/*Mallophaga trichodectidae*/foxes/*Neotrichodectes
mephitidis*/Striped Skunk/Island Gray Fox/Gray Fox/*Suricatoecus
vulpis*/*vulpes vulpes*/*Suricatoecus quadraticeps*/*Vulpes velox*/*Urocyon
cinereoargenteus*/*Aloplex lagopus*/*Urocyon littoralis*/California
Channel Islands/terrestrial biology/parasitology/entomology.

2345. Hewitt RP. Distributional atlas of fish larvae in the
California current region: Northern anchovy, *Engraulis mordax*
Girard, 1966 through 1979. *Calif. Coop. Oceanic Fish. Atlas* No. 28
1980;:101.
Fish larvae/ichthyoplankton surveys/geographical
distribution/quantitative distribution/atlasses/*Engraulis
mordax*/zooplankton/Pieper/MINERALS MANAGEMENT SERVICE.

2346. Hewitt RP, Smith P. Seasonal distributions of epipelagic fish schools and fish biomass over portions of the California current region. Calif. Coop. Oceanic Fish. Invest. Rep. 1979;20:102-110.

seasonal variations/ichthyoplankton surveys/biomass/geographical distribution/distribution pattern/epipelagic zone/schooling behaviour/zooplankton/Pisces/Pieper/MINERALS MANAGEMENT SERVICE.

2347. Hiller-Adams P, Childress JJ. Effects of prolonged starvation on O sub(2) consumption, NH sub(4)@u+ excretion, and chemical composition of the bathypelagic mysid *Gnathophausia ingens*). MAR. BIOL 1983;77(2):119-127. The large bathypelagic mysid *G. ingens* was collected in January 1980 at 400 to 700 m depth from the San Clemente Basin off southern California. Instars 7-8 and Instars 10-12 were starved in the laboratory for up to 19 wk. Oxygen consumption and ammonia excretion rates, and water, protein, lipid, and ash contents were determined periodically during starvation. Protein and lipid were metabolized in approximately equal amounts by starved individuals after the initial weeks of food deprivation. Unidentified components (probably non-protein nitrogenous compounds) apparently were oxidized within the first 7 wk of starvation. Oxygen consumption and ammonia excretion by Instars 7-8 decreased steadily during 19 wk of starvation. In contrast, stable or increasing respiration and excretion rates were observed for fed mysids. The mean respiration rate of Instars 10-12 did not change significantly during 13 wk of starvation, although ammonia excretion rates decreased.
starvation/oxygen consumption/chemical composition/ammonia/excretion/*Gnathophausia ingens*/ASFA.

2348. Bereskin SR, Edwards LN. Mid Tertiary stratigraphy, southwestern Santa Cruz Island. Geology of the Northern Channel Islands, southern California borderland (by D. W. Weaver and others). [Los Angeles, Calif.] Am. Assoc. Petroleum Geologists and Soc. Econ. Paleontologists and Mineralogists, Pacific Sec. illus., table, 1969. 1969:p.68-79

N; Bibliography of North American Geology (1785-1970).

Mid-Tertiary formations on southwestern Santa Cruz Island are: (1) Vaqueros Formation -- paleoecologic and stratigraphic evidence indicate an inner shelf to nonmarine environment (Zemorrian to lower Saucesian); Rincon Formation -- a middle to outer shelf bathymetry, shoaling to the east or northwest (Saucesian); San Onofre Breccia -- inner to middle shelf with portions possibly nonmarine, thickens and coarsens to the northeast toward a high (Saucesian to Relizian); Monterey and Blanca Formations -- Beechers Bay Member of the Monterey was deposited at depths increasing with time from middle shelf to bathyal, paleoslope dipped southwest (Relizian to Luisian and possibly Mohnian). Faunal lists are included. GEOREF.

2349. Endlich RM. New archive of coastal meteorological and air pollutant measurements. Environ. Sci. Technol. 1988;22(3):255-256

A new data archive, recently made available to interested researchers, provides users with data suitable for evaluating air pollution models. Included in the archive are low-level wind, temperature, humidity, and air pollutant measurements from the South Central Coast Cooperative Aerometric Monitoring Program (SCCCAMP). SCCCAMP was a major study of coastal meteorology and air pollutants in an area of Southern California encompassing the Santa Barbara and Ventura regions and the Santa Barbara Channel. The objectives were to investigate the physical mechanisms that

occasionally create excessive concentrations of photochemical oxidant at ground level and to provide a comprehensive set of measurements for the development and evaluation of mesoscale photochemical simulation models. coastal zones/air pollutants/meteorology/monitoring measurements/photochemicals/simulation/SCCCAMP Santa Barbara and Ventura/Santa Barbara Channel/meteorology/pollution/air quality/atmospheric sciences.

2350. Hewitt RP, Smith PE, Brown JC. Development and use of sonar mapping for pelagic stock assessment in the California Current area. U.S. Natl. Mar. Fish. Serv. Fish. Bull. 1976;74:281-300.
fish/9/15/text/ecosystem interrelationships/MINERALS MANAGEMENT SERVICE.

2351. Chelton DB. CalCOFI - a 33-year oceanographic survey of the southern California Current System. TIME SERIES OF OCEAN MEASUREMENT. VOLUME 1. 1983.; SERIES TEMPORELLES DE MESURE S OCEANIQUES. VOLUME 1. 1983.; TECH. SER. IOC/SER. TECH. COI. 1983;(24):9-13.
A description is given of the California Cooperative Oceanic Fisheries Investigation (CalCOFI) sampling strategy and scientific results relevant to ocean climatic variability are summarized. The goal of CalCOFI is to study the underlying principles governing behaviour, availability and total abundance of the major pelagic fish stocks in the southern California Current System. Weaknesses of the sampling strategy are also discussed.
oceanographic surveys/time series/fishery oceanography/pelagic fishies/INE/California Current/ISE/California Current/ASF.

2352. Rietman JD, Aldrich JK. Gravity survey of the northern channel islands, in geology of the northern channel islands, southern california borderland (by d. w. weaver and others). (los angeles, calif.) am. assoc. petroleum geologists and soc. econ. paleontologists and mineralogists, pacific sec. 1969:p.109
N; Bibliography of North American Geology (1785-1970).
california/geophysical surveys/gravity/gravity surveys/northern channel islands/GEOREF.

2353. Hickey BM. The California Current system--hypotheses and facts. Prog. Oceanogr. 1979;8(4):191-279.
California Current/Geostrophic velocity/Seasonal variations/Countercurrents/Undercurrents/Washington Coast/US West Coast /Wind stress/Hydrodynamics/Oregon Coast/California Coast/Pacific Ocean Northeast/California Undercurrent/Davidson Current/Southern California Countercurrent/California Current System/Hickey/physical oceanography/Bonnell/Dailey/Bray/Murray/Gorsline/marine mammals/algae/marine/spermatophytes/introduction/geology/geologic features/MINERALS MANAGEMENT SERVICE.

2354. Engle JM. Growth of juvenile spiny lobster (*Panularis interruptus*) from a discrete surf grass habitat. B.F. Phillips, J.S. Cobb. CSIRO Div. Fish Oceanogr. Circ No.7. ; 1977. 34-35.
This is the abstract of a paper presented at the Workshop on Lobster and Rock Lobster Ecology and Physiology.
marine biology.

2355. Holbrook SJ, Schmitt RJ. Experimental analyses of patch selection by foraging black surfperch (*Embiotoca jacksoni* Agazzi). J. EXP. MAR. BIOL. ECOL 1984;79(1):39-64.
The dynamics of microhabitat use by foraging adult and juvenile

black surfperch (*E. jacksoni*) were explored. Detailed observations of black surfperch feeding at Santa Catalina Island, California, revealed that adults and young-of-year juveniles co-occurred in the same habitat but used different algal substrata as foraging sites. Juveniles selected invertebrate prey almost exclusively from the surface of foliose algae. The occurrence of young *E. jacksoni* was highly correlated with that of foliose algae. Adults tended to bite most frequently from turf, a low-growing matrix of plants, colonial animals, and debris covering the rocky substratum.

feeding behavior/food organisms/microhabitats/USA/California/Santa Catalina Island/habitat selection/Embryotoca
jacksoni/INE/USA/California/ Santa Catalina Island/ASFA.

2356. Johnson DL. Beachrock (water tablerock) on San Miguel Island. in *Geology of the Northern Channel Islands, southern California borderland* (by D. W. Weaver and others). [Los Angeles, Calif.] Am. Assoc. Petroleum Geologists and Soc. Econ. Paleontologists and Mineralogists, Pacific Sec., table, 1969. 1969:p.105-108 N; *Bibliography of North American Geology (1785-1970)*.

Quaternary carbonate deposits occur intermittently along the northwest coast of San Miguel Island. The calcareous-cemented sandstone formed on a marine-cut bench of Quaternary age, varies from a few cm to over 60 cm thick, formed as a marine beach which was veneered with pebbles, sand, and boulders, and was exposed to subaerial eolian sedimentation of calcareous shelf sand following a drop in sea level. The carbonate was leached and disseminated by rain and ground water which moved downward along the beach-eolianite interface, and issued as springs. Evaporation resulted in precipitation of the carbonate. There seems to be no connection with the tide range.

GEOREF.

2357. Engle JM. A provisional checklist of the marine species of Santa Catalina Island. : Unpublished report; 1978. 256. species list/Santa Catalina Island/marine biology.

2358. Hill M. Results of BLM-funded studies (1975-78): Marine mammals of the Southern California Bight. POCS Tech. Pap. 81-6. Prep. for U.S. Dep. Interior, Minerals Management Service, Pacific OCS Region, Los Angeles, CA. 1981;:96. MINERALS MANAGEMENT SERVICE.

2359. Chelton DB. Large-scale climatic variability of the physical and biological oceanography of the California Current. WORLD CLIMATE RESEARCH PROGRAMME, PAPERS PRESENTED AT THE MEETING ON TIME SERIES OF OCEAN MEASUREMENTS (TOKYO, 11-15 MAY 1981). 1982;:155-169.

A study was undertaken to determine the extent to which long-term surveys, for example that of the California Cooperative Oceanic Fisheries Investigation, can provide information about both biological and physical aspects of ocean climate. Variability in the California Current is dominated by the very large-scale changes in the transport with interannual time scales. These variations strongly influence the biology of the California Current ecosystem; increased southward transport leads to an increase in zooplankton biomass and correspondingly decreased southward transport leads to a decrease in the biomass. These variations affect pelagic fish abundance because of their important position in the food chain. physical oceanography/marine ecology/fishery oceanography/climatic changes/INE/California Current/ISE/California Current/ASFA.

2360. Weaver DW, Meyer GL. Stratigraphy of northeastern

santa cruz island, in geology of the northern channel islands, southern california borderland (by d. w. weaver and others). (los angeles, calif.) am. assoc. petroleum geologists and soc. econ. paleontologists and mineralogists, pacific sec. 1969:p.95 N; Bibliography of North American Geology (1785-1970). california/foraminifera/miocene fauna/northeastern/quaternary/santa cruz island/stratigraphy/tertiary/GEOREF.

2361. Hillard B. A bi-seasonal analysis of surface temperature patterns along the California Bight. Bachelor's Thesis, San Diego State Univ., San Diego 1976; PacificOcean/Hickey/physical oceanography/North Pacific/CaliforniaBight/California Current/Davidson Current/mixing/California/United States/ocean circulation/MINERALS MANAGEMENT SERVICE.

2362. Engle JM. Ecology and growth of juvenile California spiny lobster, *Panulirus interruptus* (Randall) [dissertation]. Los Angeles, CA: University of Southern California; 1979. 298. The natural history of juvenile California spiny lobster (*Panulirus interruptus*) was investigated, with primary emphasis on ascertaining juvenile habitats, growth rates, and evaluating ecological and behavioral phenomena associated with juvenile growth and survival. Small, greenish juveniles typically inhabit crevices or temporary burrows in 0-4 m deep, wave-swept rocky habitats covered by dense beds of surf grass, *Phyllospadix* spp. growth/ecology/natural history/behavior/life history/*Panularis interruptus*/California spiny lobster/*Phyllospadix*/surf grass/Santa Catalina Island/California Channel Islands/marine biology.

2363. Hirota J. Quantitative natural history of *Pleurobrachia bachei* in La Jolla Bight. 1974;:42. food chains/primary biological productivity/ecology/zooplankton/metabolism/abundance/crustacea/parasites/demography/populations/La Jolla Bight/California/Eganhouse/chemical oceanography/Pieper/Dawson/MINERALS MANAGEMENT SERVICE.

2364. Smith KL, Brown NO. Oxygen consumption of pelagic juveniles and demersal adults of the deep-sea fish *Sebastes altivelis*, measured at depth. MAR. BIOL 1983;76(3):325-332. Oxygen consumption rates of the deep-sea fish *S. altivelis* were measured in situ on pelagic juveniles at mesopelagic depths (608 m) and on demersal adults at bathyal depths (1,300 m) in the Santa Catalina Basin in March 1982. Two pelagic juveniles were individually collected, and respiration was measured continuously for approximately 2 d with a slurrp gun respirometer manipulated from the submersible "Alvin". Oxygen consumption rates of these juveniles were highly variable and were 1.5 to 1.8 times higher during the night than during the day. Weight-specific O_2 consumption rates for adults decreased with increasing body weight and were consistent in magnitude throughout the incubation period. Given the population O_2 consumption rate as an estimate of food energy demand, the demersal population of *S. altivelis* would assimilate only 0.007% of the standing crop of *Ophiophthalmus normani* per day. oxygen consumption/mesopelagic zone/juveniles/diurnal variations/stomach content/bathyal-benthic zone/energy budget/*Sebastes altivelis*/*Euphausia pacifica*/*Nematoscelis difficilis*/*Ophiophthalmus normani*/INE/ USA/Santa Catalina Basin/ASFA.

2365. Nolf B, Nolf P. Santa cruz island volcanics, in

geology of the northern channel islands, southern california borderland (by d. w. weaver and others). (los angeles, calif.) am. assoc. petroleum geologists and soc. econ. paleontologists and mineralogists, pacific sec. 1969:p.91-94 N; Bibliography of North American Geology (1785-1970).
california/igneous rocks/nomenclature/northern/petrology/santa cruz island/stratigraphy/tertiary/volcanic rocks/volcanics/GEOREF.

2366. Engle JM. Distributional patterns of nearshore fishes around the California Channel Islands. F. Hochberg. Rec. Adv. Calif. Is. Res.: Proceed. Third Calif. Is. Symp. Santa Barbara, CA: Santa Barbara Museum of Natural History; In press.
distribution/fishes/California Channel Islands/marine biology/ichthyology.

2367. Pickwell GV, Bezy RL, Fitch JE. Northern occurrences of the sea snake, *Pelamis platurus*, in the eastern Pacific, with a record of predation on the species. CALIF. FISH GAME 1983;69(3):172-177.
Four specimens of the yellow-bellied sea snake, *P. platurus*, from southern California and the outer coast of Baja California represent the northernmost records of this species in the eastern Pacific. Three of the snakes were probably carried northward by a warm countercurrent (Davidson Current) along the coast of Baja California and southern California during the warm periods of 1972-73 and 1976-77. One of the individuals had been ingested by a puffer *Sphoeroides* cf. *Annulatus*; this represents the second reported instance of predation on the species in nature.
new records/geographical distribution/*Pelamis platurus*/ISE/ASFA.

2368. Weaver DW, Griggs G, McClure DV, Mckey JR. Volcaniclastic sequence, south central santa cruz island, in geology of the northern channel islands, southern california borderland (by d. w. weaver and others). (los angeles, calif.) am. assoc. petroleum geologists and soc. econ. paleontologists and mineralogists, pacific sec. 1969:p.85
N; Bibliography of North American Geology (1785-1970).
california/general description/igneous rocks/santa cruz island/sedimentary petrology/stratigraphy/tertiary/tertiary volcaniclastic rocks/volcaniclastic rocks/volcaniclastic sequence/volcanics/GEOREF.

2369. Engle JM, Coyer JA. California marine waters, areas of special biological significance, reconnaissance survey report. Santa Catalina Island subarea III, Los Angeles County. : State Water Resources Control Board, Water Qual. Mon. Rpt.; 1981. 81.
Report summarizes existing data describing the physical, chemical, and biological aspects of the intertidal, subtidal, and adjacent land areas. Current patterns of land/water use, actual or potential pollution threats, and special water quality requirements also are addressed.
surveys/pollution/Santa Catalina Island/Farnsworth Bank/marine biology/pollution.

2370. Hodder D, Mel M. Kelp survey of the Southern California Bight. Science Applications, Inc. Tech. Rep. Vol. III. Rep. 1.4 to Bureau of Land Management (Year II SCOSC Program), Contract No. AA550-CT6-40 1978;:105. text/algae/MINERALS MANAGEMENT SERVICE.

2371. Hodder D, Mel M. Southern California baseline study and analysis (1975/1976). Volume III. Principal investigator work element reports. Report section 2.6; book 7 of 10. 1978;:516.

crude oil/ecology/marine biology/water pollution/Southern
California Bight/Eganhouse/chemical
oceanography/surveys/continental shelves/aquatic plants/infrared
mapping/sites/area/abundance/distribution
property/hydrocarbons/metals/environmental
impacts/invertebrates/tables data/algae
spermatophytes/Bray/MINERALS MANAGEMENT SERVICE.

2372. Hodder D, Kanter R, Mel M, Straughan D. Year II.
Intertidal study of the Southern California Bight (1976/77).
Mussel community, sandy beaches and kelp survey. Vol. III.
Sections 1.2-1.4. Prep. for U.S. Dep. Interior, Minerals Management
Service, Pacific OCS Region, Los Angeles, CA. Prep. by Science
Applications, Inc., La Jolla, CA. 1978;:458.
MINERALS MANAGEMENT SERVICE.

2373. Fisher JP, Pearch WG. Reproduction, growth and feeding
of the mesopelagic fish *Tactostoma macropus* (Melanostomiatidae).
MAR. BIOL 1983;74(3):257-267.
Over 5,000 specimens of the common mesopelagic fish *T. macropus*
Bolin, 1939, collected in the upper 1,000 m over the outer
continental slope off Oregon, USA from 1961 through 1978 with 2.4,
5.4 or or 50 m super(2) (mouth area) pelagic trawls, formed the
basis for this study of its biology. *T. macropus* spawns off Oregon
mainly during the summer months. Females are mature at around 300
mm SL (standard length). The number of ripening oocytes ranged from
approximately 24,000 to over 66,000 per female. One batch of
oocytes apparently matures each year. Larvae were most abundant
greater than 150 km offshore in the California Current. Larvae
undergo metamorphosis during the fall and winter, and small
juveniles (50 to 70 mm SL) were consistently found in midwater
trawl catches in the winter. Growth curves derived from length-
frequency analysis, otolith aging and back-calculation from
otoliths were similar. Average length at 1, 2 and 3 yr of age was
about 110, 165 and 200 mm, respectively.
diets/sexual reproduction/growth curves/*Tactostoma*
macropus/*Euphausia pacifica*/*Sergestes similis*/size
distribution/vertical distribution/spawning
grounds/abundance/horizontal distribution/INE/USA/Oregon/ASFA.

2374. Weaver DW, Doerner DP. Mid tertiary stratigraphy, san
miguel island, in geology of the northern channel islands, southern
california borderland (by d. w. weaver and others). (los angeles,
calif.) am. assoc. petroleum geologists and soc. econ.
paleontologists and mineralogists, pacific sec. 1969:p.80 N;
Bibliography of North American Geology (1785-1970).
california/foraminifera/middle/oligocene miocene/san miguel
island/stratigraphy/tertiary/GEOREF.

2375. Eppley RW, e. Plankton dynamics of the Southern
California Bight. : Springer-Verlag; Lecture Notes on Coastal &
Estuarine Studies, 15; 1986. 373. Address: Food Chain Res Group,
Scripps Inst of Oceanog, Univ of California, La Jolla, CA 92093.
Chapter 1 (A.F.Carlucci, R. W.Eppley & J.R.Beers) provides an
introductory synopsis of the bottom topography, climate and
significance as a habitat for plankton of the Southern California
Bight, which extends from N of Los Angeles to S of San Diego and
includes Santa Barbara, Santa Catalina and San Clemente islands in
its coastal waters. Chapter 2 (G.A.Jackson) reviews the physical
oceanography (coastal currents, deeper water movement, upwelling
water sources) and Chapter 3 (P.M.Williams) the chemistry
(dissolved plus colloidal phases, suspended and sinking
particulates). Chapter 4 (J.R.Beers) discusses organisms and the

food web, focusing on plankton and nekton, but including birds, mammals and man. Primary production is examined in Chapter 5 (R.W.Eppley & O.Holm-Hansen), with consideration of environmental factors and the regulation of phytoplankton growth, and of physical processes and phytoplankton biomass. Chapter 5 (M.M.Mullin) describes spatial and temporal scales and patterns in the Bight. Chapter 7 (F.Azam) comments on nutrient cycling and microbial food web dynamics. The final chapter (R.W.Eppley) notes the impact of man via chronic and acute pollution inputs.-P.J.Jarvis.
estuaries/coastal areas/climate/bottom
topography/currents/upwelling/water chemistry/food webs/primary production/phytoplankton growth/biomass/food webs/pollution/Southern California Bight/physical oceanography/marine biology/biological oceanography.

2376. Mooers CNK, Robinson AR. Turbulent jets and eddies in the California Current and inferred cross-shore transports. SCIENCE (WASH.) 1984;223(4631):51-53. The instantaneous California Current is seen to consist of intense meandering current filaments (jets) intermingled with synoptic-mesoscale eddies. These quasi-geostrophic jets entrain cold, upwelled coastal waters and rapidly advect them far offshore; this behavior accounts for the elongated, cool surface features that are seen extending across the California Current region in satellite infrared imagery. The associated advective mechanism should provide significant cross-shore transports of heat, nutrients, biota, and pollutants. The dynamics of the current system should be crucially influenced by its highly variable structure. jets/mesoscale eddies/eastern boundary currents/nearshore dynamics/INE/ California Current/ASFA.

2377. Avila FA, Weaver DW. Mid Tertiary stratigraphy, Santa Rosa Island. Geology of the Northern Channel Islands, southern California borderland (by D. W. Weaver and others). [Los Angeles, Calif.] Am. Assoc. Petroleum Geologists and Soc. Econ. Paleontologists and Mineralogists, Pacific Sec. 1969:p.48-67 N; Bibliography of North American Geology (1785-1970). The formations are, from bottom to top: Vaqueros (Oligocene marine sands, 435 feet); Rincon (Oligocene and/or Miocene, marine mudstone, 1860 feet); San Miguel Volcanics and the San Onofre Breccia (basalt and dacite with marine lenses, Oligocene-Miocene, 2100 feet); and Monterey Formation (Miocene clastic rocks and tuffs, 1700 feet). Directional soft sediment structures in the clastic member of the San Miguel Volcanics indicate a dominant southwest paleoslope direction. Numerous faunal zones, based on Foraminifera, are also present and described. GEOREF.

2378. Erickson RC. Subsurface geotechnical hazards in petroleum and geothermal development. M.T. Halbouty. Energy resources of the Pacific region. AAPG Studies in Geology 12. ; 1981. 517-535.
Address: Chevron USA, San Francisco, CA, USA Conference: Symposium on energy resources of the Pacific region Honolulu, HI, July 30-Aug. 4, 1978. rock mechanics/case studies/energy sources/geologic hazards/reservoir rocks/petroleum/geothermal energy/development/stress/land subsidence/oil and gas fields/faults/pore pressure/earthquakes/continental margin/fluid injection/induced earthquakes San Joaquin Valley/Santa Barbara Channel/engineering geology/environmental geology/economic geology/petroleum.

2379. Weaver DW, Doerner DP. Lower tertiary stratigraphy, san miguel and santa rosa islands, in geology of the northern channel islands, southern california borderland (by d. w. weaver

and others). (los angeles, calif.) am. assoc. petroleum geologists and soc. econ. paleontologists and mineralogists, pacific sec. 1969:p.30

N; Bibliography of North American Geology (1785-1970). california/foraminifera/lower/san miguel islands/san miguel/santa rosa islands/santa rosa/stratigraphy/tertiary/GEOREF.

2380. ERT. Overwater plume dispersion study. Final report. : ERT, Newbury Park, CA. ERT-P-D569-140; ARB-R-87/306; 1987. 73. ((Prepared in cooperation with Sigma Research Corp., Lexington, MA. Sponsored by California State Air Resources Board, Sacramento.)).

The purpose of the study was to develop an air quality modeling methodology to simulate the impact of emissions from oil exploration and production activities in California coastal waters. The study included the collection of data in a field program, and the analysis of the data to determine a relationship between Gaussian dispersion coefficients and overwater transport distance and meteorological variable observed near the source and the shoreline. A plume of sulfur hexafluoride (SF6) and visible 'smoke' was released from an offshore location in the Santa Barbara Channel during onshore flow conditions, and the dispersion of the plume was documented by measuring SF6 concentrations at various distances downwind and by taking a variety of photographs. Experiments were conducted in the Santa Barbara Channel during two one-week period in 1986R.

Offshore drilling/Plumes/Flow visualization/Emission/Air pollution/Continental shelf/Mathematical models/Sulfur fluorides/Air quality/Atmospheric dispersion/Santa Barbara Channel/air quality/air pollution/petroleum/environmental studies/resource management.

2381. Hollibaugh JT, Azam F. Relationship between protein degradation rates and other biological parameters in Southern California Bight USA plankton communities. Am. Zool. 1980;20(4):951.

abstract/bacteria/biomass/leucine/turnover/met/hemo globin/chlorophyll/Algae/Spermatophytes/Bray/Geesey/Hickey/physical oceanography/MINERALS MANAGEMENT SERVICE.

2382. Holliday DV. Resonance structure in echoes from schooled pelagic fish. Acoust. Soc. Amer. J. 1972;51(4):1322-1332. fish schools/echoes/acoustic structure/california current/resonantscattering/swimbladders/zooplankton/Pieper/MINERALS MANAGEMENT SERVICE.

2383. Mooers CNK, Rienecker MM, Robinson AR, Smith JA, Carter EF, Hagan DA. Synoptic/mesoscale variability off northern California in early summer 1983. EOS TRANS. AM. GEOPHYS. UNION 1983;64(45):p. 727.

Based on four quasi-synoptic shipboard hydrographic surveys conducted between mid-June and mid-July 1983, the eddy and jet fields off northern California, and their evolution, are described. The predominant features described are the meandering and split California Current jet plus intense and rapidly (ca. 10 days) changing cyclonic and anticyclonic synoptic/mesoscale eddies within a few hundred kilometers off Point Arena. Satellite IR images corroborate the results of the in situ studies and delineate associated frontal features. It is concluded that the 1983 studies are consistent with the 1982 studies which suggested that the instantaneous California Current System is dominated by meandering jets and synoptic/mesoscale eddies, which provide a major mechanism for cross-shore as well as alongshore transports.

hydrographic surveying/jets/oceanic eddies/current rings/ocean circulation/satellite observations/mesoscale phenomena/INE/California Current/summer/ASFA.

2384. Doerner DP. Lower Tertiary biostratigraphy of southwestern Santa Cruz Island. Geology of the Northern Channel Islands, southern California borderland (by D. W. Weaver and others). [Los Angeles, Calif.] Am. Assoc. Petroleum Geologists and Soc. Econ. Paleontologists and Mineralogists, Pacific Sec. 1969:p.17-29

N; Bibliography of North American Geology (1785-1970).

The Pozo Formation is at the base of the Tertiary section, and is overlain successively by the Canada, Jolla Vieja, and Cozy Dell formations. Numerous faunules and zonules are recognized; they are, from bottom to top: Turritella-Ostrea faunule, Cibicides-Trochammina zonule (the Pozo Formation), Eponides zonule, Bulimina-Plectofrondicularia zonule (the middle Canada Formation), and the Cibicides-Cassidulina zonule (the upper part of the Canada Formation). Environmental conditions are discussed and faunal lists are included. GEOREF.

2385. Estes JE, Crippen RE, Star JL. Natural oil seep detection in the Santa Barbara Channel, California, with shuttle imaging radar. Geology 1985;13(4):282-284
Address: Remote Sens. Res. Unit, Univ. California, Santa Barbara, CA 93106, USA. Natural submarine oil seeps in the Santa Barbara Channel, California, were detected by the first shuttle imaging radar (SIR-A). Oil slicks on the ocean are seen in radar imagery as areas of decreased radar signal return from a damping of surface roughness. Orbital radar imagery shows promise as an effective and efficient means of mapping submarine oil seeps as sources of naturally occurring oil slicks.

oil seepages/remote sensing/radar/Shuttle Imaging Radar/submarine oil seeps/oil slicks/geophysical surveys/economic geology/remote sensing/petroleum/satellite methods/geophysical methods/detection/pollution/imagery/oil seeps/geosensing/Santa Barbara Channel/geology/petroleum/energy sources.

2386. Smith JA. Empirical and dynamic modes in the CCS (California Current System). EOS TRANS. AM. GEOPHYS. UNION 1983;64(45):727.

CTD data from the California Current System is analyzed in terms of both empirical orthogonal functions (EOFs) and quasi-geostrophic vertical modes (QGMs). A single EOF accounts for 99% of the variance in hydrostatic pressure perturbations. Below 100 meters the EOF is sensibly fit by a decreasing series of QGMs; the EOF shows stronger surface-trapping than, e.g., the first baroclinic QGM. Apparently, there is either non-linear coupling between the QGMs, or the data is sufficiently close to the source of activity (presumably also near the surface) that the various QGMs have not dispersed. In the upper 100 meters, surface mixing induces density correlations which cannot be fit by the QGMs alone. A simple model of "mixing events" to various depths and at random times can reproduce qualitatively this near-surface feature of the EOF.
ocean circulation/current data/CTD observations/mixing/INE/California Current/ASFA.

2387. Weaver DW. The cretaceous rocks, in geology of the northern channel islands, southern california borderland (by d. w. weaver and others). (los angeles, calif.) am. assoc. petroleum geologists and soc. econ. paleontologists and mineralogists, pacific sec. 1969:p.14

N; Bibliography of North American Geology (1785-1970).

california/cretaceous/foraminifera/jalama fm./list/san miguel island/stratigraphy/GEOREF.

2388. Estes JE, Wilson M, Hajic E. Analysis of Seasat-A SAR (Synthetic Aperture Radar) Data for the Detection of Oil on the Ocean Surface. : California Univ., Santa Barbara. Geography Remote Sensing Unit. NOAA-80123102; 1980. 106. ((Sponsored by National Oceanic and Atmospheric Administration, Rockville, MD.)). In evaluating the capability of the Seasat-A Synthetic Aperture Radar (SAR) to detect the smoothing effects of oil slicks on ocean surfaces, two problems were encountered. These were: lack of concurrent surface verification data, and the appearance of so called confusion targets in the imagery. To 'synthesize' necessary surface truth information, a linear deterministic oil trajectory model has been developed which sums the effects of winds, currents, and tides to predict hourly oil slick configurations within the Santa Barbara Channel study area. Using output oil slick trajectory predictions as a guide, a collection of 128 x 128 byte subimages was gathered from oil affected areas. Zones of reduced backscatter which could not be attributed to oil/surface tension effects (confusion targets) provided a similar set of subimages. Taking the two-dimensional Fourier transforms of these subimages and filtering via eight concentric ring masks allowed comparison of normalized mean power distribution as a function of spatial frequency. These comparisons show a more rapid drop off in normalized power at higher frequency for oil slick images than for non-oil slick images. The optimum discriminant, of those tested, utilized the sum of normalized power from the sixring filters representing highest. spatial frequency. Separation in this case was achieved at a 99% confidence level.

Oil pollution/Remote sensing/Radar/Water pollution/Oceans/Oil pollution detection/Seasat-A Synthetic Aperture Radar/oil slicks/ocean surfaces Santa Barbara Channel/Mechanical engineering/Industrial engineering/Civil engineering/Marine Engineering/petroleum/pollution/geology/geography.

2389. Jahnke RA, Weiss RF, Santschi P, Buchholtz M, Broecker WS, Heggie D, Hudson A, Bender ML. The Bottom Lander. EOS TRANS. AM. GEOPHYS. UNION 1983;64(45):p. 721.

The direct measurement of the rates of reactions at the sediment surfaces in the deep ocean is fundamental to our understanding of ocean chemistry. Using the Bottom Lander free vehicle, which was constructed under the auspices of the MANOP Program, automated chamber experiments were performed in situ in San Clemente Basin. Successful benthic chamber experiments require implantation of chambers with minimal sediment disturbance, maintenance of a known rate of mixing of the water trapped in the chambers, elimination of leakage between chamber water and bottom water, injections of tracers and recovery of samples without the build-up of pressure gradients to the sediment-water interface, and retrieval of the box cores without sediment disturbance. The results of tracer experiments, pore water analyses, and benthic flux measurements indicate that these criteria are met with the present instrument. in situ measurements/sediment-water interface/water analysis/pore water/geochemistry/underwater vehicles/Bottom Lander/ASFA.

2390. Weaver DW. General geology of the region, in geology of the northern channel islands, southern california borderland (by d. w. weaver and others). (los angeles, calif.) am. assoc. petroleum geologists and soc. econ. paleontologists and mineralogists, pacific sec. 1969:p.9
N; Bibliography of North American Geology (1785-1970). areal geology/california/northern channel islands/southern/GEOREF.

2391. Evenhuis NL. First record of Bombyllidae from Santa Barbara Island, California, USA (Diptera). Pan Pac. Entomol. 1979;55(4):250 Address: DEP. ENTOMOL., BERNICE P. BISHOP MUS., P.O. BOX 19000-A, HONOLULU, HAWAII 96819. The bombyliid fly, *Lepidanthrax borius*, is recorded from Santa Barbara Island, California as the 1st Bombyliidae from that island. Behavioral observations and association with the ice plant, *Mesembryanthemum nodiflorum*, are noted. new record/distribution/biogeography/zoogeography/first record/Diptera/Bombyllidae/Diptera/Lepidanthrax borius/ice plant/Mesembryanthemum nodiflorum/Santa Barbara Island/terrestrial biology/botany/entomology.

2392. Hammond DE, Jalajas EW, Berelson W, Buchholtz M. Radon-222 fluxes at a site in San Clemente Basin, measured with the MANOP Lander. EOS TRANS. AM. GEOPHYS. UNION 1983;64(45):p. 721. Fluxes of radon-222 were measured in July, 1983 at a site (32 degree 35'N, 118 degree 10'W) in San Clemente Basin in the southern California borderland. Samples drawn from sample tubes in the active chamber (Experiment 1) at approximately equals 7 hour intervals indicated the flux did not vary with time. Water in this chamber was stirred. Water samples drawn from each chamber after the deployment were also used to calculate fluxes, and those from chambers 1 and 2 yielded results consistent with data mentioned above. Calculated fluxes in chamber 3 were significantly greater. Chambers 2 and 3 were not stirred and thus it is concluded that radon fluxes are not significantly decreased by a lack of stirring. Radon emanation rates from sediment underlying chamber 1 were measured. The profile is unusual because rates in the upper 10 cm of the core were 2-3 times those between 10 and 20 cm. radon/transport processes/sediment-water interface/measurement/ISE/San Clemente Basin/ASFA.

2393. Dudley PP. Electron microprobe analyses of garnet in glaucophane schists and associated eclogites. Am. Mineralogist. 1969;54(7-8):p.1139-1150 N; Bibliography of North American Geology (1785-1970). Analyses of zoned garnet in 15 different rock types from the Franciscan assemblage of California are reported. Specimen localities include the Tiburon Peninsula, Occidental, Ward Creek near Cazadero, and Santa Catalina Island. Garnet in glaucophane schists from Shubin, U.S.S.R., and Loh oelo, Java is compositionally similar to Franciscan samples. Oscillatory zoning of garnet porphyroblasts is observed in rocks containing fine-grained monomineralic garnet bands. Comparison of microprobe analyses of the present study with conventional analyses of garnets from the same outcrops indicates that the latter are most representative of inclusion-free outer zones of individual crystals. Preliminary data for coexisting garnet, pyroxene and amphiboles shows similar fractionation of Mg and Fe in Franciscan eclogites and regionally metamorphosed glaucophane eclogites in the southern Urals. GEOREF.

2394. Ewald PE, Hunt GL,J, Warner M. Territory size in western gulls: importance of intrusion pressure, defense investments, and vegetation structure. Ecology 1980;61(1):80 Bird behavior/Colonization/Territory size/Gull/western gull/Food density/ *Larus occidentalis*/Western Gull/Santa Barbara Island/terrestrial biology/ornithology.

2395. McGowan JA. Biological effects of the 1983 Californian

El Nino. EOS TRANS. AM. GEOPHYS. UNION 1983;64(45):p. 725.
Analysis of the spatially extensive, 30 year time series of hydrographic and plankton measurements in the California Current has shown that large, low frequency variations in secondary production occur. Production is high when the transport of cool, low salinity water from the north is strong and low when it is weak. The periods of warming and low production tend to coincide with El Nino events in the eastern equatorial Pacific. Measurements made during the spring and summer of 1983 show that once again there is anomalously weak southerly transport and warm water. The abundance of zooplankton is significantly depressed. There was a failure of the early summer secondary production bloom. The weakened transport from the north depressed the thermocline thus resulting in a deeper, sub-surface stability maximum. This inhibited the input of plant nutrients to the euphotic zone and resulted in lower primary and secondary production. secondary production/hydrography/plankton/El Nino phenomena/INE/USA/California/biological data/environmental effects/ASFA.

2396. Hamilton RM, Yerkes RF, Brown RDJ, Burford RO, DeNoyer JM. Seismicity and associated effects, Santa Barbara region, Chap. D. Geology, petroleum development, and seismicity of the Santa Barbara Channel region, California. U.S. Geol. Survey Prof. 1969;Paper 679:p.47-68

N; Bibliography of North American Geology (1785-1970).
The seismically active Santa Barbara Channel region has experienced two earthquakes of magnitude 6 since 1900, and in 1812 was the site of a shock of probable magnitude 7. Earthquakes of magnitude 6 and larger can be expected to occur in the future, possibly several in the next century. It is not known which of the several channel faults are seismically active because of lack of network data. A large earthquake would cause intense shaking with associated ground deformation and failure, particularly in artificially-filled areas, alluviated valleys, and unstable hillside slopes. Resulting damage to manmade structures would be great, especially during the wet season. Oil installations would probably also suffer damage, but effects can be reduced by certain standard practice precautions; hazards are tabulated.

GEOREF.

2397. Fairall CW, Schacher GE, Davidson KL, Houlihan TM.
Atmospheric marine boundary layer measurements in the vicinity of San Nicolas Island during CEWCOM-78. Technical rept. Apr-Sep 78. : Naval Postgraduate School Monterey CA. NPS61-78-007; 1978. 76.
This is a report on the boundary layer aspects of the NPS participation in CEWCOM-78. The primary purpose of the experiment was to determine how representative San Nicolas Island is of an open ocean marine boundary layer and to examine the validity of boundary layer measurements at the NRL tower on the NW tip of the island. Under favorable wind conditions (NW) the turbulence and profile structure of the boundary layer near SNI was characteristic of typical marine conditions. A comparison of simultaneous measurements at the NRL tower and the R/V ACANIA indicated considerable shoreline influence on the velocity fluctuations (U^* or epsilon) and the mean wind speed (U) but essentially no influence on temperature fluctuations (CT_2). Using the bulk method to calculate T^* and ξ from the ACANIA data, the actual measurements of CT_2 could be predicted to within about a factor of two.

Marine meteorology/Air water interactions/Oceanographic ships/Humidity/Oceanographic data/Measurement/Optical detection/Micrometeorology/Data acquisition/Atmospheric boundary layer/Turbulent boundary layer/Wind velocity/Acania

vessel/California/Pacific Ocean/San Nicolas Island/Atmospheric Sciences/Meteorology.

2398. Simpson JS. Large-scale thermal anomalies in the California Current during the 1982-1983 El Nino. EOS TRANS. AM. GEOPHYS. UNION 1983;64(45):725. The large-scale thermal structure of the California Current during 1982-83 shows several anomalous conditions: warm sea surface temperature anomalies (similar to 1-2 degree C), depression of the thermocline by 50 m or more, and pronounced subsurface warming (similar to 3-4 degree C) relative to the 30-year mean. The subsurface anomaly is much greater than the surface anomaly. These persistent (> 6 months) structures, coupled with unusually high sea levels along the North American coast, show that a major Californian "El Nino" occurred during 1982-83. The data support the conclusion that the expansion and intensification of the Aleutian low and the decrease in strength of the Pacific high produced an anomalous basin-wide atmospheric circulation which coupled directly to the large-scale oceanic wind-driven circulation to produce the Californian "El Nino." The enhanced transport from the west (offshore California) and south (Baja California), which such a circulation would produce, is consistent with the observed water properties. El Nino phenomena/temperature anomalies/surface temperature/ocean circulation/INE/California Current/ASFA.

2399. Hironaka MC, Smith RJ. Foundation study for materials test structure. Am. Soc. Civil Engineers Proc., Jour. Soil Mechanics and Found. Div., no. SM6, illus., tables, 1969. 1969(95):paper 6921

N; Bibliography of North American Geology (1785-1970).

A foundation study was conducted to determine suitability of the proposed site for placement of the Submersible Test Unit II, an area approximately two miles square in vicinity of 34 degrees 05.5' N., 120 degrees 43' W., some 14 miles west of San Miguel Island, Calif. Eight cores were taken to determine engineering properties of sediments. A bathymetric chart was constructed using data obtained from the Precision Depth Recorder and positioning instruments aboard the USS MOLALA. With resulting data from laboratory tests on samples, computations indicate: calculated average bearing capacity was 300 psf; based on applied structural loading pressure of 110 psf, total settlement was calculated to be 1.7 in. Statistical evaluation of test results formulated relationships for vane shear strength and bulk wet density that could be used in site reconnaissance studies. GEOREF.

2400. Farrell J. Hondo---suburb of steel. EXXON USA 1982;XXI(2):22 Platform Hondo/Petroleum industry/Offshore drilling/Santa Barbara Channel/petroleum.

2401. Howard GV. Views concerning use of the living resources of the California current. California Current System-Their Fluctuating Magnitude, Distribution and Susceptibility to Use for the Benefit of the State of California. Symposium held at Lake Arrowhead, Calif., Dec. 11-12, 1967. Calif. Coop. Oceanic Fish. Invest. Rep. 1969;13:91-94. California current/resource development/fisheries/solutions/legal/economic/technological/and sociological problems/zooplankton/Pieper/MINERALS MANAGEMENT SERVICE.

2402. Lynn RJ. Anomalies in the California Current during the 1982-1983 El Nino. EOS TRANS. AM. GEOPHYS. UNION 1983;64(45):p.

725.

The development of extensive sea surface temperature (SST) anomalies off the North American coast during the winter of 1982-83 followed the development of anomalous warming in the tropics by several months. Conductivity/Temperature/Depth surveys in early 1983 off California show that the positive SST anomalies and depression of the thermocline have produced record values of geopotential anomaly; in excess of seasonal norms by a sizeable 14 dynamic cm (10 super(3) cm super(2) sec super(-2)). This excess is greater than that observed during the 1957-58 El Nino by 4 to 8 dynamic cm. These high values are balanced by stronger than normal geostrophic current. An anomalous component of onshore transport would be the simplest explanation for the buildup of warm surface water and increase in geopotential anomaly. Coastal upwelling indices show that there was highly energetic onshore transport for the first three months of 1983. Changes in the salinity distribution imply an onshore displacement of isohalines on the order of 300 to 400 km. ocean circulation/temperature anomalies/El Nino phenomena/surface temperature/INE/California Current/CTD observations/ASFA.

2403. Barnes PW. Bathymetry and sedimentary structures of Santa Cruz basin, California. Am. Assoc. Petroleum Geologists Bull. 1969;53(2):p.461-462 Abstract N; Bibliography of North American Geology (1785-1970). GEOREF.

2404. Fay RC, Vallee JA. A survey of the littoral and sublittoral ascidians of Southern California, USA, including the Channel Islands. Bull. South. Calif. Acad. Sci. 1979;78(2):122-135 Address: Pacific Bio-Marine Labs Inc.

The ascidian populations of the 8 Channel Islands, 3 islets, the Cortez Bank and the Coronado Islands were surveyed. Species (38) were found offshore compared to the 48 identified species which have been found above a depth of 60 m in southern California. Viviparous ascidians are specifically more abundant than oviparous ascidians on the Channel Islands and the possible significance of this mode of reproduction is discussed as an explanation for their local distribution. The habitat preference of southern California ascidians is presented. Ascidians of unresolved identification 9 spp. are compared to the most closely related, described North American species.

reproduction/geographical distribution/oviparous ascidians/viviparous ascidians/check lists/abundance/distribution/habitats/tunicates/Urochordata/ascidians/Ascidiaceae/Tunicata/sea squirts/California Channel Islands/Cortez Bank/Coronado Islands/marine biology.

2405. Howell DG,e. Aspects of the geologic history of the California continental borderland. Am. Assoc. Pet. Geol., Pacific Section, Misc. Publ. 24 1976;:561. geology/MINERALS MANAGEMENT SERVICE.

2406. Howell DG, Vedder J. Structural implications of stratigraphic discontinuities across the southern California borderland. The Geotectonic Development of California. Vol. 5 1981;:535-558. Dailey/Gorsline/Introduction/Geology/Geologic Features/Text/MINERALS MANAGEMENT SERVICE.

2407. Ikeda M, Emery WJ, Mysak LA. Seasonal variability in meanders of the California Current System off Vancouver Island. EOS TRANS. AM. GEOPHYS. UNION 1988;64(45):p. 726. Satellite infrared images taken over the last few years reveal

seasonal variations in the meanders of the California Current System (CCS) off Vancouver Island. The CCS exhibits meanders with wavelengths between 120 and 150 km in both winter and spring, when the upper ocean current all flows northwestward or southeastward, respectively. In summer, the CCS includes the California Undercurrent which flows northwestward beneath the southeastward surface current, and has shorter wavelength(75-80 km) meanders. Around the end of August, these shorter scale meanders are engulfed by the longer (150 km) meanders. In the fall eddies are detached from the offshore extensions of the longer meanders. A linear stability theory using a four-layer model of the CCS successfully predicts the wavelengths in the winter and spring, but not in the summer and fall. The meander evolution observed in summer and fall is instead simulated using a nonlinear numerical model in a domain with topographic obstacles selected to match the alongshore variations in the continental slope.

current rings/ocean circulation/satellite observations/seasonal variations/INE/California Current/INE/Canada/British Columbia/Vancouver Island/ASFA.

2408. Merschat WR. Lower tertiary paleocurrent trends, Santa Cruz Island, California. Am. Assoc. Petroleum Geologists Bull. 1969;53(2):p.461 Abstract N; Bibliography of North American Geology (1785-1970). California/general/lower/lower tertiary/paleocurrents/provenance/santa cruz is./santa cruz island/sedimentary petrology/sedimentary rocks/sedimentary structures/tertiary/tertiary sediments/GEOREF.

2409. Huang JCK. Recent decadal variation in the California Current system. J. Phys. Oceanogr. 1972;2(4):382-390. California current/California coast/climatic changes/atmospheric circulation/mass transport/zooplankton/Pieper Hickey/physical oceanography/MINERALS MANAGEMENT SERVICE.

2410. Ikeda M, Mysak LA, Emery WJ. Observation and modeling of satellite-sensed meanders and eddies off Vancouver Island. J. Phys. Oceanogr. 1984;14(1):3-21. A long time series of satellite infrared images spanning the period 21 July-8 October 1980 reveals the evolution of long (160 km) and short (80 km) wavelength meanders of the California Current System off Vancouver Island. Midway in the series, strong interactions occurred between the two meander scales. Although the shorter meanders were initially more energetic, they were eventually dominated by the longer meanders. Near the end of the time series, detached mesoscale eddies were formed from the longer meanders. Current meter data from the period before meander growth clearly indicates the presence of a strong vertical shear near 150 m, which consists of a southeastward surface current and a northwestward undercurrent. It is argued in this paper that the observed shear flow is the energy source for the meanders and eddies seen in the satellite images. satellite mosaics/current rings/oceanic eddies/INE/Canada/British Columbia/Vancouver Island/ASFA.

2411. Bereskin SR. Miocene biostratigraphy of southwestern Santa Cruz Island, California. Am. Assoc. Petroleum Geologists Bull. 1969;53(2):p.469 Abstract N; Bibliography of North American Geology (1785-1970). GEOREF.

2412. Field ME, Clarke SH, J. Small-scale slumps and slides and their significance for basin slope processes, southern California borderland. L.J. Doyle, O.H. Pilkey. Geology of continental slopes. Special Publication - Society of Economic Paleontologists and Mineralogists 27. ; 1979. 223-230. Address:

U. S. Geol. Surv., Menlo Park, CA, USA Conference: Geology of continental slopes; a part of the AAPG-SEPM annual meeting. Oklahoma City, OK, April 9-12, 1978.
sedimentation/oceanography/processes/slumping/continental slope/continental borderland/basins/mass movements/seismic surveys/geophysical surveys/San Nicolas Island/marine geology/oceanography.

2413. Robinson AR, Carton JA, Walstad LJ, Leslie WG, Mooers CNK, Smith J, Rienecker M. Quasigeostrophic forecasting in the California Current. EOS TRANS. AM. GEOPHYS. UNION 1983;64(45):p. 276.

Ocean hydrographic data collected in June and July, 1983 in a 150 x 150 km super(2) domain off the coast of California by the OPTOMA Program were objectively analyzed to form thermocline depth maps which were then used to initialize a quasigeostrophic ocean forecast model. Two week predictions were made of the thermocline depth field for each of the three cruise legs with the initial predictions being made in real time. The prediction based on the first leg was reasonably accurate. The clockwise eddy in the northwest remained stationary while the counterclockwise eddy in the south strengthened, causing the flow to become more zonal. The prediction based on the second leg had proper tendencies but did not change as dramatically as the observed field.
hydrographic data/thermocline/maps/INE/California Current/prediction/quasi-geostrophic motion/ASFA.

2414. Soutar A. Sedimentation in santa barbara basin, california. Am. assoc. petroleum geologists bull. 1969;53(2):p.468
Abstract N; Bibliography of North American Geology (1785-1970).
california/continental margin/deposition processes/environment/marine geology/ocean/provenance/santa barbara basin/sedimentation/sediments/GEOREF.

2415. Field ME, Richmond WC. Sedimentary and structural patterns on the northern Santa Rosa-Cortes Ridge, southern California. Marine Geology 1980;34(1-2):79-98
Address: USGS, 345 Middlefield Rd., Menlo Park, CA 94025.
The Santa Rosa-Cortes Ridge is an 1,800-m-high, 180-km-long feature lying =90 km off the coast of southern California and directly S of the northern group of Channel Islands. Geophysical profiling and sampling cruises to the northern part of the ridge, an area of recent and future lease sales for petroleum development, provide a strong data base for interpretation of structural and sedimentary patterns and their relation to potential geologic hazards. The northern part of the ridge is a complexly folded and faulted NW-trending anticlinorium composed mostly of lower and middle Miocene shale and mudstone. The major structure of the ridge developed almost continuously from Oligocene or early Miocene time to the end of the Tertiary. Numerous small faults cut the rocks on the ridge top. Published data on historical epicenters and evidence of offsets on the seafloor from seismic reflection and side-scan profiles, including limited evidence of possible strike-slip movement along fault traces, indicate that the northern Santa Rosa-Cortes Ridge is tectonically active. A thin veneer of unconsolidated medium to fine sand, <3 m thick, mantles most of the ridge. Modern sediments become thicker and finer-grained from the ridge top to the ridge flanks, suggesting active accretion in those areas. Slumps are present at various depths on the flanks, and it seems probable that the thicker deposits (>20 m) of modern sediments on the upper flanks will be sites of future slumping.
Sedimentation/Ocean ridge system/Geologic structures/Environmental hazards/Paleogeology/Tectonics/Geomorphology/Fault zones/Offshore

structures/Petroleum industry/sedimentary structures sediment distribution/slumping/tectonics/northern California Channel Islands/Santa Rosa-Cortes Ridge/geology/geomorphology/petroleum.

2416. Huber HR, Ainley DG, Morrell SH, Levalley RR, Strong CS. Studies of marine mammals at the Farallon Islands, California, 1977-1978. 1979;:54. MAMMAL/AQUATIC ANIMALS/WHALES/FARALLON ISLANDS/CETACEA/BREEDING/CENSUS/SEALS MAMMALS/COASTS/CALIFORNIA CURRENT/MORTALITY/BONNELL/MINERALS MANAGEMENT SERVICE.

2417. Childress JJ, Price MH. Growth rate of the bathypelagic crustacean *Gnathophausia ingens* (Mysidacea: Lophogastridae). 2. Accumulation of material and energy. MAR. BIOL 1983;76(2):165-177.

The content of water, ash, carbohydrate, lipid, protein, chitin, carbon, hydrogen, nitrogen and energy was measured for all life stages of the bathypelagic mysid *Gnathophausia ingens* collected in San Clemente Basin off Southern California, USA between January 1969 and February 1982. These data are used to examine the life history, growth rates, growth pattern and partitioning of material and energy over the life of this species. Females reproduce only once and brood their young for about 1.5 yr, during which time the females do not feed. This species has a very high reproductive effort: of the energy accumulated over its life, 61.3% is used in egg production, 13.4% in parental care of young, 5.6% is cast exoskeletons and only 19.6% remains in the females after brooding. The relative rate of growth (percentage of energy d^{super(-1)}) is about 1% immediately after leaving the mother and declines to about 0.2% as maturity is approached. Such growth rates appear to be typical for an animal of this size living at low temperatures. The evolutionary context of this mysid's life history is discussed. growth/energy budget/bathypelagic zone/developmental stages/biochemical composition/fecundity/body size/*Gnathophausia ingens*/ASFA.

2418. Fritzsche RA. Revision of the Eastern Pacific Syngnathidae (Pisces: Syngnathiformes) including both recent and fossil forms. Proc. Calif. Acad. Sci. 1980;42(6):181-227
Address: DEP. BIOL., UNIV. MISS., UNIVERSITY, MISS. 38677. The marine and estuarine eastern Pacific Syngnathidae comprises 17 extant and 3 extinct species. Diagnostic characters for species and genera, including meristic and morphometric characters, and osteological features, are given. All species both living and fossil are diagnosed and described. The recognized species and their ranges are: *Hippocampus ingens* Girard [= *H. hildebrandi*] (San Francisco Bay, California, south to Pucusana, Peru, including the Gulf of California); *Doryrhamphus melanopleura* (Bleeker) (Indo-Pacific; in the eastern Pacific from Bahia Magdalena, Baja California, south to Isla la Plata, Ecuador, including the Gulf of California, Galapagos Islands and Clipperton Island); *Doryrhamphus paulus* sp. nov. (Islas Revillagigedo, Mexico); *Leptonotus blainvillleanus* (Eydoux and Gervais) [= *Syngnathus acicularis*] (Hornitos, Chile, to Golfo Nuevo, Argentina); *Bryx arctus* (Jenkins and Evermann) (Tomales Bay, California [USA], south to Mazatlan, Mexico, including the Gulf of California); *B. heraldi* sp. nov. (Islas Juan Fernandez and Isla San Felix, Chile); *B. coccineus* (Herald) (Bahia Banderas, Mexico, south to Punta Aguja, Peru and the Galapagos Islands); *B. veleronis* Herald (Galapagos Islands; Islas Revillagigedo; Isla Murcielago and Isla del Cano, Costa Rica; and Islas San Jose and Canal de Afuera, Panama); *B. clarionensis* sp. nov. (Isla Clarion, Mexico); *Syngnathus auliscus* (Swain) (Santa Barbara Channel, California, south to Paita, Peru, including the Gulf of California); *S. carinatus* (Gilbert) (confined to upper Gulf

of California); *S. exilis* (Osburn and Nichols) (Half Moon Bay, California, To Bahia Magdalena, Baja California and Isla Guadalupe, Mexico); *S. californiensis* Storer (Bodega Bay, California, south to Bahia Santa Maria, Baja California); *S. macrobrachium* sp. nov. (Tumbes, Peru, south to Puerto Montt, Chile); *S. euchrous* sp. nov. (Redondo Beach, California, to Punta Eugenia, Baja California); *S. leptorhynchus* Girard [= *S. griseolineatus*, *S. barbarae*](southeastern Alaska south to Bahia Santa Maria, Baja California); *s. insulae* sp. nov. (Isla Guadalupe, Mexico). Studies of growth and variation show that *S. leptorhynchus* is highly variable with each population distinct. Marked seasonal variation, when combined with growth data, indicates that individuals probably live for 1 yr or less. The fossil pipefish of Southern California are all only known from the Miocene. *Hipposyngnathus imporcitor* sp. nov. from the upper Modela Formation is most closely related to 2 spp. from the Oligocene of Europe. *S. emeritus* sp. nov. is known only from the Puente Formation. *S. avus* Jordan and Gilbert is known from the lower Modelo. Formation. A comparison between inferred relationships of the various species and their geographical distribution suggests that the evolution of the eastern Pacific Syngnathus is a result of at least 2 separate invasions. *Doryrhamphus melanopleura* invaded the eastern Pacific by crossing the East Pacific Barrier and gave rise to *Doryrhamphus paulus*. *Leptonotus blainvilleanus* is related to other species of *Leptonotus* in New Zealand and southern Australia and was probably derived from an ancestor in these areas via waif dispersal. The reduction and loss of elements of the branchial skeleton is useful in characterizing urophorine genera and may be of general use when relationships within the family Syngnathidae are studied in more detail. new species/estuaries/osteology/population/seasonal variation/growth/skeleton/distribution/evolution/Puente Formation/Oligocene/Modelo Formation/Miocene/fossil species/Pisces/Syngnathiformes/Syngnathidae/Hippocampus ingens Girard [= *H. hildebrandi*]/*Doryrhamphus melanopleura* (Bleeker)/*Doryrhamphus paulus* sp. nov./*Leptonotus blainvilleanus*/*Bryx arctus*/*Bryx heraldi* sp. nov./*Bryx veleronis* Herald/*Bryx clarionensis*/*Syngnathus auliscus*/*Syngnathus carinatus*/*Syngnathus exilis*/*Syngnathus californiensis*/*Syngnathus macrobrachium*/*Syngnathus euchrous*/*Syngnathus leptorhynchus*/*Syngnathus insulae* many locations in the eastern Pacific/Santa Barbara Channel/marine biology/ichthyology.

2419. Robinson GR. Otter trawl sampling bias of the gill parasite, *Lironeca vulgaris* (Isopoda, Cymothoidae), from sanddab hosts, *Citharichthys* spp. FISH. BULL 1982;80(4):907-909. *Lironeca vulgaris* (Crustacea, Isopoda, Cymothoidae) is a common parasite infesting the gill chambers of many marine fish species from the California coast. Both male and female isopods reside in the gill chambers of sanddab hosts. During a study of the interactions between *L. vulgaris* and two sanddab hosts, *Citharichthys stigmaeus* and *C. sordidus*, the author analysed the efficiency of traditional otter trawl collecting methods. Prevalence, relative parasite density, and mean parasite intensity were compared for samples of a host population gathered by otter trawls and divers utilizing scuba. parasitism/gills/collecting devices/*Lironeca vulgaris*/*Citharichthys*/efficiency/ASFA.

2420. Yeats RS. Rifting and rafting in the southern California borderland [with discussion]. Conference on geologic problems of San Andreas fault system, Stanford, Calif., 1967, Proc.. Stanford Univ. Publ., Geol. Sci. 1968;11:p.307 B; Bibliography and Index of Geology (1969-present).

California/Structural geology/South/tectonics/Evolution/rifting
rafting/Faults/Overthrust/tectonic evolution/GEOREF.

2421. Hunt GL,J, Pitman RL, Naughton M, Winnet K, Newman A,
Kelly PR, Briggs KT. Distribution, status, reproductive ecology,
and foraging habits of breeding seabirds. Summary of Marine Mammals
and Seabird Surveys of the Southern California Bight Area
1975-1978. Rep. to U.S. Dep. of Interior, Bureau of Land
Management. 1981;
text/birds/MINERALS MANAGEMENT SERVICE.

2422. Fry DM, Lowenstine LJ. Pathology of Common Murres *Uria*
aalge and Cassin's Auklets *Ptychoramphus aleuticus* exposed to oil.
Arch. Environ. Contam. Toxicol. 1985;14(6):725-738
Address: DEP. AVIAN SCI., UNIV. CALIF., DAVIS, CALIF. 95616. The
histopathology of diving seabirds exposed to oil is described.
Cassins Auklets (*Ptychoramphus aleuticus*) were experimentally
exposed to weathered Santa Barbara Channel (CA) crude oil by
external application to the breast plumage or wings. Beached Common
Murres (*Uria aalge*) were recovered from an accidental oil spill of
bunker C fuel oil. Exposed birds exhibited hepatocellular
dissociation and hemosiderosis, renal tubular necrosis, and
hemolytic anemia. Both unexposed and exposed birds exhibited
numerous gastrointestinal lesions and parasites making
interpretation of oil damage effects to the gastrointestinal system
difficult. Burrow nesting auklets had a high incidence of
pneumoconiosis while cliff nesting murres had no particulate
inclusions on lungs. The results describe the extent of pathology
to be expected in wild, free living seabirds.
crude oil/lung/gastrointestinal lesion/hemolytic anemia/renal
tubular necrosis/hepatocellular
dissociation/hemosiderosis/parasite/pneumoconiosis/oil
spills/histopathology/oil pollution/pollution effects/pathology
Cassins Auklets/*Ptychoramphus aleuticus*/Common Murres/*Uria*
aalge/Santa Barbara Channel/terrestrial
biology/ornithology/pathology/petroleum/water quality/resource
management/pollution.

2423. Smith CR, Hamilton SC. Epibenthic megafauna of a
bathyal basin off southern California: Patterns of abundance,
biomass, and dispersion. DEEP-SEA RES 1983;30(9A):907-928.
A total of 50 species was recorded in a survey of near-bottom
megafauna at a depth of 1300 m in the Santa Catalina Basin using
the submersibles Alvin and Sea Cliff, and bottom trawls. The nine
most common epibenthic types were counted in Alvin photographic
surveys, yielding a total density of 16.7 individuals per m
super(2). Biomass of the four most abundant species (an ophiuroid,
gastropod, holothurian, and rockfish) totaled 67.9 g m super(-1).
The ophiuroid *Phiophthalmus normani* comprised 99% of the community
in terms of abundance and standing crop. All four dominant
epibenthic species showed nonrandom dispersion patterns on the
studied scales of one-half to hundreds of meters. *Ophiophthalmus*
normani showed weak tendencies toward evenness on the smallest
scale (0.5 m) and also formed randomly located patches 1 to 4 m in
diameter. Potential causes of patterns included attraction to
detrital kelp parcels, avoidance of disturbed areas breeding
aggregation, and other social interactions. It is concluded that
the megafauna comprises a major fraction of the bathyal benthic
biomass and that it, particularly the ophiuroids, significantly
impacts the energetics and ecology of bathyal communities.
zoobenthos/abundance/biomass/dispersion/community
composition/species diversity/*Ophiophthalmus normani*/bathyal-
benthic zone/INE/USA/California/ASFA.

- # 2424. Frye DM, Toone CK. DDT induced feminization of gull embryos. *Science* (Wash. D.C.) 1981;213(4510):922-924
Address: DEP. AVIAN SCI., UNIV. CALIFORNIA, DAVIS 95616.
Injection of the insecticide DDT into gull [*Larus californicus* and western gull] eggs, at concentrations comparable to those found in contaminated seabird eggs in 1970, induces abnormal development of ovarian tissue and oviducts in male embryos. Developmental feminization of males is associated with inability to breed as adults and may explain the highly skewed sex ratio and reduced number of male gulls breeding on Santa Barbara Island in southern California [USA]. DDT/insecticide/environmental pollutants/sex ratio/Charadriiformes/*Larus californicus*/Western Gulls/Santa Barbara Island/terrestrial biology/ornithology/pollution.
- # 2425. Bailey KM. The early life history of the Pacific hake, *Merluccius productus*. *FISH. BULL* 1982;80(3):589-598.
The early life history of Pacific hake, *M. productus*, is described from laboratory and field studies. At ambient temperatures (11 degree -13 degree C) egg hatching takes about 100-120 hours; complete absorption of the yolk takes about 150-200 hours. Respiration rates for first feeding larvae at 12 degree C are 4.8-6.8 ml/mg per hour. Growth rates for at least the first 20 days are slow compared with other larvae in the California Current. First-feeding hake larvae require a daily ingestion of about 0.13 calories.
life history/*Merluccius productus*/hatching/growth/respiration/calories/INE/ASFA.
- # 2426. Vernon JW, Gorsline DS. Continuous seismic profile, offshore Ventura Basin Santa Barbara through Anacapa Passage. *Geol. Soc. America Spec.* 1968;Paper 115:p.358
Abstract N; Bibliography of North American Geology (1785-1970). California/Geophysical surveys/Ventura Basin Santa Barbara/offshore/seismic/Seismic surveys/GEOREF.
- # 2427. Spies RB, Des MDJ. Natural isotope study of tropic enrichment of marine benthic communities by petroleum seepage. *MAR. BIOL* 1983;73(1):67-71. The isotopic ratios of sulfur and carbon in the tissues of infaunal organisms collected from a natural petroleum seep in the Santa Barbara Channel, California, USA were examined to see if petroleum is utilized by the benthic community. Sulfur isotope data were consistent with a pathway of petroleum energy from sulfate reducers arrow right $H_{2}S$ arrow right *Beggiatoa* sp. arrow right nematodes and other infauna. The carbon of infaunal organisms was isotopically lighter at the seep than at a comparison station; the mean $\delta^{13}C$ for 12 species was -1.32 ppt. towards the petroleum $\delta^{13}C$ value. The shifts were largest in two species of deep-feeding malpighian polychaetes. The tissues of one of the species, *Praxillella affinis pacifica*, were also analyzed for $\delta^{14}C$ content and $\delta^{34}S$, and the biomass produced by the populations over 26 mo was estimated. The results of these analyses allowed the authors to estimate that for the seep population: (1) there was 15.6% more fossil carbon, (2) chemoautotrophic bacteria contributed 13.6% more carbon, and (3) 19% more carbon was produced by the population over 26 mo.
oil seepages/zoobenthos/food webs/*Beggiatoa*/*Praxillella affinis*/marine environment/carbon 14/sulphur isotopes/INE/USA/California/Santa Barbara Channel/ASFA.
- # 2428. Winterer EL, Curray JR, Peterson MNA. Geologic history of the intersection of the Pioneer Fracture Zone with the Delgada Deep Sea Fan, northeast Pacific. *Deep Sea Research*.

1968;15(5):p.509

N; Bibliography of North American Geology (1785-1970).

Continuous reflection profiles of the region where Pioneer Fracture Zone intersects Delgada Deep-Sea Fan (39 degrees N., 127 degrees W.) show that the top of the seismic second layer is displaced along the fracture zone, but that overlying sediments are undisturbed. These sediments have completely buried Pioneer Ridge where it intersects the continental slope, the shape of which is modified locally by an extra cone of sediment, the Delgada Fan. Where the total column is less than 500 m thick, the physiography of the sediments is strongly influenced by relief of the underlying seismic second layer. The mineralogical uniformity of fine sediments suggests that the California Current delivered Columbia River Basin sediments over the past 10 m.y. to form the continental rise; the Delgada Fan was superimposed during Quaternary. Continental margin/United States/Northwestern/Pioneer Fracture Zone Delgada Fan intersection/Marine geology/Geophysical surveys/Pacific Ocean/northeastern/Pioneer Fracture Delgada Fan intersection/Seismic surveys/GEOREF.

2429. Fusaro C, Anderson S. First California record: The scalloped hammerhead shark, *Sphyrna lewini*, in coastal Santa Barbara waters. Calif. Fish and Game 1980;66(2):121-123
Two scalloped hammerhead sharks were caught by fishermen on 28 August, 1977. The previous northernmost published record was Isla San Marcos in the Gulf of California, Mexico. Since hammerhead shark species are known to school, it may be that these two sharks and possibly more, traveled northward for some distance as a group. new record/range extension *Sphyrna lewini*/scalloped hammerhead shark/ Santa Barbara Channel/2 km off the Ellwood Pier/1.5 km from the Santa Barbara Harbor/marine biology.

2430. Lander RH, Kajimura H. Status of northern fur seals. FAO FISH. SER.; MAMMALS IN THE SEAS. SMALL CETACEANS, SEALS, SIRENIANS AND OTTERS. SELECTED PAPERS OF THE SCIENTIFIC CONSULTATION ON THE CONSERVATION AND MANAGEMENT OF MARINE MAMMALS AND THEIR ENVIRONMENT. 1982;4(5):pp. 319-345.

This paper reviews the demographic and environmental biology of the northern fur seal, *Callorhinus ursinus* (Linnaeus, 1758), especially in relation to exploitation by man. Estimated current abundance (in parentheses), historical trends in abundance, and migration and subsequent intermixture of the 5 breeding populations recognized by the North Pacific Fur Seal Commission are reviewed (1) Pribilof Islands (1,300,000). (2) Commander Islands (265,000). (3) Robben Island (165,000). (4) Kuril Islands (33,000). and (5) San Miguel Island (2,000). Pelagic sealing was banned by treaty in 1911; on the first 3 populations above are presently exploited commercially on land. Harvesting rate and data, birth and natural mortality rates and census methods and figures for these populations are presented. The northern fur seal is an opportunistic feeder, capable of long periods of fasting; its feeding habits and behaviour and principal food species are summarized, and additional ecological factors are reviewed.

population number/exploitation/population dynamics/*Callorhinus ursinus*/IN/North Pacific/ASFA.

2431. MacLeod WDJ. Combined gas chromatography mass spectrometry of complex hydrocarbon trace residues in sediments. Jour. Gas Chromatography. 1968;6(12):p.591-594

N; Bibliography of North American Geology (1785-1970).

Complex traces of sedimentary hydrocarbons up to C₃₁H₆₄ were examined by combined GC-MS for evidence of biological origin. The system described can analyze a complex extract of 10⁽⁻⁴⁾-10⁽⁻⁵⁾ g

in a single sampling. Where GC separation permitted, individual hydrocarbons amounting to less than 10(-7) g were identified. The hydrocarbon distribution in the very old Onverwacht sedimentary rock was compared and contrasted with that found in a recent unconsolidated Santa Barbara Basin sediment. Chemical analysis/Chromatography/Hydrocarbons in sediment/with mass spectroscopy/Organic materials/Analytical methods/Gas chromatography mass spectroscopy/hydrocarbons/Spectroscopy/Mass/Hydrocarbons in sediments/with gas chromatography/GEOREF.

2432. Gall LF. Santa Catalina Island's Endemic Lepidoptera I. The Orange-Tips, *Anthocharis cethura catalina* and *Anthocharis sara gunderi* (Pieridae). *Atala* 1979;7(1):2-8
Address: Dept. Biol. Sci., Stanford Univ., Stanford, CA 94305, USA. The Catalina orange-tip, *Anthocharis cethura catalina*, successfully eluded both collectors and researchers for nearly half a century. The butterfly had been suggested for threatened or endangered species status until very recently, although its biology and ecology remained virtually unknown. Investigation of habitat utilization and management on Catalina Island, hostplant relations, distributional records, and the behavioral ecology of *A. c. catalina* indicates that neither the butterfly nor its habitat are imminently threatened. Ecological relationships between the Catalina orange-tip and the related Gunder's orange-tip, *Anthocharis sara gunderi*, on Catalina Island are also discussed.
ecological distribution/abundance/habitat/endangered species/endemic species/Lepidoptera/Orange-Tips/*Anthocharis cethura/catalina/Anthocharis sara gunderi/Santa Catalina Island/terrestrial biology/entomology*.

2433. Mate BR. History and present status of the northern (stellar) sea lion, *Eumetopias jubatus*. MAMMALS IN THE SEAS. SMALL CETACEANS, SEALS, SIRENIANS AND OTTERS. SELECTED PAPERS OF THE SCIENTIFIC CONSULTATION ON THE CONSERVATION AND MANAGEMENT OF MARINE MAMMALS AND THEIR ENVIRONMENT.; FAO FISH. SER. 1982;4(5):311-317.
The northern sea lion (*E. jubatus*) breeds from the Kurile Islands north and west through the Aleutian and Pribilof Islands and south along the North American coast to San Miguel Island. Populations in California, Oregon, Washington and British Columbia are estimated to number about 5,000-7,000, 2,000, 600 and 5,000 animals, respectively. Combined estimates of the size of Soviet stocks exceed 20,000 animals. Nearly 200,000 northern sea lions are thought to inhabit Alaskan waters. Sea lions in the eastern Pacific migrate north following the breeding season (mid-May to mid-July). The species moves south to inhabit waters around northern Hokkaido from late January to late May, reaching a maximum of 10,000-13,000 animals in March. Approximately 12,500 and 2,500 animals are killed each year in connection with foreign and U.S. fishing operations, respectively. Competition with other pinnipeds may be the most important factor affecting the abundance and distribution of northern sea lions.
population number/geographical distribution/exploitation/*Eumetopias jubatus/I/Pacific/ASFA*.

2434. Weeks LG. The ocean's resources. Offshore. 1968;28(7):p.39-48, 87-88 N; Bibliography of North American Geology (1785-1970).
The current status of the offshore petroleum industry, potential world-wide offshore petroleum resources, and gas reserves are considered, and examples of offshore successes are given. About 75

countries are active in searching for petroleum offshore; among the areas described are Cook Inlet, Alaska, Santa Barbara Channel, Calif., the Gulf Coast, and the Arctic Islands of Canada. The only offshore production of sulfur at present is from Grande Isle salt dome off the Louisiana coast. Other mineral resources discussed include those in sea water. Low temperature source mineral deposits make up most of those offshore. Sections on marine biological resources and ship building conclude the report. Marine geology/Mineral resources/Offshore portions/Oceans/possibilities/Petroleum/Exploration/Offshore/GEOR EF.

2435. Gall LF. Santa Catalina Island's endemic Lepidoptera. II. The Avalon hairstreak, *Strymon avalona*, and its interaction with the recently introduced gray hairstreak, *Strymon melinus* (Lycaenidae). Menke AS, Miller DR. Entomology of the California Channel Islands: proceedings of the first symposium. Santa Barbara, California, USA: Santa Barbara Museum of Natural History; 1985. 95-104. Presented at: Symposium on Entomology of the California Channel Islands (at) Annual Meeting of the Entomological Society of America, San Diego, CA (USA), Dec 1981 Address: Dep. Biol., Yale Univ., New Haven, CT, 06511. The Avalon Hairstreak, *Strymon avalona* (Wright), occurs only on Santa Catalina Island, California. Until recently, its congener, *S. melinus* Huebner, was absent from Santa Catalina, but occurred on all other California islands and across most of temperate North America. The First bona fide capture of *S. melinus* from Catalina was recorded in 1978, and in 1979 this species apparently was established in at least two localities on the island. Colonization of Santa Catalina by *S. melinus* poses several conservation challenges, and provides an opportunity to study biological interactions between these two *Strymon* in early sympatry. In this paper, the author uses numerical taxonomic techniques to address (1) whether these species presently hybridize on Catalina, and (2) whether the geographic source for the invading *S. melinus* can be pinpointed. He then discusses (3) the possible threat *S. melinus* poses to *S. avalona* and (4) if necessary, what management actions might be taken to insure continued survival of the endemic *S. avalona*. interspecific relationships/exotic species/colonization/indigenous species/sympatric species/numeric taxonomy Avalon Hairstreak/*Strymon avalona*/*Strymon melinus*/Lycaenidae/Santa Catalina Island/terrestrial biology/entomology.

2436. Mate BR. History and present status of the California sea lion *Zalophus californianus*. MAMMALS IN THE SEAS. VOLUME 4. SMALL CETACEANS, SEALS, SIRENIANS AND OTTERS. SELECTED PAPERS OF THE SCIENTIFIC CONSULTATION ON THE CONSERVATION AND MANAGEMENT OF MARINE MAMMALS AND THEIR ENVIRONMENT.; FAO FISH. SER. 1982;4(5):303-309.

Three sub-species of *Z. californianus* have been identified *Z. c. californianus* is found along the eastern North Pacific coast of North America from British Columbia south to at least Manzanillo, Mexico; it breeds in late May and early June from the tip of Baja California north to San Miguel Island and throughout the Sea of Cortez. *Z. c. wollebacki* breeds in the Galapagos Islands from October to December, *Z. c. japonicus* was in the past found in the Sea of Japan from 34 to 37 degree N. *Z. c. californianus* was heavily exploited in the 1800s; although estimates of population size are uncertain, there appear to be at least 75000-100000 animals present. Populations of the sub-species and of *Z. c. wollebacki*, estimated to include 20 000 animals, are protected and are either growing in size or are stable. *Z. c. japonicus* is

rare or extinct.

population number/population dynamics/protected resources/Zalophus californianus/I/Pacific/ASFA.

2437. Patchick PF. Ground water research in Central America completed. Water Well Jour. 1968;22(10):p.32
N; Bibliography of North American Geology (1785-1970).
The United Nations Food and Agricultural Organization in cooperation with the El Salvador Ministry of Agriculture has completed a 3-year ground-water exploration and evaluation project in the lower basin of the Rio Grande de San Miguel as a pilot example of a good approach to a regional evaluation. Good quality ground water with a sufficient usable recharge of 25 percent was located to irrigate 40,000 hectares. The presence of a vast aquifer system is estimated to contain 12.27 million acre-feet of ground water of which 1.34 million acre-feet occurred in storage within the first 300 feet below the surface. Recommendations have been implemented by legislation for further drilling and development. El Salvador/Hydrogeology/Rio Grande de San Miguel basin/ground water development/Ground water/Development/GEOREF.

2438. Garth JS. New species of zanthid crabs from early Hancock expeditions. Allan Hancock Found. Occas. Pap (New Ser.) 1986;0(4):1-14 Address: ALLAN HANCOCK FOUNDATION, UNIV. SOUTHERN CALIF., LOS ANGELES, CA. Five new species of crabs of the family Xanthidae, *Eurypanopeus hyperconvexus*, *Micropanope ashcrafti*, *M. manteri*, *M. taylori*, and *Pilumnus? palmeri*, are described and illustrated, and a sixth species, *Pilumnus koepckeii* Turkey (1967) is illustrated and described in English for the first time. All were collected during 1931-1941, the decade of activity of the Velero III under the command of Captain Allan Hancock, the *Eurypanopeus* from the California Channel Islands, the remaining species from the American west coast from Mexico to Ecuador. *E. hyperconvexus* forms with *E. crenatus* (Milne Edwards and Lucas) of Peru a bitemperate species pair. Each of the three *Micropanope* species appears to have its corresponding western Atlantic-Caribbean analogue. *Pilumnus? palmeri*, highly sculptured and richly ornamented, is unique among New World members of this circumtropical genus.
distribution/description/circumtropical
distribution/crabs/Xanthidae/*Eurypanopeus hyperconvexus*/*Micropanope ashcrafti*/*Micropanope manteri*/*Micropanope taylori*/*Pilumnus? palmeri*/*Pilumnus koepckeii* Turkey (1967) California Channel Islands/American west coast from Mexico to Ecuador/marine biology.

2439. Lynn RJ, Bliss KA, Eber LE. Vertical and horizontal distributions of seasonal mean temperature, salinity, sigma-T, stability, dynamic height, oxygen, and oxygen saturation in the California Current, 1950-1978. CCOFI; SACRAMENTO, CA (USA); ATLAS CCOFI. 1982;(30).
This atlas presents a graphical summary of physical oceanographic measurements and related derived quantities for the region of the California Current based upon the CalCOFI data files for 1950 through 1978. Data were averaged for four periods within an annual cycle, each representing one season, and are displayed in vertical sections oriented both along and across the California current, and on constant depth and constant sigma-t surfaces. Together these charts provide a quasi-three-dimensional representation of the distributions of temperature, salinity, dissolved oxygen, sigma-t, hydrostatic stability, dynamic height, acceleration potential, geostrophic velocity and oxygen saturation.
atlases/CCOFI/hydrology/water temperature/salinity/oxygen/INE/California Current/ISE/California Current/ASFA.

2440. Yeats RS. Rifting and rafting in the southern California borderland. Conference on geologic problems of San Andreas fault system, Stanford, Calif., 1967, Proc. Stanford Univ. Pubs. Geol. Sci. 1967;11:p.307

N; Bibliography of North American Geology (1785-1970).

A working hypothesis for the tectonic evolution of southern California consists of three parts: (1) overthrusting in the late Mesozoic, (2) coastal plain sedimentation without accompanying sharp folding and faulting from Late Cretaceous to early Miocene, and (3) Miocene rafting of granitic blocks and their sedimentary veneer over an autochthon composed of Franciscan Formation, Catalina Schist, and Pelona Schist, which are assumed to be correlative. It is hoped that presentation of the hypothesis together with its supporting evidence will be of assistance in detailed geological and geophysical studies now underway in the Coast Ranges and the San Andreas fault zone.

California/Structural geology/Southern/tectonic evolution/Faults/General/borderland evolution/Tectonics/Areal studies/evolution/GEOREF.

2441. Gath EM. Brief overview of the tectonic origin of the southern California Continental Borderland. E.M. Gath, M.M. Bottoms. Geology of Santa Catalina Island. : South Coast Geol. Soc.; 1985. 9-15.

Address: Leighton & Assoc., Irvine, CA.

sedimentation/structural geology/controls/tectonics/tectonic controls/ Franciscan Formation/Great Valley Sequence/California Continental

Borderland/guidebook/guidebook/Pacific Coast/subsidence/transform faults/volcanism/uplifts/rifting/subduction/continental margin/Mesozoic/Cenozoic/East Santa Cruz Fault/right-lateral faults/paleomagnetism/block structures/plate rotation/Santa Catalina Island/structural geology.

2442. Holliday DV, Pieper RE. Volume scattering strengths and zooplankton distributions at acoustic frequencies between 0.5 and 3 mHz. J. Acoust. Soc. Am. 1980;67(1):135-146.

Pieper/Dawson/Zooplankton/Text/distribution/acoustics/frequencies /sound scattering/current california/coast/US/west coast/surface waters/UHF/MINERALS MANAGEMENT SERVICE.

2443. Huh CA, Zahnle DL, Small LF, Noshkin VE. Budgets and behaviors of uranium and thorium series isotopes in Santa Monica Basin sediments. Geochim. Cosmochim. Acta. 1987;51:1743-1754.

marine sediment/anoxic radionuclides/RO/california/uranium isotope/sediment/ borderland/california/thorium

isotope/sediment/chemical

oceanography/egyhaz/venkatesan/borderland/California/MINERALS MANAGEMENT SERVICE.

2444. Hunt GL,J, Pitman RL, Naughton M, Winnet K, Newman A.

Summary of marine mammal and seabird surveys of the Southern California Bight area, 1975-1978. Volume III - investigators' reports. Part III. Seabirds - book II. Reproductive ecology and foraging habits of breeding seabirds. Prep. for U.S. Dep. Interior, Bureau of Land Management 1981;:399.

BIRDS/AQUATIC ANIMALS/CRUDE OIL/ECOLOGY/WATER POLLUTION/SOUTHERN CALIFORNIA BIGHT/Baird/BREEDING/DISTRIBUTION

PROPERTY/ABUNDANCE/REPRODUCTION BIOLOGY/OFFSHORE DRILLING/ANIMAL MIGRATIONS/ENVIRONMENTAL IMPACTS/FEEDING STUFFS/NATURAL GAS/FOOD HABITS/MINERALS MANAGEMENT SERVICE.

2445. Larsen JC. Electric and magnetic fields induced by deep sea tides. Royal Astron. Soc. Geophys. Jour. 1968;16(1):p.47-70

N; Bibliography of North American Geology (1785-1970).

A lunar semidiurnal variation (12.4206-h period) induced by tides in the deep ocean is demonstrated in observations made off the California coast, on the California coast, and on San Miguel Island in the Azores. Comparison with simultaneous continental magnetic measurements permits an estimation of that part of the variation due to a lunar ionospheric oscillation. The observed variation on the sea floor and on the coast agrees well with tidal induced fields computed for a model which assumes: (1) a flat semi-infinite ocean of uniform depth and conductivity, rotating at a uniform rate; (2) a nonconducting atmosphere, continent, and upper mantle; and (3) superconducting mantle at uniform depth beneath the ocean. The variation observed on San Miguel agrees qualitatively with tidal induced fields computed for an island model under certain assumptions. California/Geophysical observations/Coast and off coast/earth currents/tide induced/Observations/GEOREF.

2446. Illeman JD, Niler PP, Poulain PM. Drifter observations in the California current system, 1985-1986: Data report. Scripps Institution of Oceanography Reference No. 87-27 1987;:72.

MINERALS MANAGEMENT SERVICE.

2447. Lipps JH, Valentine JW, Mitchell E. Pleistocene paleoecology and biostratigraphy, Santa Barbara Island, California. Jour. Paleontology. 1968;42(2):p.291-307

N; Bibliography of North American Geology (1785-1970).

Pleistocene fossils were found on two marine terraces having shoreline angle elevations of 130 feet and 25 to 30 feet on Santa Barbara Island, California. They include 22 species of foraminifera, 92 of mollusks, 3 of ostracodes, a stony coral, and 2 vertebrates from the lower terrace, and 30 species of foraminifera, 19 of mollusks, and 14 of ostracodes from the higher terrace. Both assemblages were deposited along open coasts, on gravelly substrates and probably in depths of between 10 and 20 feet. The upper terrace association resembles those described from terrace localities that lie above 100 feet on other California Channel Islands. An age close to Yarmouthian or Aftonian is suggested for the higher island terraces, and one of Sangamonian for the lower terraces.

California/Paleontology/Fauna/Pleistocene/marine/Santa Barbara Island/terraces/Stratigraphy/marine terrace deposits/Paleoecology/Quaternary/Marine shallow water/biostratigraphy/GEOREF.

2448. Gath EM, Bottoms MM, editors. Geology of Santa Catalina Island. : South Coast Geol. Soc.; 1985. 82.

Address: Leighton & Assoc., Irvine, CA, USA Note: Publ. in conjunction with South Coast Geol. Soc. 13th annual field trip, Nov. 7-8, 1985; individual papers are cited separately.

maps/guidebook/tectonics/basement/geomorphology/metal ores/mining geology/geologic maps/Santa Catalina Island/San Pedro Basin/areal geology.

2449. Anon. Shell to resume deep pay probe off California.

OIL GAS J 1982;82(7):p. 38.

Shell California Production Inc. has unveiled plans to resume exploratory drilling in Molino Gas Field in state waters of the Santa Barbara Channel off California. Plans call for a program of three deep wells to probe Eocene Matilija gas prospects and Miocene Monterey oil as a secondary target just west of a site at which

Phillips Petroleum Co. plans to develop a significant new pay discovery. Shell plans to move in the JFP Three jack up, rated to 25,000 ft in 300 ft of water, to drill the wells, the company said in a draft supplemental environmental impact report (EIR) submitted to the California State Lands Commission. The program will resume a wild-cat drilling program Shell aborted early last year. offshore operations/oil fields/drilling/ANE/Santa Barbara Channel/ Molino Field/ASFA.

2450. Thyssen BS. Mit einem seegravimeter bestimmte horizontalgradienten (horizontal gradients determined with a sea gravimeter). Zeitschr. geophysik 1967;33(2):p.143
G; Geophysical Abstracts (1966-1971).
california/geophysical surveys/gravity/gravity surveys/offshore/santa barbara channel/GEOREF.

2451. Gathman SG, Julian BG, Mathews LA, McClung RM. Field experiments with artificial aerosols at San Nicolas Island, California. Memorandum rept. : Naval Research Lab., Washington, DC. NRL-MR-4638; 1981. 43.
Artificial fogs grown on hygroscopic (Salty Dog) nuclei were produced in the marine environment over Laser Bay, San Nicolas Island, California. These fogs were studied using over water optical extinction measurements in the visual, near and far infrared bands as well as by aerosol size measurements from an instrumented aircraft and from a shore based instrument. These studies show that optical extinction in the visible and near infrared wavelengths produced by biologically safe hygroscopic nuclei can be generated in military significant scales in the marine boundary layer.

Bacterial aerosols/Marine atmospheres/Obscuration/Nuclei/Hygroscopicity/Aerosols/Fog/California/Optical properties/Light transmission/Infrared spectra/Visible spectra/Visibility/Extinction/Far infrared radiation/Near infrared radiation/Salty Dog/San Nicolas Island/Laser Bay Atmospheric Sciences/Meteorology.

2452. Interstate Electronics Corporation. Biological and geological reconnaissance and characterization survey of the Tanner and Cortes banks. Volume I: Executive summary. Tech. Rep. to U.S. Dep. Interior, Bureau of Land Management (unpubl.) 1979;:36.
Marine geology/marine biology/Tanner Bank/Cortes Bank/surveys/bathymetry/rocks/sedimentation/geologic structures/geomorphology/marine fishes/coral/abundance/invertebrates/distribution property/benthos/Southern California
Bight/Thompson/Invertebrates/text/fish/MINERALS MANAGEMENT SERVICE.

2453. Isaacs JD, Fleminger A, Miller JK. Distributional atlas of zooplankton biomass in the California current region: Spring and fall 1955-1959. Calif. Coop. Oceanic Fish. Invest. Atlas No. 10 1969;:252.
Dawson/Pieper/Zooplankton/MINERALS MANAGEMENT SERVICE.

2454. Kelly KA. Swirls and plumes or application of statistical methods to satellite-derived sea surface temperatures. DISS. ABST. INT. PT. B - SCI. & ENG 1983;44(6).
As part of the Coastal Ocean Dynamics Experiment, fifty-eight infrared images of the California Current were collected in a four-month period in 1981 at the Scripps Satellite Oceanography Facility. Concurrent measurements on the shelf were from current meters, hydrography, surface drifters, doppler log, wind records and tide gauges. Satellite data, with its large areal coverage at

short sampling interval, bridged the spatial and temporal gap between hydrographic surveys and moored instruments. The goals of the analysis of the images were to extract a quantitative description of sea-surface temperature off northern California, to investigate the relationship between SST, wind and topography, and to estimate velocities from a series of images.
surface temperature/satellite mosaics/INE/California Current/ISE/California Current/theses/ASFA.

2455. Pierce JW, Melson WG. Dolomite from the continental slope off southern California. Jour. Sed. Petrology. 1967;37(3):p.963 N; Bibliography of North American Geology (1785-1970).
Continental margin/California/Slope off Santa Rosa Island/dolomite boulder/Marine geology/Sediments/Slope off California/Boulders/General description/continental slope off California/GEOREF.

2456. Isaacs JD, Fleminger A, Miller JK. Distributional atlas of zooplankton biomass in the California current region: Winter 1955-1959. Calif. Coop. Oceanic Fish. Invest. Atlas No. 14 1971;:122.
Dawson/Pieper/Zooplankton/MINERALS MANAGEMENT SERVICE.

2457. Gerard VA. Growth and utilization of internal nitrogen reserves by the giant kelp *Macrocystis pyrifera* in a low nitrogen environment. Mar. Biol. (Berl.) 1982;66(1):27-36
Address: CALIF. INSTITUTE TECHNOL., KERCKHOFF MARINE LAB., 101 DAHLIA ST., CORONA DEL MAR, CALIF. 92625.
An adult giant kelp plant (*M. pyrifera*), that moved from an inshore kelp forest to an offshore, low-N environment near Santa Catalina Island, California USA, maintained growth for 2 wk on internal N reserves. Frond elongation rates decreased significantly during the 3rd wk and plant growth rate (wet wt) dropped from an initial inshore rate of 3.6 to 0.9% day⁻¹. During this 3 wk period, N contents and free amino acid concentrations decreased, while mannitol and dry contents increased in frond tissues. After depletion of internal N reserves, the N content of lamina and stipe tissues averaged 1.1 and 0.7% dry wt, respectively. The experimental plant was exposed to higher ambient N concentrations during the last 2 wk. Rates of frond elongation and plant growth increased, but N content and amino acids in frond tissues remained low. Of the total N contained in frond tissue of the plant before transplantation, 58% was used to support growth in the absence of significant external N supply. Amino acids constituted a small proportion of these internal N reserves. Net movement of N occurred within large fronds, but not between different frond size classes. The N content of holdfast tissue remained relatively constant at 2.4% dry wt and accounted for 18-29% of the total N. Holdfast N was not used to support growth of N-depleted fronds. In comparison to *Laminaria longicruris*, which is adapted to long seasonal periods of low N availability, *M. pyrifera* has small N-storage capacity. Internal reserves of *M. pyrifera* appear adequate to make N starvation uncommon in southern California kelp forests.
amino acid translocation/starvation/growth/growth curves/nitrogen/plant nutrition/nutrient availability/nutrient utilization/nutrients Phaeophyta/giant kelp/*Macrocystis pyrifera*/Santa Catalina Island/marine biology/phyecology/botany.

2458. Muhs DR. Quaternary sea-level events on northern San Clemente Island, California. QUAT. RES 1983;20(3):322-341.
Global sea-level changes are expressed in the coastal landforms and deposits of northern San Clemente Island: Stratigraphic,

radiometric, amino acid, and pedologic dating techniques have allowed the development of a chronology of sea-level changes for about the last 500,000 yr. Weakly cemented calcareous dune sands (eolianites) are moderately extensive on northern San Clemente Island and appear to represent low stands of the sea, since calcareous shelf sands were the most likely source. A radiocarbon date of about 22,000 yr suggests that the youngest eolianite was deposited during the last glacial maximum. An older eolianite is estimated to be about 140,000-195,000 yr old based on stratigraphic relations and degree of soil development. The suggested ages for the eolianites also correlate well with oxygen-isotope estimates of low sea levels. Quaternary/sea-level changes/INE/USA/California/San Clemente Island/ASFA.

2459. Thyssen BS. Mit einem Seegravimeter bestimmte Horizontalgradienten. Zeitschr. Geophysik. 1967;33(2):p.143
N; Bibliography of North American Geology (1785-1970).
California/Geophysical surveys/Santa Barbara
channel/gravity/horizontal gradients/Gravity surveys/GEOREF.

2460. Gildart RC. Elephant seals have made a fantastic comeback. Smithsonian 1978;9(1):94
Animal behavior/Wildlife preservation/Endangered species/Mirounga
angustirostris/elephant seal/San Miguel Island/marine
biology/mammalogy.

2461. Banta WC. A new species of Neofungella (Bryozoa, Stenolaemata) from southern California. Southern California Acad. Sci. Bull. 1967;66(1):p.35-38 N; Bibliography of North American Geology (1785-1970).
Bryozoa/Neofungella californica/n. sp./Recent/California/Santa Catalina Island/Paleontology/Neofungella/GEOREF.

2462. Gilmartin WG, Vainik PM, Neill VM. Salmonellae in feral pinnipeds off the southern California coast. J. Wildl. Dis. 1979;15(4):511-514 Address: Biosci. Dep., Nav. Ocean Systems Cent., PO Box 997, Kailua, HI 96734, USA.
Rectal swabs were collected from 90 Northern fur seal (*Callorhinus ursinus*) and 50 California sea lion (*Zalophus californianus*) pups on San Miguel Island for *Salmonella* screening. Three serotypes (newport, heidelberg, and oranienburg) were recovered from 33% of fur seals and 40% of sea lions.
bacterial diseases/salmonellosis/rectal swabs/serotypes/parasites/salmonella/bacterial infection
Enterobacteriaceae/Salmonella newport/Salmonella heidelberg/Salmonella oranienburg/Pinnipedia/Otariidae/Callorhinus ursinus/Northern fur seal/California sea lion/Zalophus californianus/San Miguel Island/marine biology/mammalogy/parasitology.

2463. Jackson GA. Physical oceanography of the Southern California Bight. Lecture notes on coastal and estuarine studies.: Plankton dynamics of the Southern California Bight 1986;15:13-52.
ecosystem/interrelationships/text/chemical/oceanography/Eganhouse/Venkatesan/MI NERALS MANAGEMENT SERVICE.

2464. Bakun A, Parrish RH. Turbulence, transport, and pelagic fish in the California and Peru Current systems. REP. CCOFI 1982;23:99-112. The California and Peru Current systems are compared in terms of three environmental processes thought to be likely regulators of reproductive success of pelagic fishes: (1) turbulent mixing, leading to destruction of fine-scale food strata required for successful first feeding of larvae, (2) offshore

transport, resulting in loss of reproductive products, and (3) upwelling intensity, as it relates to total productivity of the system. Newly generated climatological distributions of coastal-oceanic temperature contrast, wind-generated turbulent energy production, sea surface wind stress, and surface Ekman transport are presented. A consistent pattern of avoidance of centers of maximum upwelling, which are characterized by intense turbulent mixing and offshore transport, is noted in the reproductive strategies of anchovies. Large stocks tend to occur in regions of low turbulent mixing, downstream of upwelling maxima. turbulence/upwelling/environmental effects/pelagic zone/Pisces/comparative studies/INE/California Current/ISE/California Current/PSW/ Humboldt Current/ASFA.

2465. Giuliano JA. Draft environmental impact statement: proposed translocation of California sea otter colony to San Nicolas Island, California [dissertation]. Doninguez Hills, California, USA: California State University; 1983. 127. environmental impact statement/ translocation/marine mammals/California sea otter/Enhydra lutris/San Nicolas Island/marine biology.

2466. Husby DM, Nelson CS. Turbulence and vertical stability in the California Current. REP CCOFI 1982;23:113-129. Summaries of historical surface marine wind observations and subsurface temperature data are used to examine the seasonal and spatial characteristics of wind-generated turbulent energy production and of stability of the upper water column over the California Current region. A recent hypothesis suggests that survival of first-feeding larval anchovies, *Engraulis mordax*, depends on the aggregation of properly sized food organisms in a stable water column in the absence of strong wind-induced turbulence. A comparison of wind mixing and stability indices for regions encompassing the principal spawning grounds of the three subpopulations of northern anchovy demonstrates that peak spawning occurs during seasons and in locations associated with stable stratification, relatively low rates of turbulent energy production, and weak offshore transport (upwelling). The average intensity of wind-generated turbulent energy production is similar during peak spawning periods in all three regions. This suggests optimum levels of turbulence and stability in the upper water column--levels that favor survival of first-feeding. turbulence/vertical stability/spawning/Engraulis mordax/Engraulidae/seasonal variations/spatial variations/fishery oceanography/wind speed/environmental effects/INE/California Current/ISE/California Current/Pisces/ASFA.

2467. Seilacher A, Hemleben C. Beitrage zur Sedimentation und Fossilfuehrung des Hunsrueckschiefers; 14, Spurenfauna und Bildungstiefe der Hunsrueckschiefer (Unterdevon). Hess. Landesamt Bodenforsch., Notizbl. 1966;94:p.40
Serial E; Bibliography and Index of Geology Exclusive of North America (1933-1968).
The lower Devonian Hunsrueck shales (Germany) have previously been considered shallow marine or mud-flat deposits. Sedimentary structures such as roll marks and flute, chevron, and groove casts, and tracks and other traces of organisms, as well as fine bedding, point to a deeper marine origin. Oscillation ripple marks and flyschlike graded bedding are absent. While both pelagic and benthonic organisms are represented in the fauna, the latter are more abundant, indicating greater water depths. Occasional toxic conditions during sedimentation contributed to the excellent preservation of the fossils. A bathyal environment similar to that

presently existing in the Santa Barbara basin (off California) was most likely the environment in which the Hunsrueck shales were formed. Tracks and trails/Germany/Devonian/Hunsrueck shales/Hunsrueck/Paleontology/lower/GEOREF.

2468. Given DD, Koesterer CL. Station arrival data for a quarry blast on Santa Catalina Island, California. : Open-File Report (United States Geological Survey. 1978). 83-0462; 1983. 13.

Address: U. S. Geol. Surv., Open-File Serv. Sect., West. Distrib. Branch, Denver Fed. Cent., Lakewood, CO.
seismology/engineering geology/elastic waves/explosions/crust/P-waves/USGS/arrival time/arrays/continental borderland/Los Angeles County/Santa Catalina Island/geophysics/seismology/engineering geology.

2469. Gruber D, Ahlstrom EH, Mullin MM. Distribution of ichthyoplankton in the Southern California Bight. REP. CCOFI 1982;23:172-179.

Larval fish were sampled by oblique 1-meter net and neuston net tows in the Southern California Bight quarterly from 1974 through 1976. The northern anchovy, *Engraulis mordax*, was much more abundant in both types of collections than were all other kinds of larvae combined, but some other fairly common species were found in only one type of tow. Subjective evaluation and analysis of recurrent groups established larval groupings that were distinguished primarily by nearshore versus offshore distribution and summer-fall versus winter-spring occurrence. ichthyoplankton surveys/commercial species/fish larvae/horizontal distribution/seasonal variations/INE/Southern California Bight/ASFA.

2470. Gaal RAP. Marine geology of the Santa Catalina basin, California. in Abstracts of papers related with oceanography-- Pacific Sci. Cong., 11th, Tokyo, 1966, Proc., Tokyo, Sci. Council Japan [Sec. 9]. 1966;2:p.64 Abstract N; Bibliography of North American Geology (1785-1970). California/Structural geology/Santa Catalina basin/Sediments/General/General description/Basins/structural/Continental shelf/Pacific Ocean/structure/GEOREF.

2471. Given R. The nearshore marine biota; Santa Catalina Island. NAGT-FWS Santa Catalina Island field trip. : Natl. Assoc. Geol. Teachers; 1984. 11-16. Address: Univ. South. Calif., Catalina Mar. Sci. Cent., Los Angeles, CA. invertebrates/algal flora/environmental geology/ecology/nearshore environment/guidebook/Santa Catalina Island/marine geology/oceanography.

2472. Bailey KM, Francis RC, Stevens PR. The life history of fishery of Pacific whiting, *Merluccius productus*. REP. CCOFI 1982;23:81-98. The Pacific whiting (*M. productus*) is one of the most abundant and important fish of the California Current region. This report synthesizes available data, published and unpublished, on the life history and population dynamics of whiting. Aspects of life history described are distribution, spawning, early life history, feeding, and growth. Information on the population dynamics of the stock is summarized with attention to stock abundance, recruitment variability, and mortality. A synthesis of the fishery, its development and management, is presented. life history/population dynamics/fishery management/Merluccius productus/Merlucciidae/Pisces/geographical distribution/spawning/feeding behavior/growth/commercial

species/INE/California Current/ISE/California Current/ASFA.

2473. Valentine JW, Lipps JH. Pleistocene mullusks from Santa Barbara Island and their biostratigraphic implications. Geol. Soc. America Spec. 1966;Paper 87:p.235
Abstract N; Bibliography of North American Geology (1785-1970). Mollusca/Quaternary/California/Santa Barbara Island/biostratigraphy/Paleontology/Pleistocene/GEOREF.

2474. Jet Propulsion Lab. Towards a study of synoptic-scale variability of the California current system. 1985;:43.
Physical oceanography/marine biology/ocean currents/oceanographic parameters/synoptic meteorology/time series analysis/environmental monitoring/forecasting/marine environments/ocean surface/ocean temperature/Hickey/MINERALS MANAGEMENT SERVICE.

2475. Greenblatt PR. (Distribution of taxonomic categories of zooplankton in the California Current.). TRANS. CIBCASIO 1982;6:48-50.

An analysis of the horizontal small-scale (100-2100 m.) distribution of zooplankton biomass and of the horizontal distributions of the major taxonomic groups (class and order) of these samples taken from the California Current (1980), is presented and compared to the biomass analysis. The zooplankton samples were collected in a 3-day period, 350 km. West of San Diego, California at 90 m. depth. Some zooplankton categories showed evidence of diurnal vertical migration while others had either long period temporal trends or random temporal fluctuations. The variance to mean ratio for euphausiids and large copepods was higher at night than during the day, while chaetognaths and pteropods had higher daytime levels. The variance to mean ratio generally increased with a category's abundance.
zooplankton/taxonomy/horizontal distribution/vertical migratons/currents/INE/California current/ASFA.

2476. Buffington EC. Exploration of gullied submarine slopes off California by diving saucer. Geol. Soc. America Spec. 1966;paper 87:p.22 Abstract N; Bibliography of North American Geology (1785-1970). Continental shelf/Pacific Ocean/California/San Clemente Island/sea gullies/Geomorphology/continental margin/GEOREF.

2477. Gleason JP. Single-Station Assessments of the Synoptic-Scale Forcing on the Marine Atmospheric Boundary Layer [dissertation]. Monterey, CA.: Naval Postgraduate School; 1982. 58.

Knowledge of the large-scale vertical velocity is required to predict the evolution of the atmospheric planetary boundary layer (APBL). Since naval operations are often conducted in data sparse regions, single-station assessments of the vertical velocity are necessary. Data to evaluate such assessments were obtained from rawinsondes taken at San Nicolas Island, California. Vertical velocity estimates obtained by vertical integration of the moisture budget equation (Q-method) and by the adiabatic method were used to initialize an APBL 24-hour prediction model. RMS error statistics on predicted inversion height, potential temperature, and specific humidity were computed for the forecasts and compared to the RMS errors of a persistence forecast. Calculation of the vertical velocity by the Q-method showed the most promise. However, no single-station assessment method improved on the persistence forecasts.

Marine meteorology/Weather forecasting/Troposphere/Boundary layer Evolution/Mathematical prediction/Wind velocity/Vertical

orientation/Kinematics/Adiabatic conditions/Moisture/atmospheric boundary layer/analytical techniques/modelling/humidity/potential temperature/rawinsonde/California Channel Islands/San Nicolas Island/atmospheric sciences/meteorology.

2478. Johnson RK. Frequency dependence of the daily pattern of sea reverberation. Acoust. Soc. Amer. J. 1973;54(2):478-482. California current/diurnal variations/frequency dependence/Pieper/reverberation data/sound scattering/scatterer populations/zooplankton/MINERALS MANAGEMENT SERVICE.

2479. Legg MR. (Present microplate tectonics on the continental border of Southern California.). TRANS. CIBCASIO 1982;6:51-97.

Earthquake activity in the inner continental borderland of southern California (USA) and northern Baja California (Mexico) indicates that the region is still undergoing active tectonism. The study of the seismicity of this offshore region provides important data useful in describing the tectonic processes presently occurring in the region. Earthquakes in the continental borderland off southern California are found to have focal mechanisms consistent with the northwest trending dextral regional shear couple associated with the San Andreas Fault plate boundary. Preferred fault planes for earthquakes in this region generally trend North to Northwest, with steep dips. In San Clemente Island and Fortymile Bank, most earthquakes had focal mechanisms that were opposite to the mechanisms of San Andreas Fault-type motion. seismic zones/plate tectonics/earthquakes/seismic surveys/seismic activity/seismic exploration/faults/INE/San Andreas Fault/USA/California/San Andreas Fault/ASFA.

2480. Slosson JE, Cilweck BA. Parson's Landing landslide A case history including the effects of eustatic sea level changes on stability. Eng. Geology. 1966;3(1-2):p.1-9

N; Bibliography of North American Geology (1785-1970).

Parson's Landing landslide, along the northwestern shore of Santa Catalina Island, is an elevated block-faulted horst some 20 miles offshore from Los Angeles in a region of submarine block-fault topography. Major slippage or failure occurred in the region during Late Pleistocene in post-Mankato and pre-Recent time. One of the sea cliffs and wave-cut benches which formed during lower sea level at the end of the Mankato-sub-glacial stage now lies 50 feet under water near the landslide, and apparently forms a zone of weakened lateral support in the area. The original slippage was apparently associated with the submerged cliff, the relatively weak, shattered Franciscan bedrock, a rise in sea level, and associated rise in the water table, allowing saturation of the bedrock, high precipitation rate, and possibly seismic activity. California/Engineering geology/Landslides/Santa Catalina Island/Parson's Landing/GEOREF.

2481. Godden D, Hanna S, Scire J, Strimaitis D. Overwater plume dispersion study: Appendix. Final Report. : ERT, Newbury Park, CA. ERT-P-D569-140-A; ARB-R-87/307; 1987. 178. ((Prepared in cooperation with Sigma Research Corp., Lexington, MA. Sponsored by California State Air Resources Board, Sacramento.)). The purpose of the study was to develop an air quality modeling methodology to simulate the impact of emissions from oil exploration and production activities in California coastal waters. The study included the collection of data in a field program, and the analysis of the data to determine a relationship between Gaussian dispersion coefficients and overwater transport distance and meteorological variable observed near the source and the shoreline.

The report is appendix and contains data taken during the study. Offshore drilling/Plumes/Air pollution/Emission/Continental shelf/Mathematical models/Flow visualization/Sulfur fluorides/Air quality/Atmospheric dispersion/Santa Barbara Channel/air quality/air pollution/petroleum/environmental studies/resource management.

2482. Haury L, Shulenberger E. Phosphate balance in the California Current. TRANS. CIBCASIO 1979;5:151-152. Inorganic transport across 3 CalCOFI lines (70, 80, 110) was calculated for January and July of 1950, 1961 (July only), 1964, 1965, 1969 and 1978. Phosphate values at CalCOFI standard depths were integrated to 200 meters (approximate depth of zooplankton sampling). Net transport of inorganic phosphate across each line was calculated and combined with estimates of the transport of organic phosphate in the form of phytoplankton and zooplankton to make a rough input-output budget for the California current. Phytoplankton and zooplankton-bound phosphate contribute for about 2% (0.5-13%) of the net transport across any line. Large variations in net inorganic phosphate transport across lines occurred within and between years. Large net northward transport occurred frequently. phosphates/geostrophic flow/phytoplankton/zooplankton/ISE/Mexico/Baja California/INE/USA/California/ASFA.

2483. VonHuene R, Ridlon JB. Offshore gravity anomalies in the Santa Barbara channel, California. Jour. Geophys. Research. 1966;71(2):p.457 N; Bibliography of North American Geology (1785-1970). Gravity measurements were made on four cruises in the Santa Barbara channel, the offshore extension of the Ventura basin, with a surface ship gravimeter. Navigational correction uncertainties often exceeded those of acceptable gravity measurements. The measured mean square discrepancy of the accepted measurements, evaluated at 147 crossings of the ship tracks, is 2.7 mgal. A westward extension and gradual shoaling of the Ventura basin is implied by an elongate gravity minimum flanked by a maximum which coincides with the Channel Islands. Diverging from this east-west structural grain is a pronounced northwest-trending gravity ridge. Gravity surveys/California/Santa Barbara channel/Geophysical surveys/gravity/GEOREF.

2484. Gorelick GA. Santa Catalina Island's endemic Lepidoptera. 3. The Avalon hairstreak, *Strymon avalona* (Lycaenidae): An ecological study. Atala 1986;14(1):12-14 Address: Dep. Biol. Sci., Citrus Community Coll., Glendora, CA 91740. A 10-year study of the Avalon Hairstreak *Strymon avalona* is presented, including adult behavior, larval hostplant ecology, phenology, an predators and parasites. Despite the restricted distribution of *S. avalona* and its occasional sympatry with *Strymon melinus* on Santa Catalina Island, this study revealed few threats to either its biological integrity or habitat. Ecological data from other California Channel Islands and several mainland California localities is also included, as are some thoughts on the Avalon Hairstreak's possible evolutionary origin. endemic species/behavior/larval ecology/phenology/predation/parasites/evolutionary origins/habitat/parasitology/evolution/host-plant sympatry *Strymon avalona*/Lycaenidae/Avalon Hairstreak/*Strymon melinus*/Santa Catalina Island/terrestrial biology/entomology.

2485. Mooers CNK, Robinson AR, Hagan DA. Analysis of eddies,

fronts and jets in the California Current. PROCEEDINGS OCEANS '83. EFFECTIVE USE OF THE SEA: AN UPDATE. SAN FRANCISCO, AUGUST 29 - 1 SEPTEMBER, 1983. VOLUME 1: TECHNICAL PAPERS. OCEAN SCIENCE, OCEAN ENGINEERING.; OCEANS '83 1983;:281. The OPTOMA Program is a joint effort between Harvard University and the Naval Postgraduate School supported by ONR. It has been conducting a preliminary series of ocean prediction studies for the past year-and-a-half. The goals of the program are: (1) to develop and test an ocean prediction strategy appropriate for resolving synoptic/mesoscale oceanic eddies in a limited space-and-time domain, and (2) to apply this strategy to gain an understanding of the dynamical nature and role of these eddies, and their associated jets and fronts, in the California Current System.
mesoscale eddies/jets/fronts/current predictions/INE/California Current/ISE/California Current/ASFA.

2486. Berger R, Orr PC. The fire areas on Santa Rosa Island, California, [Pt.] 2. Natl. Acad. Sci. Proc. 1966;56(6):p.1678-1682 N; Bibliography of North American Geology (1785-1970).
Man/fossil/Quaternary/California/Santa Rosa Island/fire areas/land bridge migration/Changes of level/Land bridges/west coast of United States/Paleontology/migration/Bering Strait land bridge/fossil man migration/Channel Islands/area change/fossil man sites/GEOREF.

2487. Jones GF, Fauchald K. Variation in community structure of shelf, slope and basin macrofaunal communities in the Southern California Bight. Chapter 19. Year II Benthic Study. Prepared for the Bureau of Land Management, POCS Office, Los Angeles CA, under Contract #AA551-CT6-40 1978;
MINERALS MANAGEMENT SERVICE.

2488. Graham S. The Monterey; formation tapped for big pays. AAPG Explorer 1983;5(1):1, 4-5
Address: Stanford Univ., Appl. Earth Sci. and Geol., Stanford, CA.
fractures/distribution/petroleum/reservoir rocks/Monterey Formation/offshore/diatomite/clastic rocks/source rocks/Miocene/Neogene/Tertiary/sedimentary rocks/siliceous composition/South Belridge Field/Lost Hills Field/hydraulic fracturing/popular geology Point Conception/Point Arguello/Santa Barbara Channel/Santa Maria Basin/Elk Hills/San Joaquin Basin/Chico Martinez Creek/economic geology/petroleum/energy sources.

2489. Jones GF, Thompson BE. The ecology of Parvilucina tenuisculpta (Carpenter, 1865) on the southern California borderland. Veliger 1984;26:188-198. ecosystems/habitat population/density/sediment/current/calcium carbonate/organic rich sewage/waste water/thompson/invertebrates/MINERALS MANAGEMENT SERVICE.

2490. Jones GF, Thompson BE. The ecology of Adontorhina cyclia (Berry) on the southern California borderland. Int. Rev. Gasellschaft Hydrobiol. 1986;71(5):687-700.
ecosystems/MINERALS MANAGEMENT SERVICE.

2491. Jones GF, Thompson BE. The ecology of Cyclocardia ventricosa (Gould 1850) (Bivalvia: Carditidae) on the Southern California Borderland USA. Veliger 1987;29(4):374-383.
amphiodia/reproduction/community/structure/spatial/distribution/habitat/ecology /animal/reproductive system/general studies/methods/invertebrate morphology/physiology/pathology/mollusca/ecology/oceanography/pel ecypoda/MINERALS MANAGEMENT SERVICE.

2492. Jones JH. General circulation and water characteristics in the Southern California Bight. Rep. TR 101. South. Calif. Coastal Water Res. Proj. 1971;:37. text/ecosystem/interrelationships/physical/oceanography/bonnell/d ailey/marine mammals/MINERALS MANAGEMENT SERVICE.

2493. Orr PC, Berger R. The fire areas on Santa Rosa Island, California. Translated title: Pt. 1. Natl. Acad. Sci. Proc. 1966;56(5):p.1409 N; Bibliography of North American Geology (1785-1970). Absolute age/dates/Carbon 14/California/Santa Rosa Island/fire areas/Man/fossil/Quaternary/C 14 dates/Paleontology/C 14/GEOREF.

2494. Grant DF, Eastwood D. Infrared spectrometry field-method for identification of natural seep-oils. Talanta (Oxford) 1983;30(11):825-830 Address: Stockton State Coll., Pomona, NJ 08240. chemical analysis/spectroscopy/infrared spectroscopy/oil seeps/field methods/petroleum/offshore/Santa Barbara Channel/geochemistry/economic geology/energy sources/petroleum/chemistry.

2495. Seapy RR, Littler MM. Population and species diversity fluctuations in a rocky intertidal community relative to severe aerial exposure and sediment burial. MAR. BIOL 1982;71(1):87-96. From a series of 10 quarterly assessments between October 1975 and May 1978 (inclusive), fluctuations in abundance were determined for macroinvertebrates and macrophytes of a rocky intertidal community on Santa Cruz Island, California, USA. During afternoon low tides in late fall and winter of the first 2 yr of study, organisms of the upper and middle intertidal zones were subjected to prolonged aerial exposure. Many species there tolerated this exposure, but die-backs occurred for a barnacle (*Chthamalus fissus*/C. dalli) and several algae (*Endocladia muricata*, *Pelvetia fastigiata* f. *gracilis*, *Corallina officinalis* var. *chilensis*, *Corallina vancouveriensis*, *Cylindrocarpus rugosus* and *Codium fragile*). These die-backs were succeeded by blooms of *Ulva californica* and *Porphyra perforata*. In the upper and middle intertidal zones, the major cover organisms that could tolerate prolonged aerial exposure were disproportionately prevalent and appeared to be maintained by the periodic repression of species intolerant to such exposure. In February 1978, heavy rainfall caused sediment inundation of the middle and lower intertidal zones. This event was followed by declines in abundance of a barnacle (*Tetraclita rubescens*) and several algae (*Pelvetia fastigiata* f. *gracilis* and *Corallina* spp.). ecological succession/community composition/drought resistance/mortality/intertidal environment/algae/Cirripedia/INE/USA/California/Santa Cruz Island/*Chthamalus fissus*/*Tetraclita rubescens*/*Endocladia muricata*/*Pelvetia fastigiata* f. *gracilis*/*Corallina officinalis* var. *chilensis*/*Corallina vancouveriensis*/*Cylindrocarpus rugosus*/*Codium fragile*/*Ulva californica*/*Porphyra perforata*/algal blooms/ASFA.

2496. Lipps JH. Age and environment of a marine terrace fauna, San Clemente Island, California. Veliger. 1966;9(4):p.388-398 N; Bibliography of North American Geology (1785-1970). Mollusca/Quaternary/California/Pleistocene marine terrace/San Clemente Island/Ostracoda/fauna/age and correlation/Paleontology/Invertebrata/Foraminifera/GEOREF.

2497. Gray WE, Devine WB. Underwater inspection of Hondo

Deepwater Platform using a microcomputer offshore. Proc. Offshore Technol. Conf. 1985 Proceedings 1985;4:213-222
Conference: 17. Annual Offshore Technology Conference Houston, TX (USA) 6-9 May 1985 Report ID = OTC 5044.

Exxon has completed an underwater inspection of the Hondo Platform located in the Santa Barbara Channel, California. The survey was performed by an ROV in "flyby" mode and examined over 600 inspection points including external nodes and zembers from the splash zone to the mudline at -850 feet. A portable microcomputer was pre-programmed with the desired locations to be inspected. The software developed allowed for real-time entry and review of all data and findings from the inspection. This microcomputer system has subsequently been used for a hull inspection by divers on the Hondo Field floating production facility. underwater inspection/offshore structures/data processing/computers/Santa Barbara Channel/Hondo Platform/petroleum.

2498. Spies RB, Felton JS, Dillard L. Hepatic mixed-function oxidases in California flatfishes are increased in contaminated environments and by oil and PCB ingestion. MAR. BIOL 1982;70(2):117-127.

Hepatic mixed-function oxidases (MFOs) were measured in the bothid flatfish *Citharichthys sordidus* and *C. stigmaeus* from relatively uncontaminated and from polluted coastal populations of California, USA, at various times of the year during 1979-1980 and in individuals fed crude oil and polychlorinated biphenyl-augmented food in the laboratory. For *C. sordidus*, aryl hydrocarbon hydroxylase (AHH) specific activity was generally highest around the Los Angeles County sewage outfall on the Palos Verdes Shelf, intermediate near the 7-mile Hyperion sewage outfall in Santa Monica Bay around a petroleum seep in Santa Barbara Channel, and lowest in relatively unpolluted Monterey Bay. For *C. stigmaeus*, which had about ten times less specific activity than the foregoing species, specimens from the Santa Barbara petroleum seep had significantly greater AHH specific activity than those from Monterey Bay. Fishes from contaminated environments also showed increased of microsomal proteins with molecular weights of 56, 54, 57 and 46 x 10 super(3); moreover, the content of cytochrome P-450 was elevated in specimens of *C. sordidus*) from such environments. marine pollution/sewage/oil pollution/PCB/pollution effects/enzymatic activity/*Citharichthys sordidus*/*Citharichthys stigmaeus*/INE/USA/ California/ASFA.

2499. Greene GH, Wolf SC, Blom KG. The marine geology of the eastern Santa Barbara Channel, with particular emphasis on the ground-water basins offshore from the Oxnard plain southern California. Open File Rep U S Geol Surv (Washington DC) 78-305. ; 1978. 104 pages.
groundwater/coastal areas/hydrogeology/surveys/marine geology/eastern Santa Barbara Channel/Oxnard plain/continental shelf/geology.

2500. Jones GF, Thompson BE. The distribution and abundance of *Chloëia pinnata* Moore, 1911 (Polychaeta:Amphinomidae) on the southern California borderland. Pac. Sci. 1987;41:122-131.
text/benthic invertebrates/8/MINERALS MANAGEMENT SERVICE.

2501. Lissner AL. Relationship of water motion to the shallow water distribution and morphology of two species of sea urchins. J. MAR. RES 1983;41(4):691-709.
A 13-month field and laboratory study was conducted at Santa Catalina Island, California, USA to determine some of the effects of water motion on the shallow water distribution of the sea urchin

Centrostephanus coronatus Verrill. The depth distribution of another sea urchin species, *Strongylocentrotus franciscanus* (A. Agassiz), includes shallow areas of strong water motion (<2 m depth) from which *C. coronatus* is absent. Differences in attachment strength and morphology of the two species were investigated as possible mechanisms affecting the differences in depth distribution.

shallow water/water motion/ecological distribution/*Centrostephanus coronatus*/*Strongylocentrotus franciscanus*/INE/USA/California/Santa Catalina Island/ASFA.

2502. Griswold TL. A new *Ashmeadiella* from the California Channel Islands (Hymenoptera: Megachilidae). *J. Kans. Entomol. Soc.* 1985;58(3):555-557 Address: Bee Biol. and Syst. Lab., USDA-ARS, Utah State Univ., UMC 53, Logan, UT 84322.

A new species of megachilid bee, *A. chumashae*, is described from the California Channel Islands. Characters separating it from other members of the *Cubiceps* Group are given.

new species/species description/taxonomy

megachilid/bee/Megachilidae/*Ashmeadiella chumashae*/*Cubiceps*

Group/California Channel Islands/terrestrial biology/entomology.

2503. Kalin MJ, Kramer D, Stevens EG, Thraikill JR, Zweifel JR. Collecting and processing data on fish eggs and larvae on the California current region. NOAA Tech. Rep., Natl. Mar. Fish. Serv. Circ. 370 1972;

MINERALS MANAGEMENT SERVICE.

2504. Boettger RC. Studies on the small invertebrate plankton of the Sargasso Sea. *HELGOL. MEERESUNTERS* 1982;35(3):369-383.

During the German Eel Expedition in Spring 1979, the horizontal and vertical distribution of the invertebrate plankton was studied in the epipelagic zone of the western central Sargasso Sea, based on 55 μ m and 100 μ m mesh net samples. In the isothermal waters north of the thermal front, plankton biomass was on average 2-3 times higher than in the warmer stratified waters south of the front. In both parts of the area, organisms smaller than 400 μ m, which form a fraction not quantitatively sampled by the conventional 200 μ m or 300 μ m mesh nets, accounted for 71-92% of the total number of organisms in the 55 μ m net samples and for more than 50% in the 100 μ m net samples. Average concentrations of the potential food supply for early larval fish stages in the upper 100 m appear to be comparable with values reported in the literature for areas well known for larval fish development, such as the California Current.

biomass/zooplankton/community composition/horizontal

distribution/vertical distribution/hydrography/size

distribution/ASW/Sargasso Sea/ASFA.

2505. White JA. A new *Peromyscus* from the late Pleistocene of Anacapa Island, California, with notes on variation in *Peromyscus Nesodytes* Wilson. *Los Angeles County Mus. Contr. Sci.* 1966;96

N; Bibliography of North American Geology (1785-1970).

A new fossil rodent, *Peromyscus anyapahensis*, is described from one of the California offshore Channel Islands. The new form is compared to closely related forms.

Quaternary/California/Anacapa Island/Mammalia/Pleistocene/new

rodent/Paleontology/late/*Peromyscus anyapahensis*/n. sp./GEOREF.

2506. Guthrie DA. Quaternary rodents from San Miguel Island, California [conference abstract]. *J. Vertebr. Paleontol.*

1987;7(3):suppP17A Address: Claremont McKenna College, Science Dept., Claremont, CA Conference: Society of Vertebrate Paleontology, Forty-seventh annual meeting. Tuscon, AZ Oct. 22-24, 1987.

quaternary rodents/paleontology Rodentia/Peromyscus maniculatus/Lagomorpha/San Miguel Island/vertebrate paleontology.

2507. Kanter RG. Biogeographic patterns in mussel community distribution from the Southern California Bight. The California Islands: Proceedings of a Multidisciplinary Symposium 1980;:341-356.

Santa Barbara Museum of Natural History/invertebrates/MINERALS MANAGEMENT SERVICE.

2508. Chaffee C, Spies RB. The effects of used ferrochrome lignosulphonate drilling muds from a Santa Barbara Channel oil well on the development of starfish embryos. MAR. ENVIRON. RES 1982;7(4):265-277.

The effects of water-soluble fractions (WSF) of thirteen used ferrochrome lignosulphonate muds on developing embryos of *Patiria miniata* were studied. The muds were collected during the drilling of a single slant well from Platform Hondo in the Santa Barbara Channel, California, at drilling depths of 4220 to 9858 ft. None of the embryos survived 48 hours' exposure in 25% WSF of the muds (25,000 ppm mud added (v/v)). Significant reduction in growth and high abnormalities (up to 100%) were observed in the 15% WSF. In lesser concentrations the effects varied from significant reduction of growth, down to 0 multiplied by 5% for three muds, to significant enhancement of growth for several muds in some dilutions. The EC sub(50)'s ranged from 5% to greater than 15% WSF. In the 5% WSF, decreased embryo growth was correlated with increasing Cr concentrations and possibly also with total organic carbon (TOC).

drilling fluids/pollution effects/embryonic development/toxicity tests/lethal effects/*Patiria miniata*/ASFA.

2509. Coast GS, SEPM PS. Western Santa Ynez Mountains, Santa Barbara County, California Field trip, October 1965, guidebook. [n.p.] Coast Geol. Soc. ; 1965. 47 p.

N; Bibliography of North American Geology (1785-1970).

The field trip offers an opportunity to see on the surface the stratigraphic units of the Eocene, Oligocene, and Miocene which are of interest not only onshore but in the adjacent offshore area of the Santa Barbara channel. Four papers on the stratigraphy, paleogeography, and structure are cited separately.

California/Areal geology/Santa Ynez Mts./western/guidebook/GEOREF.

2510. Guthrie LD, Rowley PR. Containment of naturally occurring subsea hydrocarbon emissions; a project review. Fifteenth annual offshore technology conference. Proceedings - Offshore Technology Conference 15 1983;1:33-38 Address: ARCO Oil & Gas Co., USA Conference: Fifteenth annual offshore technology conference Houston, TX, May 2-5, 1983.

petroleum engineering/oil seeps/fuel resources/gas seeps/production/offshore/natural gas/petroleum/pollution/controls Santa Barbara Channel/Santa Barbara Basin/Coal Oil Point/engineering geology/environmental geology/petroleum.

2511. Kanter R, Littler MM. Year III. Intertidal study of the Southern California Bight (1977/78). Biological community structure. Vol. II. Report 1, sections 16-22. Prep. for U.S. Dep. Interior, Minerals Management Service, Pacific OCS Region, Los Angeles, Ca. Prep. by Science Applications, Inc., La Jolla, CA.

1979;:361.

MINERALS MANAGEMENT SERVICE.

2512. Spies RB. Natural submarine petroleum seeps. OCEANUS
1983;26(3):24-29.

The author discusses research on the distribution, detection and environmental impact of natural seeps, particularly in the Santa Barbara Channel, California area.
seepages/pollution detection/pollution effects/oil pollution/marine pollution/INE/Santa Barbara Channel/ASFA.

2513. Palmer H. Geology of Richardson Rock, northern Channel Islands, Santa Barbara County, California. Geol. Soc. America Bull. 1965;76(10):p.1197 N; Bibliography of North American Geology (1785-1970).

Richardson Rock, 10 km west-northwest of San Miguel Island, represents the westernmost visible extension of the broad insular ridge beneath the northern Channel Islands off southern California. The rock is composed of porphyritic dacite, and its structure and orientation suggest that it is the exposed summit of one of many dikes cutting the submerged insular shelf west of San Miguel Island.

California/Petrology/Channel Islands/Richardson Rock/Structural geology/Continental shelf/Pacific Ocean/exposed dike/GEOREF.

2514. Haaker PL. Observations of agonistic behavior in the treefish, *Sebastes serriceps* (Scorpaenidae). Calif. Fish Game 1978;64(3):227-228 Address: Calif. Dep. Fish and Game, Mar. Resour. Region, 350 Golden Shore, Long Beach, CA 90802.

A display of agonistic behavior between 2 treefish was observed off Santa Catalina Island, California. The interaction is described in detail and is discussed with reference to the literature on similar observations in *S. carnatus* and *S. atrovirens*.

agonistic behavior/Scorpaenidae/treefish/Sebastes serriceps/Santa Catalina Island/marine biology/ichthyology.

2515. Kaplan IR, Bainbridge A, Holm HO, Risebrough R, deLappe B. Southern California baseline study and analysis (1975/1976). Volume III. Principal investigator work element reports. Report sections 3.1, 3.2.1-3.2.4; book 8 of 10. 1978;:582.

crude oil/ecology/marine biology/water pollution/southern california bight/anderson/anthropogenic/ntisdimm/chemical analysis/intertidal zone/hydrocarbons/sediments/oceanographic data/carbon/particles/water chemistry/sea water/environmental impacts/physical properties/tables data/sites/outer continental shelves/baseline studies/species diversity/Eganhouse/chemical oceanography/MINERALS MANAGEMENT SERVICE.

2516. Kaplan IR, Moberg ML, Gould GF. Year II. Intertidal study of the Southern California Bight (1976/77). Hydrocarbon sediment analysis. Vol. III. Sections 2.1 and 2.2. Prep. for U.S. Dep. Interior, Minerals Management Service, Pacific OCS Region, Los Angeles. Prep. by Science Applications, Inc., La Jolla, CA. 1978;:228.

MINERALS MANAGEMENT SERVICE.

2517. Howard H. Further discoveries concerning the flightless 'diving geese' of the genus *Chendytes*. Condor. 1964;66(5):p.372-376 N; Bibliography of North American Geology (1785-1970).

A carpometacarpus of *Chendytes lawi*, the first for the genus, a

furcula probably of the genus, and the first ulna of *C. lawi* have been found in a late Pleistocene marine terrace deposit on West Anacapa Island, Ventura County, Calif. Characteristics of these elements and of heretofore undescribed parts of the sternum, scapula, and humerus of *C. lawi* are discussed; this material supplements that described by L. Miller et al. (1961) from the same locality. The pectoral elements emphasize the marked degeneration of the flying mechanism; variability in detail of contour is evident where several specimens of each are available. Basic characters sufficient to differentiate *C. lawi* from *C. milleri* are clearly apparent in all pectoral elements that can be compared in the two species. Aves/Chendytes lawi/Quaternary/California/West Anacapa Island/late Pleistocene/Paleontology/Chendytes/GEOREF.

2518. Haaker PL, Parker DO, Henderson KC. Red abalone size data from Johnson's Lee, Santa Rosa Island, collected from 1978 to 1984. California Fish and Game Report 53. ; 1986. 36. growth/size/Haliotis rufescens/Santa Rosa Island/Johnson's Lee/marine biology.

2519. Karl HA. Speculations on processes responsible for mesoscale current lineations on the continental shelf, southern California. Mar. Geol. 1980;34(1-2):M9-M18. California/sedimentary structures/sedimentation/Pacific Coast/geophysical surveys/bedding plane irregularities/Hickey/physical oceanography/acoustical surveys/parting lineation/marine transport/ocean circulation/United States/Southern California/continental shelf/San Pedro Bay/sonar methods/geophysical methods/side-scanning methods/bedforms/transport/MINERALS MANAGEMENT SERVICE.

2520. Busch WS. Marine science laboratories move into the sea. (INTERNATIONAL CONFERENCE: UNDERWATER OPERATIONS AND TECHNIQUES. PARIS (FRANCE), 6-8 DEC 1982.).; CONFERENCE INTERNATIONALE: PENETRATION SOUS-MARINE. PARIS, 6-8 DECEMBRE 1982. 1982;;pp. 279-301. The National Oceanic and Atmospheric Administration is undertaking the design and construction of a new temperate water habitat system to be developed and operated by the University of Southern California. Located at Santa Catalina Island off the coast of Los Angeles, it will provide research opportunities in a temperate water kelp ecosystem. This program is one of NOAA's four regional undersea research programs. Thorough university-based operations, they provide unique capabilities with research locations, in addition to the kelp forest off California, in a mid-Pacific archipelago, in tropical coral reef waters, and on the Atlantic Continental shelf. underwater habitats/laboratories/marine sciences/in-situ measurements/NOAA/ASFA.

2521. Inderbitzen AL. Some marine aspects of engineering geology. Eng. Geology. 1964;1(2):p.59-71 N; Bibliography of North American Geology (1785-1970). Increase in offshore construction and emplacement of instrumentation on the sea floor have opened a new field to the engineering geologist. Construction includes drilling and pumping platforms, sewer outfalls, oceanographic research platforms, and ordnance test installations. Bottom-mounted instruments are used for ordnance tracking and testing, submarine detection, oceanographic data collection, and tsunami warning. Difficulties in constructing the San Diego sewer outfall off Pt. Loma and the three-dimensional submarine tracking array off the eastern coast of San Clements Island, both off California, are outlined. In both

cases, knowledge of the submarine geology and topography was important.

California/Engineering geology/Submarine installations/San Diego and San Clemente Island/San Clements Island hydrophone array and San Die/Submarine geology/Pacific Ocean/San Diego/and San Clemente Island/engineering installations/importance of geology/GEOREF.

2522. Hagemeyer CE. Development plans for the Hondo field, Santa Barbara Channel. J. Pet Technol (Dallas) 1978;30(3):392
CONFERENCE ABSTRACT. DATES: 13 APRIL TO 14 APRIL 1978. Conf. No. 78-0033. technical production management/petroleum/Santa Barbara Channel/continental shelf/offshore petroleum.

2523. Smith KLJ. Metabolism of two dominant epibenthic echinoderms measured at bathyal depths in the Santa Catalina Basin. MAR. BIOL 1982;72(3):249-256. Metabolism of two abundant echinoderm species constituting 99.6% of the epibenthic megafauna in the Santa Catalina Basin, off southern California, USA was measured at 1 300 m during the 1979 "Bathyal Expedition". Specimens of the ophiuroid *Ophiophthalmus normani* and the holothurian *Scotoplanes globosa*, collected by the submersible "Alvin", were individually placed in respirometers, and measured in situ for O₂ consumption and ammonium excretion rates. Combined population O₂ consumption rates for *O. normani* and *S. globosa* are of comparable magnitude to that of the sediment community and plankton in the benthic boundary layer (sediment and overlying 50 m water column) of the Santa Catalina Basin. oxygen consumption/ammonia/excretion/metabolism/*Ophiophthalmus normani*/*Scotoplanes globosa*/body weight/abyssobenthic zone/population characteristics/INE/USA/California/Santa Catalina Basin/ASFA.

2524. Mitchell EDJ, Lipps JH. Fossil collecting on San Clemente Island. Pacific Discovery. 1965;18(3):p.2-8
N; Bibliography of North American Geology (1785-1970). California/Paleontology/Fauna/Miocene/sedimentary beds/San Clemente Island/Tertiary/GEOREF.

2525. Hales LZ. Preliminary evaluation of wind and wave effects at potential LNG terminal sites, state of California. Appendix B: An evaluation of the relative wave climate at six offshore LNG sites considering island influences and topographic effects. Miscellaneous paper (Final). : Army Engineer Waterways Experiment Station Vicksburg Miss. WES-MP-H-78-2-APP-B; 1978. 453. Note: Appendix B to Rept. no. WES-MP-H-78-2 dated Jan 78, AD-A049 883. See also Appendix A, AD-A054 130.
This Station (WES) was requested to assist in the preliminary evaluation of the wave climate at alternate potential Liquefied Natural Gas (LNG) terminal sites by applying existing hindcast wave data of a general nature to obtain estimates of the times of excessive wave conditions at the various sites. After the preliminary evaluation was completed, WES was again requested to assist by analyzing the effects of island sheltering and topographic influences on the wave climates of six offshore sites in order to provide a more refined estimate of the wave conditions existing at the potential sites. Because of the absence of a comprehensive deepwater wave hindcast data base of sufficient degree of confidence to permit estimates of the absolute magnitude of occurrences of waves of different periods and heights, the analysis conducted is a relative evaluation only and should not be interpreted as projections of actual downtime, but rather as a consistently uniform basis for comparison. When the appropriate topographic coefficients. had been applied to the deepwater

hindcast wave data and the resulting wave climate at the potential offshore LNG site had been obtained, it was required that the effects of this resultant wave climate be determined on four possible terminal concepts at each of the six sites. These four concepts include: (a) fixed terminal with one pier, (b) fixed terminal with two piers, (c) floating barge, and (d) deepwater mooring tower.

Marine terminals/Site selection/Ocean waves/Height/Probability/Wind velocity/Climate/Topography/Offshore/Deep water/Peak values/Refraction/Oceanographic data/Seasonal variations/Piers/Floating bases/Barges/Towers/Mooring/Tankers/Ship motion/Liquefied natural gas/Legislation/California/Coastal regions/Wind waves/Hindcasting/Swells (Marine)/Santa Barbara Channel/oceanography.

2526. Berner RA. An idealized model of dissolved sulfate distribution in recent sediments. *Geochim. et Cosmochim. Acta.* 1964;28(9):p.1497-1503 N; Bibliography of North American Geology (1785-1970).

An idealized model is proposed to illustrate the depth distribution of dissolved sulfate, in recent subaqueous sediments, that would be expected under steady state deposition. The processes considered by the model are ionic diffusion, deposition plus compaction, and bacterial sulfate reduction. Rate parameters (diffusion coefficient, rate of bacterial sulfate reduction) calculated from the model, for a sediment core from the Santa Barbara Basin of southern California, agree within an order of magnitude with values estimated by independent methods. California/Sedimentation/Santa Barbara Basin/subaqueous sediments/sulfate distribution/Geochemistry/Sediments/Sulfate/subaqueous/distribution/GEOREF.

2527. Haller JR. The unique stands of torrey pine *Pinus torreyana* from the mainland coast and Santa Rosa Island California, USA. *Proc. Int. Bot. Congr.* 1981;13(0):138
Address: DEP. OF BIOLOGICAL SCIENCES, UNIV. OF CALIFORNIA, SANTA BARBARA, CALIF. 93106 CONFERENCE PAPER: MEETING OF THE 13TH INTERNATIONAL BOTANICAL CONGRESS, SYDNEY, AUSTRALIA, AUG. 21-28, 1981.

evolution/turpentine/isozyme *Pinus Sabinianae*/*Pinus muricata*/torrey pine/ terrestrial biology/botany.

2528. Liu KK, Kaplan IR. Nitrous oxide in the sea off southern California. *THE ENVIRONMENT OF THE DEEP SEA.* 1982;:73-92. The N₂O measurements of the air collected at UCLA show possible influences from industrial N₂O sources, but the three-month average is not significantly different from that of the ocean air. The N₂O saturation in the surface water is 8% in the Santa Barbara Basin and 23-31% near the sewage outfall at Whites Point. The N₂O concentrations in the subsurface waters near Whites Point are 2-6 nM higher than those at a station 20 km away in the San Pedro Basin. The apparent N₂O production is linearly correlated with (NO⁻)₃ + NO⁻)₂). The ratio of Delta N₂O/ Delta (NO⁻)₃ + NO⁻)₂ is approximately 0.08% in the surface layer (0-100 m) and 0.3% in the deeper water. In the bottom water of Santa Barbara Basin, N₂O was preferentially consumed during denitrification under normal conditions, whereas N₂O production was temporarily enhanced following flushing of the basin water, but returned later to its normal steady state. USA/California Coast/nitrous oxide/marine environment/nitrogen cycle/microorganisms/INE/USA/California/levels/ASFA.

2529. Lipps JH. Late Pleistocene history of West Anacapa Island, California. Geol. Soc. America Bull. 1964;75(11):p.1169-1176 N; Bibliography of North American Geology (1785-1970).

A late Pleistocene surf-cut platform with a shoreline angle elevation of 28 feet above high-tide level is present on West Anacapa Island. The platform is covered by a sequence of marine and nonmarine deposits containing the remains of marine and terrestrial invertebrates, terrestrial vertebrates, and shore birds. The cutting of the platform and deposition of the rock sequence resulted from eustatic fluctuations of sea level. These rocks were probably deposited during the Sangamon interglacial and Wisconsin glacial times.

California/Paleontology/Faunas/Pleistocene/West Anacapa Island/Stratigraphy/upper/Quaternary/Pleistocene history of West Anacapa Island/Aves/Changes of level/late/Paleogeography/Shore features/Surf cut platform/GEOREF.

2530. Haller JR. Taxonomy and relationships of the mainland and island populations of *Pinus torreyana* (Pinaceae). Syst. Bot. 1986;11(1):39-50 Address: DEP. BIOL. SCI., UNIV. CALIF., SANTA BARBARA, CA 93106. *Pinus torreyana* is one of three species in *Pinus* subsect. *Sabinianae* (big-cone pines), but its maritime habitat and disjunct, edaphically restricted distribution indicate ecological similarity with coastal species of *Pinus* subsect. *Oocarpae* (closed-cone pines). Only two populations of *Pinus torreyana* exist, one on the southern California [USA] mainland, the other 280 km distant on Santa Rosa Island. These populations are shown to be distinct on the basis of gross morphology, both in the wild and in a common garden planting. Other investigators have shown differences based on turpentine composition and isozyme analysis. Authorship of the species and early confusion over the number of leaves per fascicle are discussed and clarified. The island population is given the name *Pinus torreyana* subsp. *insularis*. Evidence for the relict status of the species is presented. It is suggested that the island population may be as old or older than the present mainland population.

new subspecies/turpentine composition/isozyme analysis/leaf number/morphology/relict distribution/Pinaceae/big-cone pines/*Sabinianae*/*Pinus torreyana*/southern California mainland/Santa Rosa Island/terrestrial biology/botany.

2531. Pelaez J, Guan F. California Current chlorophyll measurements from satellite data. REP. CCOFI 1982;23:212-225. A new procedure for rapid quantitative measurement of chlorophyll-like pigment concentrations from data collected by the Coastal Zone Color Scanner on board the Nimbus-7 spacecraft has been implemented. Removal of atmospheric effects revealed ocean features not apparent in the original imagery. Comparison of chlorophyll estimates derived from independent shipboard and satellite data collected concurrently yielded a correlation coefficient of $r = 0.92$. Satellite chlorophyll images (1260 km on a side) showed a high degree of heterogeneity in the chlorophyll distribution patterns, at all scales. New, recurrent chlorophyll features in the California Current were detected. Comparison of two images collected one month apart showed important changes, both in-shore and offshore. Extensive, long-term programs like the California Cooperative Oceanic Fisheries Investigations may largely benefit from the synopticity and repetitive coverage of meaningful satellite observations.

chlorophylls/satellite sensing/satellite photography/INE/California Current/ISE/California Current/Coastal Zone Color Scanner/ASFA.

2532. Valentine JW, Lipps JH. Late Cenozoic rocky shore assemblages from Anacapa Island, California. Geol. Soc. America Spec. 1964;Paper 76.:p.229 Abstract N; Bibliography of North American Geology (1785-1970). California/Paleontology/Invertebrata/Pleistocene/Anacapa Island/Quaternary/GEOREF.

2533. Halvorson WL, Fenn DB, Allardice WR. Soils and vegetations of Santa Barbara Island, Channel islands National Park, California, USA. Environ. Manage. 1988;12(1):109-118
Address: COOPERATIVE PARK STUDIES UNIT, DEP. RECREATION PARKS, TEX. A AND M UNIV., COLLEGE STATION, TEX. 77843-2261.
The multifaceted development of an erosion surface on Santa Barbara Island, Channel Islands National Park, California, has led to this study of the relationship between soils and vegetation. A dry Mediterranean climate and past attempts at farming and introductions of alien species have led to vegetative degradation accompanied by both gully and surface erosion. Soil and vegetation analyses show this erosion to be in a location of transition. The soils are Typic Chromoxerets (Vertisol Order) with high clay, salinity, and sodium contents. The vegetation is ecotonal in nature, grading from a principally alien annual grassland with *Avena fatua* and *Atriplex semibaccata* to a shrub community dominated by the native *Suaeda californica*. Management toward revegetation and stabilization of this island ecosystem will be difficult with high clay, saline-sodic soils and disturbed vegetation.
erosion/grassland/shrub/clay/saline/sodium/soils/climates/revegetation/erosion/ gully erosion/environmental degradation/vertisols/ecotones/*Avena fatua*/*Atriplex semibaccata*/*Suaeda californica*/Santa Barbara Island/ terrestrial biology/botany/geology/environmental sciences.

2534. Haury L, Shulenberg E. Horizontal transport of phosphorus in the California Current. REP. CCOFI 1982;23:149-159.
Horizontal transport of phosphorus (inorganic dissolved PO₄ and zooplankton P) to a depth of 200 m through an area of about 4.2 x 10⁵ km² off California and Baja California has been calculated for four winter and six summer months of different years. Large seasonal and interannual variations occur in transport across CalCOFI lines 70, 80, and 110, and in the net P budget for the area. These variations are due to long-term changes in strength of the California Current and to small-scale, short-term variability caused by mesoscale turbulence and eddies. There is no correlation between upwelling indices and net P transport across lines by month. Mean summer and winter P transports were also calculated using CalCOFI PO₄ and geostrophic flow data from 1950 to 1978. The long-term mean transports for the area show a net export of about 300 g-at P/sec during winter and a net import of about 400 g-at P/sec during summer. This seasonal difference is probably due to (1) greater southward advection in summer and (2) higher mean phosphate concentrations throughout the area at all depths (0-200 m) during summer. Zooplankton contributes a mean of about 3 percent of the total P transports and budgets.
phosphorus/transport processes/horizontal distribution/seasonal variations/annual variations/zooplankton/INE/California Current/ISE/ California Current/ASFA.

2535. Mitchell EDJ, Lipps JH. Miocene marine vertebrates from San Clemente Island, California. Geol. Soc. America Spec. 1964;paper 76:p.214-215 Abstract N; Bibliography of North American Geology (1785-1970). California/Paleontology/Vertebrata/Miocene/San Clemente Island/faunal assemblage/Tertiary/vertebrates/GEOREF.

2536. Chelton DB. Large-scale response of the California Current to forcing by the wind stress curl. REP. CCOFI 1982;23:130-148.

Seasonal distributions of zooplankton volume in the California Current show a maximum at a distance of about 100 km offshore between San Francisco and northern Baja California. It is shown that this coincides with a region of offshore upwelling of the thermocline associated with a nearshore counterflow. This counterflow is evident year-round at depths below the thermocline (the California Undercurrent) but appears only seasonally in the upper 200 m (the Davidson Countercurrent). However, the integrated nearshore transport in the upper 500 m is poleward year-round. The seasonal California Current-Countercurrent system is shown to have a nonseasonal (anomalous) counterpart that fluctuates with a time scale of 5-6 months. The region of offshore upwelling associated with this anomalous pattern is found to be located somewhat farther (about 200-300 km) offshore than in the seasonal pattern. Statistical analysis of this anomalous pattern of variability reveals a response resembling that expected from a simple model of offshore Ekman pumping (upwelling) driven by the wind stress curl. As such, this upwelling is not a boundary phenomenon and is therefore quite distinct from coastal upwelling in this region.

upwelling/wind
stress/zooplankton/undercurrents/countercurrents/seasonal
distribution/nearshore dynamics/INE/California Current/ISE/
California Current/ASFA.

2537. Haubrich RA. Comparison of microseisms recorded on continents and oceanic islands. Geol. Soc. America Spec. 1964;Paper 76:p.204 Abstract N; Bibliography of North American Geology (1785-1970). Seismology/Microseisms/California/San Clemente Island/Hawaii/comparison/GEOREF.

2538. Hammer RM. Day-night differences in the emergence of demersal zooplankton from a sand substrate in a kelp forest. Marine Biol. 1981;62(4):275-280

Address: Continental Shelf Assoc., Inc., Tequesta, FL.
Day-night differences in abundance and biomass of demersal zooplankton in the water column were determined by trapping these animals as they emerged from the sand substrate in a kelp forest (*Macrocystis pyrifera*) ecosystem off Santa Catalina Island, California, USA. The day and night sampling periods of the 24 June 1979 new moon each lasted 12 h. Abundance and biomass of total demersal zooplankton were significantly higher in night samples. A mean of 2,425 plus or minus 1,168 demersal zooplankton m^{super(-)} super(2) 24 h super(-) super(1) migrated over a diel cycle; 97% of these animals were crustaceans. The mean biomass of demersal zooplankton was 94.2 plus or minus 27.6 mg ash-free dry wt m^{super(-)} super(2) 24 h super(-) super(1).
Zooplankton/Abundance/Biomass/Diurnal variations/Nocturnal variations/Diurnal cycles/Sediment substrates/emergence/benthos/diel cycle/migration/planktivorous predators/demersal zooplankton/ecological distribution/emergence/sands/vertical migrations/abundance/Crustacea/*Macrocystis pyrifera*/giant kelp/Santa Catalina Island/marine biology.

2539. Mullin MM, Williams WT. Spatial-temporal scales of zooplanktonic assemblages in three areas of the North Pacific -- a further analysis. DEEP-SEA RES 1983;30A(5):569-574.
Contiguous samples of epizooplankton in three regions of the North Pacific Ocean were assigned to faunal assemblages using Bray-Curtis and POLYDIV methods. Faunal changes spatially were more significant

than those between night and day in the California Current and nearshore zones; diurnal-nocturnal changes were relatively more important in the central gyre. The faunal assemblages occurred in smaller patches in the central gyre than in the nearshore zone, but this did not imply ecologically important unpredictability in the central gyre. zooplankton/ecological aggregations/vertical distribution/geographical distribution/temporal variations/spatial variations/IN/North Pacific/ASFA.

2540. Howard H. A fossil owl from Santa Rosa Island, California, with comments on the eared owls of Rancho La Brea. Southern California Acad. Sci. Bull. 1964;63(pt.1):p.27-31
N; Bibliography of North American Geology (1785-1970). California/Paleontology/Aves/Tecolote member of Santa Rosa Island Formation/Pleistocene/owl bone/Asio priscus/Quaternary/Santa Rosa Island/new Asio species/Wisconsinan age/GEOREF.

2541. Hammer RM, Zimmerman RC. Species of demersal zooplankton inhabiting a kelp forest ecosystem off Santa Catalina Island, California, USA. Bull. South. Calif. Acad. Sci. 1979;78(3):199-206
Address: ALLAN HANCOCK FOUND., UNIV. SOUTH. CALIF., LOS ANGELES, CALIF. 90007. substrate/feeding strategy/demersal zooplankton/kelp forest/giant kelp/Macrocystis pyrifera/Santa Catalina Island/marine biology.

2542. Miller PL. Late Cretaceous coccolith biostratigraphy of San Miguel Island, California. MICROPALAEONTOLOGY 1983;29(2):182-201.
Coccoliths recovered from the northwest coast of San Miguel Island (latitude 34 degree N) provide definitive biostratigraphic criteria for subdivision of the Upper Cretaceous strata and for regional correlation with Upper Cretaceous rocks of the southern California mainland and offshore areas. Seven coccolith zones are recognized from the stratigraphic distribution of 38 species and suggest an early Turonian to middle Maestrichtian age. More than 500 m of stratigraphic section along the northwest coast previously mapped as Paleogene are Upper Cretaceous. Part of the Upper Cretaceous sequence of San Miguel Island can be correlated with the Jalama, Chatsworth, and Ladd formations and the Point Loma Formation of the southern California mainland.
coccoliths/biostratigraphy/stratigraphic correlation/Cretaceous/INE/ USA/California/San Miguel Island/ASFA.

2543. Harman RA. Distribution of foraminifera in the Santa Barbara Basin, California. Micropaleontology. 1964;10(1):p.81-96
N; Bibliography of North American Geology (1785-1970). Foraminifera that are rare or absent in waters of normal oxygen content off southern California exist in great numbers in a low-oxygen environment within the Santa Barbara Basin, California. The foraminiferal faunas and their associated sedimentary features in this basin are described and compared with other Recent and Tertiary foraminifera and sedimentary features. Environmental significance is given to fossil homeomorphs based on this comparison.--Author's abstrac. Foraminifera/California/Santa Barbara Basin/Recent/areal distribution/with fossil forms/Paleontology/morphologic comparisons of Recent and fossil for/Cenozoic/GEOREF.

2544. Hammer RM. Ecology of kelp forest demersal zooplankton [dissertation]. Los Angeles, California, USA: University of Southern California; 1980. Unknown.
Demersal zooplankton are defined as those animals that migrate

at various times between the benthic and pelagic environments. Kelp forest demersal zooplankton off Santa Catalina Island, California are abundant and diverse, including species of polychaetes, ostracods, copepods, nebuliaceans, mysids, cumaceans, tanaids, isopods, amphipods, decapods, fishes, and various larval forms. The species composition of demersal zooplankton inhabiting six kelp forest substrates was investigated, providing the first demonstration of the existence of demersal zooplankton in this ecosystem and the first list of species caught in emergence traps. Crustaceans not only had the highest species abundance but also were the most important in terms of numerical abundance. Data supported the hypothesis that many of the zooplankton collected in the kelp forest do not originate in oceanic waters but rather are resident members of this neritic benthic community. Day-night differences in the migration of kelp forest demersal zooplankton from a sand substrate were investigated using emergence traps of different heights. Numerical abundance and biomass of demersal zooplankton in most taxa were significantly higher in night samples, indicating that diel emergence is primarily a nocturnal phenomenon. No significant differences were found in either the numerical abundance or biomass of demersal zooplankton collected in high and low traps, suggesting that both traps give comparable estimates of the amount of demersal zooplankton available to planktivorous predators. Day-night differences and the effects of light on migration of demersal zooplankton from holdfasts of the giant kelp *Macrocystis pyrifera* were investigated. The diel emergence of demersal zooplankton from kelp holdfasts occurred primarily at night. Demersal zooplankton emerged into black experimental traps in significantly higher numbers during daylight hours than into clear control traps, suggesting that light is a major factor governing this migration. Data suggested that the migration of most gammaridean amphipods and harpacticoid copepods is initiated by the absence of light whereas the emergence of most ostracods is probably set by an internal biological clock. Neither all groups nor all individuals of a group or species exhibited the same behavioral response to artificial darkness. Removal trapping over a 5-day period using emergence traps provided data on the numerical abundance and biomass of demersal zooplankton migrating from *M. pyrifera* holdfasts. It was estimated that 38-48% of the total demersal zooplankton population migrated during the first diel cycle, suggesting that the distributions of species and patches within substrates are extremely dynamic due to the constant migratory activity of these animals. Sampling techniques and the adaptive significance of diurnal vertical migration are discussed in relation to demersal zooplankton.

demersal zooplankton/diurnal migration/diel emergence/giant kelp/*Macrocystis pyrifera*/Santa Catalina Island/marine biology/marine ecology.

2545. Hayward TL, Venrick EL. Relation between surface chlorophyll, integrated chlorophyll and integrated primary production. MAR. BIOL 1982;69(3):247-252.

The relationships between surface chlorophyll and integrated values of chlorophyll and primary production are examined in the California Current and the central North Pacific Ocean. In the California Current, surface chlorophyll is correlated with both integrated chlorophyll and integrated primary production, although there is considerable scatter in the relationships. In the central North Pacific, surface chlorophyll is not correlated with either integrated chlorophyll or integrated primary production. An analysis of closely spaced replicate casts shows that in both areas

most of the scatter in the relations between surface values and integrated values is due to spatial or temporal changes in the relations themselves rather than measurement error. The use of surface chlorophyll or fluorescence values as indicators of the biological state of pelagic ecosystems should thus be applied with caution.
chlorophylls/primary production/correlation analysis/INE/California Current/ISE/California Current/ASFA.

2546. Campbell DH. Percussion marks on quartz grains. Jour. Sed. Petrology. 1963;33(4):p.855-859
N; Bibliography of North American Geology (1785-1970).
Texas/Sedimentary petrology/Llano region/Hensel and Hickory Sandstones/percussion marked quartz grains/Florida/Santa Rosa Island/beach sand/United States/Southern/fluvial and beach sands/Sedimentary rocks/Sandstone/Petrology/Sediments/Sand/GEOREF.

2547. Hamner WM, Strand SW, Matsumoto GI, Hamner PP. Ethological observations on foraging behavior of the ctenophore *Leucothea* sp. in the open sea. Limnol. Oceanogr. 1987;32(3):654-652
Of all the *Leucothea* seen during daylight dives in the Catalina Channel, 45% were between the depths of 18 and 22 m, usually feeding at the thermocline on a layer of copepods, primarily *Clausocalanus*. Undisturbed individuals were observed and video recorded for periods up to 40 min. The ctenophores actively selected specific depths for foraging and spent about 60% of their time foraging horizontally in the water column, 20% of their time swimming rapidly either directly upward or downward, and 20% of their time immobile and neutrally buoyant. The extent and importance of long-distance horizontal foraging activity of zooplankton and the relationship of individual behavior of zooplankton to patch dynamics has been underestimated.
foraging behavior/*Leucothea* sp./ctenophore/Santa Catalina Island/Catalina Channel/marine biology.

2548. Smith KL, Baldwin RJ. Scavenging deep-sea amphipods: Effects of food odor on oxygen consumption and a proposed metabolic strategy. MAR. BIOL 1982;68(3):287-298.
In situ respiration rates as response to the odor of food were measured for two species of scavenging amphipods, *Paralicella caperesca* from 3,650 m in the western North Atlantic Ocean and *Orchomene* sp. B. from 1,300 m in the Santa Catalina Basin off southern California (USA). In addition, complementary laboratory starvation/respiration rates for a shallow-water species, *Orchomene* sp. A, were determined. Initial elevated O₂ consumption rates were found for up to 8 h in all deep-sea amphipods exposed to bait odor, followed by a period of lowered respiration equivalent to rates observed in individuals not exposed to bait. *Orchomene* sp. A revealed a response similar to that observed in the deep-sea species. A metabolic strategy is proposed whereby scavenging amphipods efficiently utilize large episodic organic falls in the food-limited environment of the deep sea.
odor/oxygen consumption/starvation/respiration/organoleptic properties/food consumption/*Paralicella caperesca*/*Orchomene*/ASFA.

2549. Valentine JW, Lipps JH. Late Cenozoic rocky shore assemblages from Anacapa Island, California. Jour. Paleontology. 1963;37(6):p.1292 N; Bibliography of North American Geology (1785-1970).
California/Paleontology/Fauna/Quaternary/early Pleistocene/Anacapa Island/Mollusca and other/list/age/ecology/Paleoecology/Littoral/molluscan

fauna/Mollusca/early Pleistocene faunal
list/Stratigraphy/Pleistocene marine
terraces/correlation/faunas/Terraces/Pleistocene marine/GEOREF.

2550. Harding Jr. LW, Prezlin B, Sweeney BM, Cox JL. Primary production as influenced by diel periodicity of phytoplankton photosynthesis. Mar. Biol. (Berl.) 1982;67(2):179-186
Address: CHESAPEAKE BAY INST., JOHNS HOPKINS UNIV., 4800 ATWELL ROAD, Address: Chesapeake Bay Inst., John Hopkins Univ., 4800 Atwill Fd., SHADY SIDE, MARYLAND 20764.

Diel periodicity in parameters of photosynthesis-irradiance (P-I) curves was incorporated into calculations of integral daily phytoplankton production for the Santa Barbara Channel off southern California (USA). Model equations of the relationship between photosynthesis and light were used in combination with observed slope (α) and asymptote (P_{max}) values presented in the preceding paper. Primary production was always 19-39% less than comparable estimates obtained with the assumption of constant maximum daily α and P_{max} values. Regardless of which P-I formulation was used of 6 tested, observed production (using a temporal series of simulated in situ incubations) ranged from 13% less to 25% more than estimates from constant midday α and P_{max} values. The amplitude and timing of diel oscillations differed somewhat among 3 field stations. Maximum to minimum ratios ranged from approximately 3-5 for α , and 4-6 for P_{max} . The differences in amplitude and timing of oscillations in P-I curves both contributed to errors in calculating phytoplankton production. Thus, photosynthetic periodicity in the upwelling area of the Santa Barbara Channel influences phytoplankton production. There were oscillations in both α and P_{max} , and the time-dependence of these parameters should be considered to improve the accuracy of predictive models of primary productivity.

circadian rhythms/photosynthesis/phytoplankton/diel
periodicity/primary production/upwelling/diel variations/Santa
Barbara Channel/marine biology/phyecology.

2551. Murray KG, Winnett-Murray K, Eppley ZA, Hunt GLJ, Schwartz DB. Breeding biology of the Xantus' murrelet. CONDOR 1983;85(1):12-21. Xantus' Murrelets (*Synthliboramphus* (*Endomychura*) *hypoleucus*) were studied on Santa Barbara Island, California from 1975-1979. Clutch initiation occurred from March to June and usually peaked in April. The two-egg clutch was 45% of the female's weight. Eggs were laid eight days apart. Both sexes shared duties during a 34-day incubation period; partners relieved one another every three or four days. Eggs were typically left unattended in the interval between laying of successive eggs, immediately after clutch completion, and sporadically during incubation. Breeders and non-breeders of both sexes followed similar patterns of weight change, reflecting similar patterns of colony attendance: murrelets lost weight after the egg-laying period., then gradually gained weight through the rest of the breeding season. The downy young left the nest only two nights after hatching, unfed and weighing less than 30 g. Chicks and their parents apparently moved well offshore their first night at sea. Even though most murrelets on Santa Barbara nested in concealed rock crevices, irregular nest attendance patterns left eggs vulnerable to predation, resulting in the loss of 44% of the eggs laid. Predation by deer mice (*Peromyscus maniculatus*) is currently the greatest risk to the breeding of these murrelets on Santa Barbara Island.

USA/California/Santa Barbara
Island/breeding/predation/clutch/*Synthliboramphus*
hypoleucus/*Peromyscus maniculatus*/INE/USA/California/ Santa Barbara
Island/ASFA.

2552. Bandy OL. Larger living Foraminifera of the continental borderland of southern California. Cushman Found. Foram. Research Contr. 1963;14(4):p.121-126 N; Bibliography of North American Geology (1785-1970). Foraminifera/Quaternary/California/southern basins/Recent/GEOREF.

2553. Harris LG, Ebeling AW, Laur DR, Rowley RJ. Community recovery following storm damage: A case of facilitation in primary succession. Science 1984;224:1336-1338 disturbance/storm damage/succession/Santa Barbara Channel/marine biology.

2554. Mitchell EDJ. Contributions from the Los Angeles Museum Channel Islands Biological Survey No. 37, Brachyodont desmostylian from Miocene of San Clemente Island, California. Southern California Acad. Sci. Bull. 1963;62(pt. 4):p.192-201 N; Bibliography of North American Geology (1785-1970). California/Paleontology/Mammalia/Tertiary/Miocene/San Clemente Island/desmostylian/Paleoparadoxia sp./GEOREF.

2555. Harrold C, Reed DC. Food availability, sea urchin *Stronglyocentrotus franciscanus* grazing, and kelp forest community structure. Ecology 1985;66(4):1160-1169 Address: CENT. COASTAL MARINE STUDIES, UNIV. California, SANTA CRUZ, CALIF. 95064.

Unlike most previously reported kelp forests, which exhibit long-term persistence over large spatial scales, the kelp forest community on the west end of San Nicolas Island, California [USA] occurs as a dynamic patchwork of barren areas characterized by grazing sea urchins and an algal assemblage consisting of upright and encrusting coralline algae, and kelp-dominated areas characterized by high densities of perennial brown algae, including the giant kelp *Macrocystis pyrifera*. The factors that regulate the grazing activity of sea urchins (*S. franciscanus*), which in turn determines the structure of this community are examined. In the barren area, drift algae were sparse, sea urchins were poorly nourished, occupied open, unprotected microhabitats, and actively grazed the substratum. In the kelp-dominated area, drift algae were abundant, sea urchins were well nourished, moved little, occupied cracks and crevices, and probably fed on drift algae. Early in the study substantial recruitment of brown macroalgae occurred in both sites, and the barren area gradually transformed into a kelp-dominated area. Concomitant with this change, the abundance of drift algae in the barren area increased. Urchins in this area abandoned open microhabitats for protected crevices and pockets; sea urchin grazing intensity was reduced to levels characteristic of the kelp-dominated area. From these observations a qualitative model is presented in which the transformation from one configuration to another is triggered by a behavioral switch in the mode of feeding of red sea urchins. This switch is controlled by the availability of drift algae, which in turn is dependent upon the abundance of attached macroalgae. The adult algal standing stocks appear to be regulated by prevailing hydrographic conditions, which are either favorable or unfavorable for kelp recruitment, survivorship, and growth. In this model grazing intensity is independent of urchin density and therefore provides a new view of how kelp forest communities function. population density model/kelp forests/grazing/urchin barrens/kelp forest community/grazing/food availability/community structure/herbivores/persistence giant kelp/*Macrocystis pyrifera*/red sea urchins/*Stronglyocentrotus franciscanus*/San Nicolas Island/marine biology/ecology.

2556. Berelson WM, Hammond DE, Fuller C. Radon-222 as a tracer for mixing in the water column and benthic exchange in the southern California borderland. EARTH PLANET. SCI. LETT 1982;61(1):41-54.

The concentrations of super(222)Rn and super(226)Ra in the water column and in the sediments of Santa Barbara and San Nicolas basins have been measured semi-annually over the last four years. Approximately one-third of excess radon profiles obtained in the water column in these basins can be adequately fit with a one-dimensional eddy diffusion-decay model. Exponential profiles in the center of San Nicolas Basin yield a vertical eddy diffusivity of 26 plus or minus 16 cm super(2)/s and 3.4 plus or minus 10 cm super(2)/s for Santa Barbara Basin. The application of a two-dimensional eddy diffusion-decay model to profiles obtained in the center and on the margins of San Nicolas Basin produces a better fit than is found using a one-dimensional vertical eddy diffusivity. The two-dimensional model for San Nicolas Basin predicts a vertical eddy diffusivity of 17 cm super(2)/s and horizontal eddy diffusivity of 10 super(5) cm super(2)/s. These values are in reasonable agreement with those predicted from the vertical buoyancy gradient and the horizontal length scale. water mixing/water column/sediments/radon isotopes/radioactive tracers/mixing/turbulent diffusion/INE/USA/California/Santa Barbara Basin/INE/ USA/California/San Nicolas Basin/ASFA.

2557. Howard H. Contributions from the Los Angeles Museum Channel Islands Biological Survey [No.] 34, A fossil bird, Caracara, from Santa Rosa Island. Southern California Acad. Sci. Bull. 1962;61(pt.4):p.227-228 N; Bibliography of North American Geology (1785-1970).

Aves/Caracara preletosus/Pleistocene/California/Santa Rosa Formation/Paleontology/Santa Rosa Island/Quaternary/GEOREF.

2558. Harshman L, Taylor CE. Gene frequencies of an isolated population of *Drosophila pseudoobscura*. J. Hered. 1978;69(3):197-199

Address: STATE UNIV. N.Y., STONY BROOK, N.Y. 11790.

Allozyme and karyotype frequencies were determined for an isolated population of *D. pseudoobscura* on San Miguel island off the California coast. This population was not very different from that of the mainland, indicating that isolation does not necessarily lead to genetic differentiation.

allozyme/karyotype/population/genetic

differentiation/isolation/gene frequencies

Diptera/Drosophilidae/*Drosophila pseudoobscura*/San Miguel Island terrestrial biology/evolution/entomology/genetics.

2559. Klingbeil RA. Pacific mackerel: A resurgent resource and fishery of the California Current. Calif. Coop. Oceanic Fish. Invest. Rep. 1983;24:35-45. Pacific mackerel/*Scomber japonicus*/fishery/regulations/population trends/age/length weight/jack mackerel/*Trachurus symmetricus*/fish/Cross Allen TEXT/MINERALS MANAGEMENT SERVICE.

2560. Nelson CS, Husby DM. Climatology of surface heat fluxes over the California Current region. NMFS; HIGHLANDS, NJ (USA); NOAA TECH. REP 1983; Historical surface marine weather observations are used to compute large-scale atmosphere-ocean heat exchange components over the California Current region. Heat exchange components are summarized by 1 degree square areas and long-term months, and major features of the monthly distributions are described. The accuracy of the derived air-sea interaction

variables and methods of computation are discussed. The region off the west coast of the United States and Baja California is characterized by net annual heat transfer from atmosphere to ocean. Net oceanic heat gain reaches a maximum during summer off Cape Mendocino. Near the coast, surface heat flux is determined by a balance between incoming solar radiation and effective back radiation.

climatology/surface temperature/heat transfer/ocean-atmosphere system/INE/California Current/ISE/California Current/ASFA.

2561. Emery KO, Hulsemann J. The relationships of sediments, life and water in a marine basin. Translated title: with German abstract. Deep Sea Research. 1962;8(3-4):p.165-180
N; Bibliography of North American Geology (1785-1970). Basins/structural/Sedimentation/California/Santa Barbara basin/submarine/Sedimentary petrology/sediment cores/Sediments/Marine/Fabric analysis/GEOREF.

2562. Harshman LG, Taylor CE. Allozyme and karyotype characterization of *Drosophila pseudoobscura* from San Miguel Island. Genetics 1978;88(4 PART 2):S38-S39
CONFERENCE PAPER: .
Allozyme/karyotype Diptera/*Drosophila pseudoobscura*/San Miguel Island/terrestrial biology/evolution/entomology.

2563. Knaggs EH, Sunada JS. Validity of otolith age determination of jack mackerel, *Trachurus symmetricus* from the Southern California Bight area. Calif. Dep. Fish Game, Mar. Res. Tech. Rep. 1974;:11.
MINERALS MANAGEMENT SERVICE.

2564. Murray D, Schrader H. Distribution of silicoflagellates in plankton and core top samples from the Gulf of California. MAR. MICROPALAEONTOLOGY 1983;7(6):517-539.
Plankton and surface sediment samples from the Gulf of California were examined to determine the present geographic distribution of silicoflagellate species in this area. Variations in the species composition of the silicoflagellate assemblage were found to be related to water mass distributions. Eight species were identified in these samples. *Octactis pulchra* is associated with high levels of primary productivity in the surface waters and is found in greatest abundance in the central Gulf of California. *Dictyocha messanensis* dominates the silicoflagellate assemblage in stations outside the Gulf of California and increases in relative abundance with decreasing amounts of *Octactis pulchra*. *Dictyocha calida*, *Dictyocha* sp. A, and *Dictyocha* sp. B are associated with equatorial waters and have the highest relative abundance near the mouth of the Gulf. *Dictyocha epiodon* and *Distephanus speculum* are associated with cold California Current Water, and *Dictyocha epiodon* is present in minor abundance in Gulf samples. *Dictyocha* sp. 2 has a patchy distribution with low relative abundance.
Mexico/California Gulf/water currents/ecological distribution/population levels/population number/water masses/*Octactis*/*Dictyocha*/ISE/California Gulf/ASFA.

2565. Emery KO, Hulsemann J. Santa Barbara Basin, a semi euxinic sedimentary environment. Geol. Soc. America Spec. 1962;paper 68:p.23-24 Abstract N; Bibliography of North American Geology (1785-1970). California/Sedimentary petrology/Santa Barbara Basin/semi euxinic environment/Ecology/Marine/semi euxinic/GEOREF.

2566. Hart L. Field studies of blade and stipe growth in *Pelagophycus porra* (Laminariales). J. Phycol. 1980;16(SUPPL.):18

CONFERENCE PAPER: ANNUAL MEETING OF THE PHYCOLOGICAL SOCIETY OF AMERICA, VANCOUVER, B.C., CANADA, JULY 12-16, 1980.

growth/light Phaeophyta/Laminariales/Pelagophycus porra/Santa Catalina Island marine biology/phycology/botany.

2567. Koblinsky CJ, Simpson JJ, Dickey TD. An offshore eddy in the California Current system--II. Surface manifestation. Prog. Oceanogr. 1984;13:51-69.

Hickey/text/physical oceanography/MINERALS MANAGEMENT SERVICE.

2568. Hobson ESJ. The structure of fish communities on warm-temperate and tropical reefs. THE BIOLOGICAL BASES FOR REEF FISHERY MANAGEMENT. PROCEEDINGS OF A WORKSHOP HELD OCTOBER 7-10, 1980 AT ST. THOMAS, VIRGIN ISLANDS OF THE UNITED STATES. 1982;:pp. 160-166.

Nearshore fish communities are structured in response to local conditions, and so are best characterized by comparing communities from differing ecosystems. Particularly insightful are comparisons between communities at different latitudes because community structure is known to vary with latitude in many groups of animals and plants. This presentation compares the structure of fish communities on warm-temperate and tropical Pacific reefs. The comparison is between reefs at Santa Catalina Island, California (lat 33 degree 28'N, long 118 degree 29'W) and at the Island of Hawaii (lat. 19 degree 30'N, long. 155 degree 35'W). coral reefs/aquatic communities/population structure/trophic relationships/INE/USA/California/Santa Catalina Island/ISE/Hawaii/ASFA.

2569. Orr PC. Arlington Springs man. Science.

1962;135(3499):p.219 N; Bibliography of North American Geology (1785-1970).

California/Paleontology/Man/fossil/Pleistocene/Santa Rosa Island Formation/Santa Rosa Island/Quaternary/GEOREF.

2570. Hauksson E. Constraints on the velocity structure of the crust in the Los Angeles Basin and the central Transverse Ranges, Southern California. AGU 1985 fall meeting. Eos, Transactions, American Geophysical Union 66(46). ; 1985. 973.

Address: Univ. South. Calif., Dep. Geol. Sci., Los Angeles, CA
Conference: AGU 1985 fall meeting. San Francisco, CA Dec. 9-13, 1985.

tectonophysics/geophysical surveys/crust/seismic surveys/velocity structure/elastic waves/Mohorovicic discontinuity/Los Angeles Basin/ central Transverse Ranges, Southern California/Santa Catalina Island/geology/solid earthgeophysics/applied geophysics.

2571. Martinho V, Pereira eSF. Thermal calibration of satellite infrared images and correlation with sea-surface nutrient distribution. NPS; MONTEREY, CA (USA) 1982;

Satellite infrared imagery off the California coast, near Pt. Sur, show thermal patterns associated with an upwelling center; the patterns frequently curl cyclonically when interacting with the warmer California Current. This pattern shows sharp thermal fronts, easily identified in satellite IR images, that are strongly correlated with nutrient fronts during the early stages of upwelling. With sea truth data available, it was feasible to calibrate satellite derived sea surface temperature, by applying radiative transfer theory, and to infer nutrient concentrations from their linear inverse correlations with temperature. Thus, it was possible to calibrate satellite thermal fields to produce maps of nutrient distributions. When the inferred relationships were applied over representative regions of the upwelling center, standard deviations of 0.5C, 1.7 microns and 0.1 microns were

computed for temperature, nitrate and phosphate, respectively.
satellite mosaics/upwelling/thermal radiation/surface
temperature/nutrients (mineral)/nutrients/INE/California
Current/ASFA.

2572. Harman RA. Distribution of Foraminifera within the
Santa Barbara Basin. Natl. Coastal and Shallow Water Research
Conf., 1st, 1961, Proc. [Washington, D. C.] Natl. Sci. Found. and
[U.S.] Office Naval Research. 1962:p.646-647
Abstract N; Bibliography of North American Geology (1785-1970).
Ecology/California/Marine/foraminifera and oxygen content
relations/GEOREF.

2573. Hauksson E, Teng T, Henyey TL, McRaney JK, Hsu L.
Earthquake hazard research in the Los Angeles Basin and its
offshore area (October 1, 1983 to September 30, 1984). Technical
report. : University of Southern California, Los Angeles.
Geophysics Lab. TR-85-1; 1985. 44. ((Sponsored by Geological
Survey, Reston, VA.)).
The Geophysics Laboratory at the University of Southern California
is conducting a comprehensive investigation of seismicity in the
greater Los Angeles basin and its offshore area under U.S.G.S.
Contract No. 14-08-0001-21858. As a part of this investigation,
U.S.C. operates a seismic network in the Los Angeles basin area.
During the 1984 fiscal year the authors have concentrated on
seismotectonic analysis of the seismicity recorded in the Los
Angeles Basin during the last 10 years. A comprehensive study of
earthquakes along the Newport-Inglewood fault is in progress and
the authors report the latest results. The authors are also
reanalyzing the January 1, 1979 Malibu earthquake and its
aftershocks. A substantial swarm of small earthquakes that occurred
in the Santa Barbara channel during 20-25 April 1984 offers new
understanding of active tectonics in southern California coastal
zone offshore oil fields.
Hazards/Earthquakes/Geological faults/Seismic
waves/Tectonics/Channels(Waterways)/Coasts/Oil fields/hazard
assessment/Seismic activity/seismicity/geophysical exploration/Los
Angeles Basin/Santa Barbara Channel/Newport-Inglewood fault
geology/geophysics/oceanography/seismology.

2574. Kolpack RL. Distribution of suspended particulate
matter near sewage outfalls in Santa Monica Bay, California. Ocean
Dumping and Marine Pollution; Geological Aspects of Waste Disposal.
1979;:205-239.
California/sedimentation/engineering geology/transport/waste
disposal/marine transport/United States/Santa Monica
Bay/sewage/sludge/suspended materials/environmental
geology/dispersion/Pacific
Ocean/Hood/ecosystem/waves/marine
environment/processes/current/water density
anthropogenic/anderson/eganhouse/chemical
oceanography/Hickey/physical oceanography/MINERALS MANAGEMENT
SERVICE.

2575. Kolpack RL, Drake DE. Transport of clays in the
eastern part of Santa Barbara Channel, California. Geo-Marine
Letters 1985;4(3-4):191-196. California/sedimentation/ocean
circulation/sediments/oceanography/processes/currents/distributio
n/continental shelf/detrital sedimentation/seasonal
variations/clay/Santa Barbara Channel/United
States/transport/clastic sediments/fines/Santa Clara River/Ventura
River/deposition/continental borderland/marine transport/bottom
sediments/Santa Barbara Basin/Pitas Point/Anacapa

Island/Oxnard/Montalvo Ridge/Hueneme Canyon/Santa Cruz
Island/patterns/bottom currents/California Current
system/Hickey/physical oceanography/MINERALS MANAGEMENT SERVICE.

2576. Coyer JA. Observations on the reproductive behavior of the giant kelpfish, *Heterostichus rostratus* (Pisces: Clinidae). COPEIA. 1982;(2):344-350. The reproductive behavior of the giant kelpfish was observed at Santa Catalina Island, California, from 1972-79. Establishment of a territory, courtship, spawning, and parental care were examined, as were age and weight relationships. Reproductively active males were found to select and weakly defend an algal oviposition site. Nests were not modified or prepared by the males, but were present during most months of the year. Forty defended nests were observed (27 with eggs); 77% of these involved red algae with *Gelidium nudifrons* (56%) the principal species. The male's courtship repertoire includes five behavioral units and a distinctive nuptial body color pattern. The female deposits a mass of adhesive eggs within the nest following a short courtship by the male. reproductive behavior/spawning/parental behavior/courtship/territoriality/spawning behavior/*Heterostichus rostratus*/INE/USA/ California/Santa Catalina Island/USA/California Coast/ASFA.

2577. Hauser H. Playing with the porpoises. Oceans 1984;17(6):42 Animal behavior/underwater photography/Porpoise/Santa Barbara Channel/marine biology/mammalogy.

2578. Platz BWJ, Szabo D, Murray JJ. Oceanographic observations North Pacific Ocean Station November and Pacific standard monitoring sections P3, P4, P5, and P6, July 1966-June 1974. Terminal report. USCG; WASHINGTON, DC (USA); REP. U.S. COAST GUARD OCEANOGR. UNIT 1982; Observed and interpolated temperature and salinity data with computed sigma-t values are reviewed for all oceanographic stations occupied by U.S. Coast Guard cutters at Ocean Station NOVEMBER (30 deg 00 N, 140 deg 00 W) and Pacific Standard Monitoring Sections P3, P4, P5, and P6 from July 1966 through June 1974. The water properties show certain seasonal trends with near-surface density appearing to be primarily controlled by temperature. The mixed layer demonstrates annual growth and decay dependent on changes in atmospheric conditions. The depth of this layer varies from 150 m in March to 10 m in September. Temperatures have annual periodicity; salinity has a semi-annual periodicity. There is great year-to-year variability in the seasonal layer. Anomalous decreases in temperature were usually accompanied by decreases in salinity. Vertical sections of temperature and salinity for Standard Sections P3, P4, P5, and P6 are examined to determine the seasonal variations of the boundaries between the Pacific Central Water, the Pacific transition zone, and the California Current. These water masses and the limits of their boundaries are identified by the characteristic rising of isotherms and isopycnals, T vs S relationships, and intense horizontal salinity gradients. T vs S diagrams/in situ density/water masses/boundary layers/IN/North Pacific/seasonal variations/ASFA.

2579. Harman RA. Foraminiferal variation in sediment layers of Santa Barbara basin, California. Am. Assoc. Petroleum Geologists Bull. 1961;45(1):p.132 Abstract N; Bibliography of North American Geology (1785-1970). -. California/Paleontology/Foraminifera/Santa Barbara Basin sediments/assemblages/GEOREF.

2580. Hearn TM. Pn travel times in Southern California.

Journal of Geophysical Research 1984;B 89(3):1843-1855

Address: Calif. Inst. Technol., Seismol. Lab., Pasadena, CA.

Regional variations in crustal thickness and Pn velocity, anisotropy in the mantle. 2800 travel times used in the analysis. The Ventura and Los Angeles basins have sediment delays which indicate sediment thicknesses near 10 km. The Moho depth itself varies by 10 km over Southern California with a mean of about 29 km. Five kilometers of rapid thinning between the coast and the Channel Islands is shown by a sharp gradient in the delay times. Normal crustal thicknesses occur over the rest of the array except for the area east of the Salton Trough, where an anomalously thin crust of 22 km exists. High velocities are found in the Mojave and offshore regions. Low velocities are found in the Peninsular Ranges and the Transverse Ranges. The analysis supports a mean anisotropy of 0.15 km/s with the fast direction at N 75 degrees W.--Modified journal abstract.

mantle/velocity structure/thickness/Mohorovicic discontinuity/traveltime/Pn-waves/P-waves/anisotropy/California Channel Islands/California coast geology/geophysics/seismology.

2581. Koslow JA. Feeding selectivity of schools of northern anchovy, *Engraulis mordax*, in the Southern California Bight. U.S. Natl. Mar. Fish. Serv. Fish. Bull. 1981;79(1):131-142.

Engraulis mordax/northern anchovy/feeding/fish/Cross/MINERALS MANAGEMENT SERVICE.

2582. Anon. Submerged pyramids cap seepage. WORLD DREDG. MAR. CONSTR 1983;19(1):28-29.

Two huge steel pyramids have been moored beneath the Santa Barbara Channel in an unprecedented effort to cap the natural gas and oil seeps that have polluted that coastal area for centuries. The two structures, each 100 feet square and 50 feet high, and weighing 350 tons, were placed side by side on the ocean floor at a depth of 220 feet, covering a major seep of nearly half an acre. Together, they will collect as much as 500,000 cubic feet of natural gas and 50 barrels of crude oil that escape daily from the cratered bottom.

pollution control/oil pollution/marine pollution/oil seepages/underwater technology/oil wells/offshore structures/materials recovery/INE/Santa Barbara Channel/natural gas/off shore operations/ASFA.

2583. Hearn TM, Minster JB. Time-term mapping of the Moho discontinuity in Southern California. American Geophysical Union; 1981 fall meeting. Eos, Transactions, American Geophysical Union 1981;62(45):961

Address: Calif. Inst. Technol., Seismol. Lab., Pasadena, CA, USA; Syst., Sci. and Software, USA.

seismology/earthquakes/tectonophysics/Mohorovicic discontinuity/arrays/cartography/refraction/velocity/crust/mantle /Salton Trough/basins/batholiths/intrusions/Gila Bend/time series analysis/Pn-waves/California Channel Islands/Los Angeles/Ventura/Sierra Nevada/Gulf of California/geology/solid earth geophysics.

2584. Kramer D. Distributional atlas of fish eggs and larvae in the California current region: Pacific sardine, *Sardinops caerulea* (Girard), 1951 through 1966. Calif. Coop. Ocean. Fish. Invest. Atlas 1970;12. MINERALS MANAGEMENT SERVICE.

2585. Kramer D, Smith PE. Seasonal and geographic characteristics of fishery resources, California current region: IX. Inshore sportfishes. 1973;:5.
fisheries/california/resources/marine fishes/distribution

property/seasonal variations/fishes/Hickey/physical
oceanography/MINERALS MANAGEMENT SERVICE.

2586. Bernal PA, McGowan JA. Advection and upwelling in the California Current. COASTAL UPWELLING.; COAST. ESTUAR. SCI. 1981;(1):381. The classical view of the dynamics of epipelagic ecosystems in eastern boundary currents emphasizes the role of coastal upwelling as the major external forcing mechanism. However the physical dimensions of the highly productive area indicate that off California the system is at least 500 km wide. Latitudinal gradients in the distribution of properties suggest that the system responds to both large-scale horizontal advection from the north and local upwelling. A 21-year time series of biological and physical data from the California Current is reviewed and the ability of indices of upwelling and transport from the north to predict significant, large-scale anomalies in zooplankton biomass is tested. The analyses indicate that changes in zooplankton biomass are uncorrelated with upwelling and that transport from the north is a better predictor of such changes. coastal upwelling/horizontal advection/zooplankton/biomass/INE/ California Current/ASFA.

2587. Hulsemann J, Emery KO. Stratification in recent sediments of Santa Barbara Basin as controlled by organisms and water character. Jour. Geology. 1961;69(3):p.279-290
N; Bibliography of North American Geology (1785-1970).
California/Sedimentation/Santa Barbara submarine basin/laminated sediments/Submarine geology/Santa Barbara basin/laminated cores/Wells and drill holes/GEOREF.

2588. Hein FJ, Longstaffe FJ, Sego DC. Sediment types, clay mineralogy and geotechnical properties of deep-water marine sediments: Offshore Baffin Island, Queen Charlotte-Vancouver Islands, and California borderland. B.R. Pelletier, M.A. Matich, G.G. Meyerhoff c. Third Canadian conference on Marine geotechnical engineering. Volume 2. St. John's, Newfoundland, Canada: Memorial University of Newfoundland; 1986. 559-576.
Address: Dep. Geol., Univ. Alberta, Edmonton, Alta. T6G 2E3,
Canada Conference: 3. Canadian Conference on Marine Geotechnical Engineering St. John's, Nfld. (Canada). Jun 1986.
Offshore California, gravity cores were taken from mass-wasting sites in Santa Barbara, Santa Cruz and San Nicolas Basins. X-ray diffraction analyses show that the < 2 μ m silicate fraction is dominantly smectite (> 50%). Lithologies are clayey silts, less commonly sandy-clayey silts. All samples plot below the A-line on the Casagrande Plasticity Chart; the activity of most samples is > 1. Piston cores from offshore the Queen Charlotte and Vancouver Islands were sampled, including material from shallow marine settings, and deep-sea flanks of seamounts and abyssal plains. Offshore Baffin Island, gravity cores were taken from sites of mass-wasting. The geotechnical properties correlate with texture, organic carbon and sedimentary facies.
sediment properties/clay minerals/geotechnology/clay mineralogy/soil mechanics/geophysical surveys/areal studies/materials/gravity surveys/plasticity/Atterberg limits/bathymetry/sediments/bioturbation/sedimentary structures/biogenic structures/clay Canada, Queen Charlotte Island/Canada, British Columbia, Vancouver Island/Pacific Northwest/Baffin Island/Santa Barbara Basin/Santa Cruz Basin/San Nicolas Basin geology/engineering/sedimentary geology.

2589. Traganza ED, Conrad JC, Breaker LC. Satellite observations of a cyclonic upwelling system and giant plume in the

California Current. COASTAL UPWELLING.; COAST. ESTUAR. SCI.
1981;(1):p.228.

Studies off Pt. Sur, California employing satellite thermal imagery and in situ underway sampling methods show that coastal upwelling waters may become cyclonic or occur as elongated plumes extending more than 250 km across the California Current with sharp thermal and chemical fronts. The occurrence of microplanktonic blooms adjacent to the sharp gradients suggests a relationship between the horizontal nutrient flux and primary production and between chemical mesoscale and biological patchiness. Because of the recurrence of upwelling systems in favored locations, an oceanic climatology could be developed for predicting upwelling phenomena from satellites.

coastal upwelling/infrared imagery/satellite sensing/algal blooms/phytoplankton/primary production/INE/USA/California/ASFA.

2590. Uchupi E. Submarine geology of the Santa Rosa Cortes Ridge. Jour. Sed. Petrology. 1961;31(4):p.534

N; Bibliography of North American Geology (1785-1970).

California/Geomorphology/Santa Rosa Cortes

Ridge/submarine/Petrology/Submarine geology/GEOREF.

2591. Hempel WM, Sutton CW, Kaska D, Ord DC, Reed DE, Laur, D.R., Ebeling AW, Eardley DD. Purification of species specific antibodies to carbohydrate components of *Macrocystis pyrifera*. Journal of Phycology In press antibodies/*Macrocystis pyrifera*/giant kelp/Santa Barbara Channel/marine biology/botany/phycology.

2592. Cox JL, Willason S, Harding L. Consequences of distributional heterogeneity of *Calanus pacificus* grazing. BULL. MAR. SCI 1983;33(2):213-226. *C. pacificus*, a common copepod from the California current, was the subject of a comparative study using two independent means for measuring grazing rate. Pump samples of zooplankton retaining the > 333 - μ m fraction were taken from discrete depth intervals at 12 stations in the Southern California region, sorted for *C. pacificus* stages male and female, and Stage V and IV copepodites. Using data on phytoplankton abundance at each sampling station and depth, grazing rates were computed using published equations based on extensive laboratory studies of the species. These values were compared to corresponding values of laminarinase activity, a measurement which has been proposed as a relative index of recent grazing activity. Evidence is presented to support the hypothesis that grazers, such as *C. pacificus*, tend to aggregate in regions where primary production rates are highest. One exceptional instance of intense surface shoaling of high densities of Stages V and IV copepodites was observed.

zooplankton/grazing/primary production/USA/California Coast/phytoplankton/*Calanus pacificus*/INE/USA/California/spatial distribution/correlation/ASFA.

2593. Prashnowsky A, Degens ET, Emery KO, Pimenta J. Organic materials in recent and ancient sediments Pt. 1, Sugars in marine sediment of Santa Barbara basin, California; Pt. 2, Amino acids in marine sediments of Santa Barbara basin, California.

Translated title: with German abstracts. Neues Jahrb. Geologie u. Palaontologie Monatsh. 1961;8:p.400

N; Bibliography of North American Geology (1785-1970).

California/Geochemistry/Santa Barbara submarine

basin/sediments/organic materials/analysis/GEOREF.

2594. Henderson KC, Parker DO, Haaker PL. The survival and growth of transplanted adult pink abalone *Haliotis corrugata* at

Santa Catalina Island, California, USA. Calif. Fish Game
1988;74(2):82-86

Address: CALIF. DEP. OF FISH AND GAME, MARINE RESOURCES DIV., 1301
W. 12TH ST., LONG BEACH, CALIF. 90813.

Pink abalone, *Haliotis corrugata*, populations, once abundant at Santa Catalina Island, have declined drastically. During January and April 1983, 517 adult pink abalone were experimentally transplanted from San Clemente Island to Emerald Bay on the northeast side of Santa Catalina Island as a potential concentrated spawning stock. By February 1984, the shells of 91 (18%) dead abalone had been recovered, and only 24 (5%) live abalone could be located at the transplant site. The loss of the remaining 402 (78%) tagged abalone is believed due to illegal take. Changes in length of 12 of the live abalone ranged from -8 to +7 mm (.hivin.x = 0 mm), with only three showing growth. Growth was affected by the disappearance of the local kelp, due to an influx of warm water associated with an El Nino event.

population biology/abundance/El Nino/Kelp/spawning stock/population dynamics/water temperature/illegal harvesting/pink abalone/*Haliotis corrugata*/Santa Catalina Island/Emerald Bay/marine biology.

2595. Setser PJ, Bullister JL, Frank EC, Guinasso NLJ, Schink DR. Relationships between reduced gases, nutrients, and fluorescence in surface waters off Baja California. DEEP-SEA RES 1982;29(10A):1203-1215.

Temperature, in vivo fluorescence, silicate, phosphate, dissolved hydrogen, and carbon monoxide were measured in surface waters while crossing the California Current system into San Diego. The measurements were made to define surface water variability and to help understand the causes of variations in H sub(2) and CO concentrations. Striking changes were observed crossing the current system, with the most dramatic effects occurring within 100 km of the coast. In an attempt to separate the effects of different water histories, the data were subdivided according to "water type," with four types identified on the basis of temperature. Relations between parameters were distinctly different in the different waters. Carbon monoxide showed a distinct daily cycle when data from different water types were examined separately. The amplitude of daily CO variation was positively correlated with mean fluorescence. This lends support to the hypothesis that the CO abundance is related both to light intensity and to organic content of the water.

fluorescence/silicates/phosphates/dissolved gases/hydrogen/surface water/water temperature/nutrients (mineral)/INE/California Current/ISE/California Current/ISE/Mexico/Baja California/carbon monoxide/ASFA.

2596. Scholl DW. Relationship of the insular shelf sediments to the sedimentary environments and geology of Anacapa Island, California. Jour. Sed. Petrology. 1960;30(1):p.123

N; Bibliography of North American Geology (1785-1970).

California/Maps/Anacapa Island/geologic/Sediments/Relation of insular shelf sediments to sedimenta/Submarine geology/insular shelf sediments/GEOREF.

2597. Broenkow WW. A comparison between geostrophic and current meter observations in a California Current eddy. DEEP-SEA RES 1982;29(11A):1303-1311. An eddy was observed about 200 km west of the central California coast using geostrophic estimates and a combined Eulerian-Lagrangian method. The eddy was about 80 km in diameter, with a depth-dependent rotational period of between 15 and 32 days. Spin rates were 6 to 20 cm super(-1) at 150 m and 1 to 8 cm s super(-1) at 1500 m. Direct and geostrophic velocity

measurements were in good agreement.
geostrophic flow/current meter data/oceanic eddies/Eulerian current
measurement/Lagrangian current measurement/INE/California
Current/ASFA.

2598. Orr PC. Late Pleistocene marine terraces on Santa Rosa
Island, California. Geol. Soc. America Bull. 1960;71(7):p.1113
N; Bibliography of North American Geology (1785-1970).
Terraces/Marine/Santa Rosa Island/California/GEOREF.

2599. Henry ME. Marine petroleum prospecting and pollution
monitoring with an airborne Fraunhofer line discriminator
[dissertation]. Texas, USA: Texas A&M University; 1982. 217.
A suite of twenty-eight crude oils and fourteen refined products
were analyzed in the laboratory and in outdoor tank experiments to
determine their luminescence properties. Open column and high
performance liquid chromatography were employed to classify
the crude oils and to determine the types of aromatic
molecules present in the crude oils respectively. The only
strong positive correlation found between luminescence
intensity and the chromatographic data was with percent aliphatic
molecules present. Aromatic crude oils generally displayed a slight
shift toward higher luminescence intensity at longer emission
wavelengths compared to aliphatic crude oils. This shift was not
great enough to separate aromatic crudes from aliphatic crudes
based only on luminescence data. Refined products showed an
increase in luminescence intensity at shorter emission
wavelengths compared to crude oils. Fraunhofer Line
Discriminator (FLD) data collected from a natural oil slick in the
Santa Barbara Channel compared favorably with simultaneous
observations made by trained observers. Outdoor tank
experiments demonstrated the ability of the FLD to detect small
amounts of oil on a water surface. Oil was detected by a
strong positive luminescence signal at the 486.1 nm Fraunhofer
line for only two samples; sample 1 and Pennzoil, which were
among the brightest samples analyzed in the laboratory. Digital
image processing and enhancement techniques which are applicable
to small data sets are discussed. Although detection of oil films
on a water surface by means of airborne luminescence
measurements appears feasible, the identification of the
material comprising the film requires, at a minimum, an
instrument with simultaneous multispectral capabilities and
a knowledge of the luminescence properties of the underlying
water column.
crude oil/luminescence/aromatic crude oils/oil films/oil and gas
exploration/pollution monitoring/airborne sensing/airborne
equipment/surface films/oil pollution/marine pollution
luminescence/Fraunhofer Line Discriminator/oil spills environmental
monitoring/ Santa Barbara Channel/geology/petroleum/water
quality/pollution/air quality/resource management.

2600. Bailey TL. Geology of the western Ventura Basin, Santa
Barbara, Ventura, and Los Angeles Counties, Map Sheet no. 4 of
Jahns, R. H., ed., Geology of southern California. Calif. Dept.
Nat. Res., Div. Mines Bull. 170. scale 1 in. to 6 mi., geol. map
with sections and text, Sept, 1954. 1954 N; Bibliography of North
American Geology (1785-1970).
California/Geologic maps/Ventura basin/Western/Historical
geology/Triassic/Quaternary/Physical geology/GEOREF.

2601. Harding LWJ, Prezelin BB, Sweeney BM, Cox JL. Primary
production as influenced by diel periodicity of phytoplankton
photosynthesis. MAR. BIOL 1982;67(2):179-186.

Diel periodicity parameters of photosynthesis-irradiance (P-I) curves was incorporated into calculations of integral daily phytoplankton production for the Santa Barbara Channel off southern California (USA). Primary production was always 19 to 39% less than comparable estimates obtained with the assumption of constant maximum daily alpha and P sub(max) values. Regardless of which P-I formulation was used of 6 tested, observed production (using a temporal series of simulated in situ incubations) ranged from 13% less to 25% more than estimates from constant midday alpha and P sub(max) values. Maximum to minimum ratios ranged from approximately 3 to 5 for alpha , and 4 to 6 for P sub(max). Photosynthetic periodicity in the upwelling area of the Santa Barbara Channel influences phytoplankton production. There were oscillations in both alpha and P sub(max), and the time-dependence of these parameters should be considered to improve the accuracy of predictive models of primary productivity.

primary

production/periodicity/phytoplankton/photosynthesis/INE/USA/
California/Santa Barbara/ASFA.

2602. Bailey EH. Road log for Santa Catalina Island [Calif.], G.S.A. field trip, Oct. 31, 1954. 1954:p.15
N; Bibliography of North American Geology (1785-1970).
California/General/Excursion/Santa Catalina
Island/Excursions/Geologic Maps/GEOREF.

2603. Henyey TL, Teng TI, McRaney JK, Manov DV. A sea-floor seismic monitoring network around an offshore oilfield platform and recording of the August 13, 1978 Santa Barbara Earthquake. Proceedings of Eleventh Annual Offshore Technology Conference 1979;4:2219-2223

An eight element seismic monitoring array has been established around the Dos Cuadras offshore oil field in the Santa Barbara Channel, a highly faulted region with a history of important seismicity. The array consists of five sea floor seismometers and three onshore coastal zone stations. The proper mechanical coupling of ocean-bottom seismometers to the sea floor has been a problem. The existence of a layer of soft sediments on top of the sea floor often results in severe attenuation of the transmitted seismic waves. A method has been devised of installation whereby the sea floor sensors are inserted into pipes vibracord 2-5 meters into the sea floor where water depths range from 20 to 100 meters. The sensor outputs are transmitted by sea floor coaxial cables to a central platform and then telemetered (in combination with the onshore stations) via telephone line to a recording facility in Los Angeles. Records from the August 13, 1978 Santa Barbara earthquake and its aftershocks demonstrate that the method of sensor emplacement used gives superior coupling to the sea floor resulting in a record with.

Hazards/Seismic studies/Risks/Monitoring/Outer Continental Shelf/Offshore platforms/Water pollution sources/Resources development/Oil fields/Earthquakes/Petroleum development/Santa Barbara(CA) earthquake/water quality management/pollution effects/Santa Barbara Channel/Dos Cuadras offshore oil field.

2604. Wicksten MK. Pagurus redondoensis , a new species of hermit crab from southern California (Anomura: Paguridae). J. CRUST. BIOL 1982;2(4):605-611. Pagurus redondoensis , new species, is the only known member of the provenzanoi group of the genus Pagurus in California. This small hermit crab occurs along the mainland of southern California and Santa Catalina Island. It is particularly common in shallow subtidal areas of King Harbor,

Redondo Beach. new species/animal morphology/taxonomy/Pagurus redondoensis/INE/USA/ California/ASFA.

2605. Shor GGJ, Raitt RW. Seismic studies in the southern California Continental Borderland. Tomo 2 of Geofisica aplicada. Internat. Geol. Cong., 20th, Mexico, D. F., 1956 [Trabajos] 1958;sec. 9:p.243

N; Bibliography of North American Geology (1785-1970). California/General/Seismic studies/Southern/Crustal structure of continental borderland/Physical geology/Continental borderland/crustal structure/Continental Shelf/seismic refraction/Earth/Crust/Geophysical Investigations/Submarine Geology/Southern coast/GEOREF.

2606. Hinds BD, Gillespie JB. Optical characterization of atmospheric particulates on San Nicolas Island, California. Technical rept. 22 Oct 78-10 May 79. : Army Electronics Research and Development Command, White Sands Missile Range, NM. Atmospheric Sciences Lab. ERADCOM/ASL-TR-0053; 1980. 36. The US Army Atmospheric Sciences Laboratory at White Sands Missile Range, New Mexico, analyzed eight atmospheric particulate samples and one soil and one abalone shell sample taken on San Nicolas Island. These samples were collected by the Naval Weapons Center and Pacific Missile Test Center meteorological personnel for composition and average imaginary refractive index analyses in the visible and infrared spectral region.

Atmospheric chemistry/Aerosols/Optical analysis/Refractive index/Sampling/Particulates/Soils/Chemical composition/Electron microscopy/X ray diffraction/Infrared spectroscopy/Air mass analysis/Meteorological data/San Nicolas Island/Atmospheric Sciences/Meteorology.

2607. Greenblatt PR. Small-scale horizontal distributions of zooplankton taxa. MAR. BIOL 1982;67(1):97-111. Small-scale (100 to 2,400 m) horizontal distributions of major taxonomic categories (class and order) of zooplankton were measured at a depth of 90 m with an opening-closing plankton net over a 3 d period in Oct. 1978 in the California Current. Some zooplankton categories showed evidence of diurnal vertical migration, while others had long-period temporal changes in mean abundance. Variance-to-mean ratio for large copepods and euphausiids was higher at night than during the day, while the opposite was true for chaetognaths and pteropods. The proportions of biomass in taxonomic groups differed from day to night due to the large variability of euphausiids. Comparisons of wet weight biomass to taxonomic counts indicated that biomass was usually less variable than taxonomic counts. horizontal distribution/vertical migrations/zooplankton/taxa/ISE/ California Current/correlation analysis/circadian rhythm/ASFA.

2608. Scholl DW. Exposures of San Onofre breccia on Anacapa Island, California. Am. Assoc. Petroleum Geologists Bull. 1959;43(1):p.222 N; Bibliography of North American Geology (1785-1970). Breccia/California/Anacapa Island/Historical geology/San Onofre breccia/Miocene/GEOREF.

2609. Hixon MA. Competitive interactions between California reef fishes of the genus *Embiotoca*. Ecology 1980;61(4):918 competition/reef fish/*Embiotoca lateralis*/*Embiotoca lateralis*/Santa Barbara Channel/marine biology/ecology.

2610. Lasker R. Laboratory studies of predation by marine

copepods on fish larvae. U.S. Natl. Mar. Fish. Serv. Fish. Bull. 1971;69(3):655-667. copepods/california current/fish larvae/predation/zooplankton/Pieper/fisheries/taxonomy/life cycles/animal migrations/thompson/invertebrates/crustacea/seasonal variations/animal migrations/MINERALS MANAGEMENT SERVICE.

2611. Lasker R. The relation between oceanographic conditions and larval anchovy food in the California Current: Identification of factors contributing to recruitment failure. Rapp. P.-V. Reun. Cons. Int. Explor. Mer 1978;173:212-230. TEXT/CROSS/ALLEN/FISH/MINERALS MANAGEMENT SERVICE.

2612. Chelton DB, Bernal PA, McGowan JA. Large-scale interannual physical and biological interaction in the California Current. J. MAR. RES 1982;40(4):1095-1125. Thirty years of temperature, salinity, steric height and zooplankton data are examined to explore the potential causes of large-scale biological variability in the California Current. The physical and biological properties are all found to be dominated by a pronounced interannual signal with very large spatial scale. In contrast to the classical view of the dynamics of epipelagic ecosystems in eastern boundary currents, wind-forced coastal upwelling of nutrient-rich deep water is shown to play a relatively minor role in controlling the large-scale zooplankton biomass. Over interannual time scales, zooplankton abundance is primarily influenced by large-scale variations in the flow of the California Current. Increases in the southward transport lead to increases in zooplankton biomass, while decreases in the transport result in abnormally low zooplankton biomass. hydrography/plankton surveys/zooplankton/biomass/current observations/California Current/ecosystem dynamics/INE/California Current/ISE/ California Current/variations/ASFA.

2613. Resig JM. Ecology of foraminifera of the Santa Cruz Basin, California. Micropaleontology. 1958;4(3):p.287 N; Bibliography of North American Geology (1785-1970). California/Paleontology/Foraminifera/Santa Cruz basin/Recent/Ecology/ecology and fossil contamination/Quaternary/GEOREF.

2614. Hoagland PI, Eichenberg TK. The Channel Islands National Marine Sanctuary. Oceanus 1988;31(1):66 The M/V Wellwood grounding: a sanctuary case study. Oil exploration/History/Channel Islands National Marine Sanctuary/grounding/California Channel Islands/policy/petroleum/.

2615. Laurs RM. The north Pacific albacore - an important visitor to California Current waters. Calif. Coop. Oceanic Fish. Invest. Rep. 1983;24:99-108. Fishing gear/migration/growth/length/feeding/fish/Cross/fishery/albacore/Thunnus alalunga/recruitment/MINERALS MANAGEMENT SERVICE.

2616. Henry ME. Marine petroleum prospecting and pollution monitoring with an airborne Fraunhofer Line Discriminator. DISS. ABST. INT. PT. B - SCI. & ENG 1982;43(6). A suite of twenty-eight crude oils and fourteen refined products were analyzed to determine their luminescence properties. Refined products showed an increase in luminescence intensity at shorter emission wavelengths compared to crude oils. Fraunhofer Line Discriminator (FLD) data collected from a natural oil slick in the Santa Barbara Channel compared favorably with simultaneous observations made by trained observers. Outdoor tank experiments demonstrated the ability of the FLD to detect small amounts of oil

on a water surface.

oil and gas exploration/pollution monitoring/airborne sensing/airborne equipment/surface films/oil pollution/marine pollution/luminescence/oil spills/environmental monitoring/remote sensing/dissertation/Fraunhofer Line Discriminator/ASFA.

2617. Orr PC. Late Pleistocene marine terraces on Santa Rosa Island, California. Geol. Soc. America Bull. 1959;70(12):p.1738
Abstract N; Bibliography of North American Geology (1785-1970).
California/Historical geology/Santa Rosa Island/Pleistocene terraces/radiocarbon ages/Physiographic geology/Terraces/Pleistocene/GEOREF.

2618. Hobson ES,, Huntsman GR, Nicholson WR, Fix WW,. The structure of fish communities on warm-temperate and tropical reefs. G.R. Huntsman, W.R. Nicholson, W.W. Fix J. The biological bases for reef fishery management. Proceedings. Beaufort, NC (USA): NOAA-TM-NMFS-SEFC-80; 1982. 160-166.
Address: Natl. Mar. Fish. Serv., Southwest Fish. Cent., Tiburon, CA, USA. National Marine Fisheries Serv., Beaufort, NC (USA). Southeast Fisheries Cent. Nearshore fish communities are structured in response to local conditions, and so are best characterized by comparing communities from differing ecosystems. Particularly insightful are comparisons between communities at different latitudes because community structure is known to vary with latitude in many groups of animals and plants. This presentation compares the structure of fish communities on warm-temperate and tropical Pacific reefs. The comparison is between reefs at Santa Catalina Island, California (lat 33 degree 28'N, long 118 degree 29'W) and at the Island of Hawaii (lat. 19 degree 30'N, long. 155 degree 35'W). coral reefs/aquatic communities/population structure/trophic relationships/fish/Santa Catalina Island/Island of Hawaii/marine biology/ichthyology/fisheries/resource management.

2619. Lavenberg RJ, Ebeling AW. Distribution of midwater fishes among deep water basins of the southern California shelf. Proceedings of the Symposium on the Biology of the California Islands 1967;:185-201.
Santa Barbara/botanic garden/Bathymetric distribution/geographic distribution/faunal groups/current patterns/basin patterns/fishes/zoology/vertebrates/MINERALS MANAGEMENT SERVICE.

2620. Grossman EL. Stable isotopes in live benthic foraminifera from the Southern California borderland. DISS. ABST. INT. PT. B - SCI. & ENG 1982;43(6). The major objective of this dissertation is to examine and establish several fundamental relationships that underlie the use of stable isotopes in paleoenvironmental studies. These relationships include: (1) an aragonite-water delta super(18)O paleotemperature scale, (2) an aragonite-calcite paleotemperature scale, and (3) super(13)C fractionation between calcite and dissolved bicarbonate. They are determined empirically from isotopic measurements of Rose Bengal-stained benthic foraminifera and ambient water collected from the Southern California borderland. The paleotemperature scale for aragonite has been determined based on the super(18)O composition (delta super(18)O) of live *Hoeglundina elegans* (this study), core-top Hoeglundian, inorganic precipitate, and molluscs. Over the temperature range of 0 degree -25 degree C the equation is $T(\text{degree C}) = 20.19 - 4.56(\text{delta super(18)O} - \text{delta sub(w)}) + 0.19(\text{delta super(18)O} - \text{delta sub(w)}) \text{super(2)}$, where delta sub(w) is the composition of CO sub(4) in equilibrium with the ambient water at 25 degree C.
paleotemperatures/calcite/chemical composition/water

composition/oxygen
isotopes/aragonite/zoobenthos/INE/USA/California/ASFA.

2621. Orr PC, Broecker WS. Sea level changes on Santa Rosa Island, California. Geol. Soc. America Bull. 1957;68(12, pt. 2):p.1840 Abstract N; Bibliography of North American Geology (1785-1970). California/Physiographic geology/Santa Rosa Island/Pleistocene terraces/Changes of Level/Terraces/Pleistocene/GEOREF.

2622. Hobson ES, McFarland WN, Chess JR. Crepuscular and nocturnal activities of Californian nearshore fishes with consideration of their scotopic visual pigments and the photic environment. U.S. Natl. Mar. Fish. Serv. Fish. Bull. 1981;79(1):1-30

Address: SOUTHWEST FISHERIES CENTER TIBURON LABORATORY, NATIONAL MARINE FISHERIES SERVICE, NOAA, 3150 PARADISE DRIVE, TIBURON, CALIF. 94920.

Activities in 27 of the major southern Californian nearshore fish species, with emphasis on trophic relationships, were studied between 1972-1975 at Santa Catalina Island [California, USA]. Because these fish orient primarily by vision, they are strongly influenced by the underwater photic environment, which is defined with representative spectra. Crepuscular and nocturnal events are emphasized but daytime events are described for comparison. Fish (28 spp.) are listed according to whether they feed by day, mostly at night or show no clear diurnal or nocturnal mode. Activity patterns tend to be defined less clearly in the warm-temperate fish communities of California than in fish communities of tropical reefs. Included are the twilight patterns of transition between diurnal and nocturnal modes, which are considered to be defined by predation pressures. The lesser definition of twilight patterns in California could mean reduced crepuscular predation there, but Californian fish have probably evolved under severe threats from crepuscular and nocturnal predators. This is evidenced in the spectral sensitivities of their scotopic visual pigments, which cluster around 500 nm, the best position for vision during twilight and at night in Californian coastal waters. Although the scotopic system dominates vision in dim light, the spectral sensitivities of the scotopic pigments are poorly matched to the major forms of incident light at night-moonlight and starlight. They match twilight and bioluminescence, which favor similar spectral sensitivities. This probably benefits these fish most on defense. The match with twilight, when the low levels of incident light shift briefly to shorter wavelengths, enhances vision during the crepuscular periods of intensified threats from predators. The match with bioluminescence permits fish to react to threatening moves in nocturnal predators by responding to luminescing plankton that fire in the turbulence generated by these moves.
plankton/bioluminescence/diurnal feeding behavior/temperate tropical reef/predation/evolution/sight/vision/nocturnal fish/diurnal fish/activity patterns/epipelagic zone/trophic relationships/pigments/light/diel rhythms/activity patterns/teleost/marine fish/Santa Catalina Island/ marine biology/ichthyology.

2623. Ng A, Patterson CC. Changes of lead and barium with time in California off-shore basin sediments. GEOCHIM. COSMOCHIM. ACTA 1982;46(11):2307-2321.

During ancient times, the natural deposition fluxes of lead which can be leached with dilute acid from sediments in Santa Barbara, Santa Monica, and San Pedro basins offshore from the Los Angeles Urban complex, were about 0.7, 0.1 and 0.2 $\mu\text{g Pb/cm super}(2) \text{ yr}$

respectively. Since there was little difference in biological productivity in surface waters of these basins, it is proposed that clay is a major transport vehicle for sequestered soluble lead, which then explains why the lead deposition flux within the Santa Barbara basin was so much larger compared to the other basins. Today deposition fluxes of acid soluble lead within these three basins are 3- to 9-fold greater, being about 2.1, 1.1 and 1.8 $\mu\text{g Pb/cm super}(2) \text{ yr}$ respectively, partly in the form of directly deposited large sewage particles, which account for none, 2/3, and 3/4 of the total industrial lead deposition fluxes in the respective basins. sediments/lead/barium/marine pollution/INE/USA/California/ASFA.

2624. Orr PC. Radiocarbon, mammoths, and man on Santa Rosa Island [Calif.]. 1956:p. 1777
Abstract N; Bibliography of North American Geology (1785-1970). California/Paleontology/Mammoths/dwarf/Santa Rosa Island/Pleistocene/Mammalia/Mammuthus/Quaternary/Long Beach Santa Ana area/Santa Barbara Channel Islands/terraces/origin/GEOREF.

2625. Hobson RD. Performance of a sand trap structure and effects of impounded sediments, Channel Islands Harbor, California. : Tech. Rep. U.S. Army Coast. Eng. Res. Cent. CERC-TR-82-4; 1982. 40.

Address: Army Coastal Engineering Research Cent., Ft. Belvoir, VA (USA). The data collected for this study consist of 28 vibratory cores of sediments, 8 cores from sites along a native beach profile, and 20 cores from sites within the trap. The long-term sediment transport study provided the remaining data used in this report. In general, the trap functioned as designed, trapping the bulk of longshore transport which entered the trap mouth in a series of pulses or surges of sand. From an analysis of the textural data it is concluded that sediment distribution within the trap area is similar to that of the updrift coastline although the trapped sand is slightly finer and better sorted than the native beach sand. Also from the textural distributions within the trap, it is concluded that the sediment as beach fill but that bypassing could be planned to utilize the textural patterns in the construction of a beach fill downcoast. sediment traps/sediment transport/longshore sediment transport/sediment distribution/sand trap/sediments/infilling/Channel Islands Harbor/engineering/sedimentary geology/marine geology.

2626. Orr PC. Dwarf mammoths and man on Santa Rosa Island [Calif.]. Papers of the 3d Great Basin Archeological Conference. Utah Univ. Anthropol. Papers. 1956;26:p.74
N; Bibliography of North American Geology (1785-1970). California/Paleontology/Mammoths/dwarf/Santa Rosa Island/Pleistocene/Man archeological sites/Mammalia/Mammuthus/Quaternary/Man/Radiocarbon Dating/Pleistocene mammoths/GEOREF.

2627. Hochberg RG,J, Rogh B, Miller WB. Rediscovery of Radiocentrum avalonense Hemphill in Pilsbry 1905. Gastropoda: Pulmonata. Bull South. Calif. Acad. Sci. 1987;86(1):1-12
Address: DEP. INVERTEBR. ZOOL., SANTA BARBARA MUS. NAT. HIST., 2559 PUESTA DEL SOL ROAD, SANTA BARBARA, CALIF. 93105.
distribution/coastal sage scrub community/arid environment/lecotype/designation/reproductive system/Gastropoda/Pulmonata/land snail/Oreohelix avalonensis/Radiocentrum/Santa Catalina Island/terrestrial biology/malacology.

2628. Anon. The Mexican fishery for northern anchovy, *Engraulis mordax*. MAR. FISH. REV 1982;44(6-7):64-68. The northern anchovy, *Engraulis mordax*, is the most abundant species found in the California Current which dominates the coastal waters off the Baja Peninsula in Mexico and off Southern California in the United States. Until recently, the species was relatively unutilized by either Mexican or U.S. fishermen. This study explores the development of the Baja Peninsula anchovy fishery and its implications.
clupeoid fisheries/exploitation/fish meal/stock
assessment/*Engraulis mordax*/ISE/Mexico/Baja California/ASFA.

2629. Norris RM. Geologic history of the San Nicholas Island region, California. Geol. Soc. America Bull. 1953;64(12 part 2):p.1513 Abstract N; Bibliography of North American Geology (1785-1970). California/Historical geology/San Nicolas Island/Geologic History/GEOREF.

2630. Holbrook SJ, Schmitt RJ. Experimental analyses of patch selection by foraging black surfperch *Embiotoca jacksoni*. J. Exp. Mar. Biol. Ecol. 1984;79(1):39-64
Address: DEP. BIOL. SCI., UNIV. CALIF., SANTA BARBARA, CALIF. 93106. The dynamics of microhabitat use by foraging adult and juvenile black surfperch (*E. jacksoni* Agazzi) were explored. Detailed observations of black surfperch feeding at Santa Catalina Island, California [USA] revealed that adults and young-of-year juveniles co-occurred in the same habitat but used different algal substrata as foraging sites. Juveniles selected invertebrate prey almost exclusively from the surface of foliose algae. The occurrence of young *E. jacksoni* was highly correlated with that of foliose algae. Adults tended to bite most frequently from turf, a low-growing matrix of plants, colonial animals, and debris covering the rocky substratum. The abundance of adults was negatively correlated with the occurrence of foliose algae. Adults and juveniles showed marked, but different, preferences in their use of taxa of algae as foraging substrata. Certain algae (e.g., *Zonaria farlowii* Setchell et Gardner) were preferred; other taxa (e.g., *Sargassum palmeri* Grun) were avoided by both age groups. Most types of algae were preferred by 1 group but not the other. To test the hypothesis that knowledge of algal substratum composition allows prediction of fish occurrence and foraging behavior in a patch, algal cover on 2 .times. 2 m² areas of bottom was manipulated creating plots dominated by turf, *Zonaria farlowii* or *Sargassum palmeri*. Fish occurrence could be accurately predicted on the basis of abundance of foliose algae, but foraging activity of fish was highly dependent on the algal taxon that dominated the patch. Differential prey availabilities among foraging substrata provided some insight into the patterns of foraging patch preferences displayed by adult and juvenile *E. jacksoni*.
foraging ecology/feeding biology/prey selection/foraging behavior/habitat selection/microhabitat/feeding ecology/feeding behavior/food organisms/competition/black surfperch/*Embiotoca jacksoni*/Santa Catalina Island/marine biology/ecology.

2631. Jenkins KD, Brown DA, Oshida PS, Perkins EM. Cytosolic metal distribution as an indicator of toxicity in sea urchins from the Southern California Bight. MAR. POLLUT. BULL 1982;13(12):413-420.
Sea urchins (*Strongylocentrotus purpuratus*) were collected from intertidal stations at Point Dume, Redondo Beach and White's Point in the Southern California Bight. Cytosolic metal levels varied both within and between stations, with the highest levels found in organisms from White's Point. Examination of the cytosolic metal

distribution by Sephadex G-75 gel chromatography indicated that organisms adapted to increased levels of trace metals by producing more of a metallothionein-like metal-binding protein. Histological and histochemical examinations indicated that organisms were not stressed over the range of metal concentrations encountered in this study.

metals/cytosol/pollution indicators/USA/California Coast/indicator species/Strongylocentrotus purpuratus/INE/USA/California/distribution/cytosolic metals/ASFA.

2632. McGlasson RH. Foraminiferal biofacies around Santa Catalina Island, California. *Micropaleontology*. 1959;5(2):p.217-240
N; Bibliography of North American Geology (1785-1970).
California/Paleontology/Foraminifera/Santa Catalina Island/biofacies/ecology/Petrology/submarine sediments/Physiographic geology/submarine/Sediments/Submarine Geology/topography and sediments/GEOREF.

2633. Holbrook SJ, Schmitt RJ, Coyer JA. Age-related dietary patterns of sympatric adult surfperch. *Copeia* 1985;1985(4):986-994
Dietary separation between age-classes of adult black and striped surfperch was explored. Despite the fact that the sampled fish were locally sympatric and were capable of consuming the entire range of available invertebrate prey sizes and taxa, there were significant differences between diets of older (Age III-V) and younger (Age I-II) fish within each species. Intraspecific differences were of the same magnitude as interspecific dietary differences. Divergence in both sizes and taxa of prey contributed to the dietary separation.
diet/competition/foraging behavior/Embiotoca lateralis/striped surfperch/Embiotoca jacksoni/black surfperch/Santa Cruz Island/Santa Rosa Island/San Nicholas Island/marine biology/ecology.

2634. Gribi EAJ. Santa Cruz basin [Calif.] holds important promise. *Oil and Gas Jour.* 1957;55(13):p.113-116
N; Bibliography of North American Geology (1785-1970).
California/Economic geology/Oil and gas/Santa Cruz basin/possibilities/Natural Gas/Petroleum/Santa Cruz basin possibilities/GEOREF.

2635. Hollenberg GJ. Phycological notes Part 8: Two brown algae (Phaeophyta) new to California, USA. *Bull. South. Calif. Acad. Sci.* 1978;77(1):28-35
Address: DEP. BIOL., UNIV. REDLANDS, REDLANDS, CALIF. 92373. Two brown algae, *Cutleria cylindrica* Okamura and *Myriactula rivulariae* (Suhr in Areschoug) J. Feldmann from Santa Catalina Island are reported as new to California [USA]. Neither genus was previously reported from the eastern north Pacific Ocean. Comparisons with related taxa [*Splachnidium* sp., *Levringia* sp. and *Myriogloia* sp.] are not wholly conclusive because of anomalous features shown by the California plants.
new
record/morphology/distribution/ecology/algae/biogeography/taxonomy/new records/geographical distribution Phaeophyta/Cutleria cylindrica/Myriactula rivulariae/Santa Catalina Island/marine biology/botany/phycology.

2636. Legg MR, Luyendyk BP, Mammerickx J, de Moustier C, Tyce RC. Sea Beam survey of an active strike-slip fault; the San Clemente Fault in the California continental borderland. *J. Geophys. Res., B, Solid Earth and Planets* 1989;94(2):1727-1744.
California/Pacific Ocean/faults/oceanography/structural

geology/geophysical surveys/tectonophysics/displacements
continental margin/neotectonics/acoustical surveys/ocean
floors/plate tectonics/wrench faults/Pacific Coast/Western
U.S./United States/Southern California/continental
borderland/seismic surveys/high-resolution methods/Seabeam/North
American Pacific/active faults/strike-slip faults/shear zones/San
Clemente Fault/plate boundaries/transform faults/bottom
features/bathymetry/STRUCTURAL GEOLOGY/GEOPHYSICS/SOLID
EARTH/MARINE GEOLOGY/ OCEANOGRAPHY/MINERALS MANAGEMENT SERVICE.

2637. Legge MR. Geologic structure and tectonics of the
inner California continental borderland, offshore northern Baja
California, Mexico. Dissertation, Univ. of Calif., Santa Barbara,
CA 1985;:410.
introductio/MINERALS MANAGEMENT SERVICE.

2638. Kang YQ, Price JM, Magaard L. On stable and unstable
Rossby waves in non-zonal oceanic shear flow. J. PHYS. OCEANOGR
1982;12(6):528-537. The authors derive linear equations for the
study of baroclinic instability of a non-zonal oceanic shear flow
whose direction is allowed to change with depth. These equations
can be used to study unstable disturbances as well as stable Rossby
waves in such a flow. The authors also compute numerical solutions
for a stable baroclinic Rossby shear mode in the California current
by using a continuous model.
baroclinic instability/shear flow/ocean circulation/Rossby
parameter/ISE/California Current/INE/California
Current/equations/ASFA.

2639. Gardner JH. Santa Rosa buried island, New Mexico, in
relation to structural trends. Am. Assoc. Petroleum Geologists
Bull. 1952;36(1):p.167-168 N; Bibliography of North American
Geology (1785-1970).
Geologic History/New Mexico/Santa Rosa buried island/Historical
geology/Physical geology/GEOREF.

2640. Horvitz L. A geochemical survey in the Santa Barbara
Channel and its relationship to subsurface heavy-oil deposits. R.
F. Meyer. Exploration for heavy crude oil and natural bitumen.
AAPG Studies in Geology 25. ; 1987. 365-375. Address: Horvitz
Res. Lab., Houston, TX, USA Conference: Santa Maria, CA, Oct. 29-
Nov. 2, 1984. Sponsored in coop. with U.N. Inst. Train. and
Res./U.N. Dev. Programme Inf. Cent. Heavy Crude and Tar Sands.
carbon/isotopes/geochemistry/economic geology/surveys/fuel
resources/Monterey Formation/heavy oil/oil and gas fields/Hondo
Field/Pescado Field/Sacate Field/middle
Miocene/Miocene/Neogene/Tertiary/hydrocarbons/organic
materials/C-13/stable isotopes/geochemical methods/Santa Barbara
Channel/geology/petroleum.

2641. Gardner GA. Biological and hydrographical evidence for
Pacific Equatorial Water on the continental shelf north of
Vancouver Island, British Columbia. CAN. J. FISH. AQUAT. SCI
1982;39(5):660-667.
Data from two cruises in April and November 1977 indicate the
presence of Pacific equatorial water on the continental shelf north
of Vancouver Island. Water with the general temperature/salinity
characteristics of the California Undercurrent was found on the
shelf at both times. Evidence for the presence of equatorial water
was supported by the occurrence in the study area of six normally
subtropical zooplankton species: Mesocalanus tenuicornis,
Lophothrix frontalis, Candacia bipinnata, Lucicutia flavicornis,
Heterostylites longicornis , and Pleuromamma xiphias . An increase

in the proportion of equatorial water on the shelf, and a concomitant extension of the limits of distribution of equatorial water on the shelf, and a concomitant extension of the limits of distribution of oceanic zooplankters in the study area, both imply and intrusion of deep water onto the shelf. This intrusion is probably a regular event with important ramifications for the zooplankton and fish communities of the area.
water circulation/indicator species/equatorial waters/continental shelves/hydrographic data/INE/California Current/INE/Canada/British Columbia/Vancouver I./ASFA.

2642. Emery KO. The Painted Cave. Santa Cruz Island [Calif.]. Sea and Pacific Motorboat 1954;?(46):p.37-39, 91-92 N; Bibliography of North American Geology (1785-1970). California/Physical geology/Caves/Painted Cave/Santa Cruz Island/GEOREF.

2643. Horvitz SA. Processing near-surface hydrocarbon data to yield improved interpretations; a case study. Oil and Gas Journal 1987;85(17):95-96, 98, 100
Address: Tex. South. Univ., Houston, TX.
fuel resources/case studies/mathematical models/models/reservoir rocks/oil-water interface/statistical analysis/sampling/standard deviation/ Santa Ynez Mountains/Santa Barbara Channel/economic geology/petroleum.

2644. Chaffee C, Spies B. The effects of used ferrochrome lignosulphonate drilling muds from a Santa Barbara Channel oil well on the development of starfish embryos. MAR. ENVIRON. RES 1982;7(4):265-278.

The effects of water-soluble fractions (WSF) of thirteen used ferrochrome lignosulphonate muds on developing embryos of *Patiria miniata* were studied. The muds were collected during the drilling of a single slant well from Platform Hondo in the Santa Barbara Channel, California, at drilling depths of 4220 to 9858 ft. None of the embryos survived 48 hours exposure in 25% WSF of the muds (25,000 ppm mud added (v/v)). Significant reduction in growth and high abnormalities (up to 100%) were observed in the 15% WSF. In lesser concentrations the effects varied from significant reduction of growth, down to 0 multiplied by 5% for three muds, to significant enhancement of growth for several muds in some dilutions. The EC sub(50)'s ranged from 5% to greater than 15% WSF. In the 5% WSF, decreased embryo growth was correlated with increasing Cr concentrations and possibly also with total organic carbon (TOC). The results of these experiments are discussed in terms of the effects of dispersions of drilling muds in the oceanic environment. It is concluded that water column effects on organisms during the dumping of such muds are only likely within short distances of the discharge pipes of offshore drill rigs.
oil installations/ferrochrome lignosulfonate muds/pollution effects/survival/development/embryos/USA/California/Santa Barbara Channel/drilling/drilling fluids/*Patiria miniata*/INE/Santa Barbara Channel/toxicity/environmental impact/ASFA.

2645. Zbyszewski G. Le volcan de Furnas dans l'ile de Saint Miguel (Acores). Int. Geol. Cong., 19th, Algeria, C. R. 1954;sec. 15(f.17):p.139-151 E; Bibliography and Index of Geology Exclusive of North America (1933-1968). On the basis of a geologic survey of the Furnas volcano on San Miguel island in the Azores (Portugal) it is concluded that the trachytes and basalts of which the island is composed were erupted during three main phases of volcanic activity. Portugal/Physical geology/Furnas volcano/Azores/Volcanism/Volcanos/GEOREF.

2646. Huber H. Natality and weaning success in relation to age of first reproduction in northern elephant seals. *Can. J. Zool.* 1987;65(6):1311-1316 Address: NATL. MARINE MAMMAL LAB., NORTHWEST ALASKA FISHERIES CENT., NATL. MARINE FISHERIES SERV., 7600 SAND POINT WAY N.E., SEATTLE, WASH., 98115. Reproductive histories of female northern elephant seals (*Mirounga angustirostris*) tagged as pups at the Farallon, Ano Nuevo, San Miguel, and San Nicolas islands were followed on the Farallon Islands, California [USA], from 1975 to 1983. Age of primiparity ranged from 3 to 6 years. Females that first reproduced at age 4 or 5 had significantly higher subsequent natality and weaning success than did females first giving birth at 3 years. However, no difference in weaning success was evident between primiparous and experienced 4- and 5-year-olds. The number of primiparous 3-year-old animals that skipped pupping the following year was significantly higher than the number of primiparous 4-year-old animals that skipped the following year. Overall subsequent natality by parous females (both known-age and females tagged as adults) followed by 4 consecutive years averaged 0.86. On average, 14% (range 8 to 20%) of parous females did not give birth each year. Some of the females that skipped pupping hauled out in the fall with immature animals and some were present at breeding rookeries during the season of their missed pupping only to copulate. From 1974 to 1977, the number of pups born increased an average of 60% each year; however, from 1978 to 1983 the rate decreased to 25%. Most population growth was due to immigration. The range in age of parous females increased from 3 to 5 years in 1975 to 4 to 13 years in 1983. population growth/immigration/reproductive biology/life history/sexual reproduction/sexual maturity/breeding success/fecundity northern elephant seals/*Mirounga angustirostris*/Farallon Islands/San Miguel Island/San Nicolas Island/Ano Nuevo Island/marine biology/mammalogy.

2647. Wicksten MK. Behavior in *Clythrocerus planus* (Rathbun, 1900) (Brachyura, Dorippidae). *CRUSTACEANA* 1982;43(3):306-307. *Clythrocerus planus* is a small crab found on subtidal bottoms of coarse sand, shell or pebbles from the northern Gulf of California, Mexico, to Monterey, California (Schmitt, 1921; Wicksten, 1980b). Nininger (in Schmitt, 1921) noted that *C. planus* carried pieces of shell, pebbles, sticks, bits of seaweeds, or entire shells above the carapace. The last two pair of pereopods, shaped like hooks, gripped these objects. The author obtained live specimens of *C. planus* by dredging at 40-120 m off Big Fisherman's Cove, Santa Catalina Island; and Huntington Beach, California. The crabs were kept in aquaria for observation. All crabs carry bits of shell, chips of rock, or entire shells dorsal to the posterior part of the carapace. These objects are held by the propodi and dactyls of the fourth and fifth pereopods. Dead and preserved animals, however, always lose the material formerly carried. camouflage/anti-predator behavior/*Clythrocerus planus*/INE/USA/California/ASFA.

2648. Clements TD. Terraces on Santa Catalina Island, California. *Geol. Soc. Am. Bull.* 1948;59(12, pt. 2):p.1368 Abstract N; Bibliography of North American Geology (1785-1970). California/Physiographic geology/Santa Catalina Island/terraces/GEOREF.

2649. Hundley JB. Containment of a natural hydrocarbon seep in Santa Barbara Channel. O.T. Magoon, H. Converse. Coastal zone '83. Proceedings of the Symposium on Coastal and Ocean Management 3. ; 1983. 1261. Address: ARCO Oil Gas Co., Bakersfield, CA

Conference: Third symposium on coastal and ocean management;
Coastal zone '83. San Diego, CA, June 1-4, 1983. marine
installations/pollution/oil seeps/offshore/structures/Santa Barbara
Channel/Goleta/engineering geology/environmental geology/petroleum.

2650. Parrish RH, Nelson CR, Bakun A. Transport mechanisms
and reproductive success of fishes in the California Current. BIOL.
OCEANOGR 1981;1(2):175-203. Surface marine observations are used to
infer the large-scale seasonal patterns of ocean surface drift near
the coast in the California Current. Reproductive strategies of the
most successful coastal fishery species show a pattern of
correspondence to the major features of surface transport. The
apparent dependence of spawning strategies upon surface drift
conditions suggests the hypothesis that anomalies in surface drift
patterns could be a major cause of the observed wide variations in
spawning success of the major fishery species of the California
Current region.

reproductive behavior/transport processes/fishery
oceanography/surface circulation/Pisces/INE/California
Current/ISE/California Current/ASFA.

2651. Clements TD, Dana SW. Geologic significance of a
coarse marine sediment from near Santa Catalina Island, California.
Jour. Geology. 1944;52(5):p.351-354

N; Bibliography of North American Geology (1785-1970).
Andesite/California/Santa Catalina Island/marine
sediment/Basalt/Beaches/Boulders/cobbles/Historical
geology/Petrology/Physical geology/Changes of
level/Dacite/Diorite/Faults and faulting/Folding/Igneous
rocks/Metamorphic
rocks/Pebbles/Quartzite/Quaternary/Sandstones/marine/Sediments/Ca
talina Island/Subsidence/Tertiary/GEOREF.

2652. Hunt GL,J, Butler JL. Reproductive ecology of Western
Gulls and Xantus' Murrelets with respect to food resources in the
Southern California Bight. Rep. CCOFI 1980;21:62-67
Address: Dept. Ecology and Evolutionary Biology, Univ. CA Irvine,
Irvine, CA 92717, USA.

Western Gull (*Larus occidentalis*) and Xantus' Murrelet
(*Endomychura hypoleuca*) reproduction on Santa Barbara Island,
California, showed considerable sensitivity to changes in pelagic
fish populations in the Southern California Bight. Western Gulls
responded to decreases in the availability of schooling fish by
failing to breed or by switching to alternate foods. The use of
alternate foods may result in lower growth rates and chick
survival. Timing of breeding was not significantly changed.
Xantus' Murrelets foraged on larval fish, particularly larval
northern anchovies (*Engraulis mordax*). Murrelets responded to the
unavailability of larval anchovies either by failing to breed or by
delaying breeding until larval anchovies became available. Our
results demonstrate not only the sensitivity of marine bird
reproduction as an indicator of the availability of their food
resources, but also how specific differences in reproductive
biology influence the flexibility of response to environmental
change.

reproductive behavior/food fish/predators/prey abundance/alternate
foods/switching/*Larus occidentalis*/Western Gull/*Endomychura*
hypoleuca/Xantus' Murrelet/Santa Barbara Island/terrestrial
biology/ornithology.

2653. Limerick SH. Animal-sediment relationships on Tanner
and Cortes banks, California continental borderland. The Geological
Association of Canada, The Mineralogical Association of Canada, and

The Geological Society of America. 1978 Joint Annual Meeting, Toronto, Ont. (CAN), Oct. 23-26, 1978. In: Geol. Soc. Am., Abstr. Programs 1978;10(7):444-445.

California/Invertebrata/paleontology/ecology/trophic analysis/United States/Southern California/continental borderland/marine environment/benthonic taxa/communities/bathymetry/currents/deposit feeders/suspension feeders/sedimentation patterns/transport/marine transport/paleoecology/Holocene/Quaternary/modern ANTHROPOGENI/Canderson/MINERALS MANAGEMENT SERVICE.

2654. Bailey EH. Piedmontite and kyanite from the Franciscan of Santa Catalina Island [Calif.]. Geol. Soc. Am. Bull. 1940;51(12, pt. 2):p.1955 Abstract N; Bibliography of North American Geology (1785-1970). California/Mineralogy/Piedmontite/kyanite/Santa Catalina Island/Mineral descriptions/GEOREF.

2655. Hunt GL,J, Wingfield JC, Newman A, Farner DS. Sex ratio of Western Gulls *Larus occidentalis* on Santa Barbara Island California, USA. Auk 1980;97(3):473-479

Address: DEP. ECOL. EVOL. BIOL., UNIV. CALIF., IRVINE, CALIF. 92717. Female-female pairs constituted at least 10%, perhaps a substantially greater fraction, of the 1972-1978 breeding population of western gulls (*L. occidentalis*) on Santa Barbara Island, California. In this population, the adult sex ratio was 0.67 males/female. This may be the consequence of differential survival rates and may have a causal role in the formation of female-female pairs. sex ratio/breeding biology/reproductive biology/survival/seabirds/population structure/bird behavior/breeding behavior/reproductive behavior/pair bond Charadriiformes/Western Gulls/*Larus occidentalis*/Santa Barbara Island/terrestrial biology/ornithology.

2656. Lippincott WH. Intertidal study of the Southern California Bight (1976/77). Vol. I. Executive Summary. Vol. II. Syntheses and Summary. Prep. for U.S. Dep. Interior, Minerals Management Service, Pacific OCS Region, Los Angeles, CA. Prep. by Science Applications, Inc., La Jolla, CA. 1978;:299. MINERALS MANAGEMENT SERVICE.

2657. Lippincott WH. Year III. Intertidal study of the Southern California Bight (1977/78). Rocky shore, sandy beach and slough habitats. Vol. II. Reports 10-19. Prep. for U.S. Dep. Interior, Minerals Management Service, Pacific OCS Region, Los Angeles, CA. Prep. by Science Applications, Inc., La Jolla, CA. 1979;:538. MINERALS MANAGEMENT SERVICE.

2658. Alldredge AL, Cox JL. Primary productivity and chemical composition of marine snow in surface waters of the Southern California Bight. J. MAR. RES 1982;40(2):517-528. The primary productivity of flocculent marine snow (fragile and amorphous macroscopic particulates) was measured for the first time using samples collected quantitatively in surface waters of the Southern California Bight. C super(14) production rates averaged 53 plus or minus 12 times higher on macroscopic aggregates than in equal volumes of surrounding, aggregate-free seawater. Although only 0.1 to 9.1% of total primary production at 10 m occurred on flocculent marine snow at the time of sampling, the majority of photosynthetic activity in the water column may be associated with these particles during periods of high snow density. Chlorophyll a concentrations were 252 plus or minus 61 times greater but carbon fixed per unit chl a was 4 times lower on marine snow than in the

surrounding seawater.
primary production/chemical composition/surface
water/chlorophylls/marine snow/suspended particulate
matter/suspended
matter/flocculants/chlorophyll/INE/Southern California
Bight/INE/Southern California Bight/California Coast/marine
snow/ASFA.

2659. Anderson RE, Redwine LE, McGovney PE. Geology of
northern Santa Rosa Island [Calif.]. Am. Assoc. Petrol. Geol. Bull.
1949;33(12):p.2062 Abstract N; Bibliography of North American
Geology (1785-1970). California/Historical geology/Santa Rosa
Island/northern/GEOREF.

2660. Lissner AL. Deep water biological assemblages of a
hard bottom bank ridge complex of the Southern California USA
Continental Borderland. Bull. South. Calif. Acad. Sci.
1986;85(2):87-101.
Eisenia arborea/Agarum fimbriatum/Laminaria farlowii/Florometra
serratissima/coralline/algae/ophiuroid/red algae/brown algae/sea
star/gorgonian sponge/understory algae/depth abundance/coastal
influence/ReishThompson/invertebrates/MINERALS MANAGEMENT SERVICE.

2661. Hunt GL,, Newman AL, Warner MH, Wingfield JC, Kaiwi.
Comparative behavior of male-female and female-female pairs among
Western Gulls prior to egg-laying. Condor 1984;86(2):157-162
Address: Dep. Ecol. and Evol. Biol., Univ. California, Irvine, CA
92717, USA. The behavior of male-female (M-F) and female-female (F-
F) paired western gulls (*Larus occidentalis*) before egg laying was
examined on Santa Barbara Island, California to test the hypothesis
that one female in a F-F pair may assume a male role. In M-F pairs,
no behaviors were performed exclusively by either sex, although
males mounted more often, females head-tossed more often and males
acted more aggressively toward intruders. Within F-F pairs, neither
partner consistently showed masculine behavior. In a comparison of
behavior toward intruders, both members of F-F pairs resembled the
female in M-F pairs, and were generally significantly different
from males. The authors therefore reject the hypothesis that
female-female pairing is the result of either the adoption of a
"male" behavioral role by one or both partners, or an extreme
"female" role by one member.
aggressive behavior/breeding/reproductive behavior/sex
ratio/survival seabirds/population structure/pair bond/egg
laying/mating behavior/aggressive behavior/courtship *Larus*
occidentalis/Western Gulls/Santa Barbara Island/terrestrial
biology/ornithology.

2662. Lissner AL, Dorsey JH. Deep-water biological
assemblages of a hard-bottom bank-ridge complex of the southern
California continental borderland. Bull. South. Calif. Acad. Sci.
1986;85:87-101.
TEXT/CROSS/ALLEN/FISH/MINERALS MANAGEMENT SERVICE.

2663. Littler Me. Year II. Intertidal study of the Southern
California Bight (1976/77). Rocky intertidal community studies.
Vol. III. Sections 1.1.1-1.1.7. Prep. for U.S. Dep. Interior,
Minerals Management Service, Pacific OCS Region, Los Angeles, CA.
Prep. by Science Applications, Inc., La Jolla, CA. 1978;:433.
MINERALS MANAGEMENT SERVICE.

2664. Coyer JA, Zaugg-Haglund AC. A demographic study of the
elk kelp, *Pelagophycus porra* (Laminariales, Lessoniaceae), with
notes on *Pelagophycus* x *Macrocystis* hybrids. PHYCOLOGIA

1982;21(3):399-407.

Seasonality, survivorship and individual growth patterns of *Pelagophycus porra* were studied. Bi-weekly measurements were obtained from a cohort of seventy plants growing at 17-21 m depth off Santa Catalina Island, California, beginning with the undivided lamina stage and continuing until plant death or loss. *Pelagophycus* is an annual, as 86% of the cohort disappeared within 12 months. Stipe elongation rates of the cohorts had a maximum mean rate of 0 multiplied by 7 cm/d from July through November. The zone of greatest blade elongation was 10-30 cm from the blade-stipule junction. Blade growth ranged from 5 multiplied by 1-6 multiplied by 5 cm/d during July and August, and 2 multiplied by 7-3 multiplied by 2 cm/d from January through March. Rates of stipe elongation and blade growth in naturally occurring *Pelagophycus* x *Macrocystis* hybrids were similar to *Pelagophycus*, but longevity was lower.

population studies/growth patterns/growth/hybrids/survival/USA/
California Coast/*Pelagophycus*
porra/*Pelagophycus*/*Macrocystis*/INE/USA/ California/Santa Catalina
I./ASFA.

2665. Littler MM. Year III. Intertidal study of the Southern California Bight (1977/78). Methods and materials. Vol. III. Reports 1-11. Prep. for U.S. Dep. Interior, Minerals Management Service, Pacific OCS Region, Los Angeles, CA. Prep. by Science Applications, Inc., La Jolla, CA. 1979;:161. MINERALS MANAGEMENT SERVICE.

2666. Hurst RW. Geologic and geochemical investigations of Miocene volcanics in the Transverse Ranges, southern California. J.M. Armentrout, M.R. Cole, H. TerBest J. Cenozoic paleogeography of the western United States. Pac. Coast Paleogeogr. Symp. 3. ; 1979. 329.

Address: Calif. State Univ., Los Angeles, Calif., USA Conference: Pacific Coast paleogeography symposium 3; Cenozoic paleogeography of the western United States. Anaheim, Calif., March 15-16, 1979.

igneous rocks/absolute age/petrology/volcanic
rocks/dates/geochemistry/Conejo
Volcanics/Miocene/Neogene/Tertiary/genesis/K Ar/pillow
lava/pyroclastics/clastic rocks/lava
flows/plugs/intrusions/andesite/andesite-rhyolite
family/dacite/basalt/basalt family/dikes/Transverse Ranges/Santa
Monica Mountains/Channel Islands/geology/igneous
petrology/metamorphic petrology.

2667. Littler MM,e. Spatial and temporal variations in the distribution and abundance of rocky intertidal and tidepool biotas in the Southern California Bight. Southern California Baseline Study. Final Report, Vol. III, Rep. 2.1. Bureau of Land Management, U.S. Department of the Interior, Washington, D.C. 1977;:1097.

BRAY/MURRAY/ALGAE/MARINE SPERMATOPHYTES/TEXT/MINERALS MANAGEMENT SERVICE.

2668. Philander SGH, Yoon JH. Eastern boundary currents and coastal upwelling. J. PHYS. OCEANOGR 1982;12(8):862-879. The adjustment of the eastern coastal zone of an inviscid ocean with vertical walls to a change in wind conditions occurs in two stages. After the propagation of a Kelvin wave across the forced region in a time $T_{sub}(k)$ which is of the order of a day or two, the coastal upwelling zone is temporarily in equilibrium with the wind. Further adjustment occurs after a time $T_{sub}(R)$, which is of the order of a few months, when westward Rossby dispersion of the

coastal jet becomes important. These time scales define three frequency ranges that characterize the response to fluctuating winds with period P . 1) At high frequencies (P less than or equal to $T_{sub}(k)$) short Kelvin waves can destroy coherence between the forcing and response. 2) At intermediate frequencies ($T_{sub}(k)$ much greater than $P < T_{sub}(R)$) long Kelvin waves from the boundary of the forced region establish an equilibrium response so that the ocean and atmosphere are practically in phase. 3) At low frequencies (P much greater than $T_{sub}(R)$) the offshore scale is the distance Rossby waves travel in time. It is proposed that the California Current system is generated in this manner. boundary currents/coastal upwelling/upwelling/coastal waters/wind-driven circulation/wind effects/ASFA.

2669. Griesbach JO. Fulgurites and physiographical memoranda of San Clemente Island, California. Rocks and Minerals. 1947;22(12):p.1119-1121 N; Bibliography of North American Geology (1785-1970). California/Mineralogy/Fulgurites/San Clemente Island/Physiographic geology/GEOREF.

2670. Hurst RW. Volcanogenesis contemporaneous with mid-ocean ridge subduction and translation. Augustithis SS. The significance of trace elements in solving petrogenetic problems and controversies. Athens, Greece: Theophrastus; 1983. 197-213. Address: Inst. of Geochemical Research & Environmental Science, Dept. of Geology, California State Univ., Los Angeles, CA 90032. Volcanic rocks of mixed tholeiitic to calc-alkaline affinities were generated during mid-Miocene times in the southern California Borderland. The volcanic eruptions ranged in composition from basalt to rhyolite with basalt to basaltic andesite dominating. The onshore volcanic suites (Conejo, Santa Cruz Island, Santa Catalina) and offshore volcanic suites show similarities in their major-element (K_{sub}^2O , TiO_{sub}^2 , FeO_{sup}^*/MgO) and isotopic composition ($^{87}Sr/^{86}Sr$ 0.7024-0.7020 for fresh samples) suggesting similar petro-tectonic histories. Where discrepancies exist, sea-water and/or continental margin interactions appear to provide viable explanations of deviations observed in the geochemical signatures of the volcanic suites. The observed Sr isotopic compositions, trace-element and major-element characteristics provide clues to the evolution of microplate tectonics in the southern California borderland as well as the transition from a subduction complex to a mid-ocean ridge/subduction interaction during mid-Miocene time. volcanic rocks/Miocene/volcanic eruptions/microplate tectonics/subduction Conejo/Santa Cruz Island/Santa Catalina Island/geology.

2671. Littler MM,e. The distribution, abundance, and community structure of rocky intertidal and tidepool biotas in the Southern California Bight. Southern California Baseline Study. Final Report, Vol. II, Rep. 1.0. Bureau of Land Management, U.S. Department of the Interior, Washington, D.C. 1979A; BRAY/MURRAY/ALGAE/MARINE SPERMATOPHYTES/TEXT/MINERALS MANAGEMENT SERVICE.

2672. Barton RED, Robles PJM, Amador BA, Morales ZC. A Year of Current and Temperature Observations off North Baja California. CENT. INVEST. CIENT. EDUC. SUPER. ENSENADA; BAJA CALIFORNIA (MEXICO); INF. DATOS CENT. INVEST. CIENT. EDUC. SUPER. ENSENADA. 1980;(1):162. From October 1978 to October 1979, a series of current and temperature observations was gathered in 75 m of water on the

continental shelf off Isla de Todos Santos in the pacific coast of northern Baja California. Current meters were deployed at 25 m and 60 m throughout the period and at 42 m from 17 January 1979. During eleven days in June 1979, measurements were made at six additional levels at same site. In April, May and June, observations were obtained at 25 m and 60 m at similar shelf site off Cabo Colonet, B.C. 100 km further south of Isla Todos Santos. The data set is displayed and summarized in the form of time series plots. Simple statistics, histograms and progressive vector diagrams. Information on the mooring techniques is included.

current measurement/current charts/current data/mooring motion effects/temperature data/graphs/ISE/Mexico/Baja California/current data/statistical analysis/ASFA.

2673. Wilson RW. A new Pleistocene deer mouse from Santa Rosa Island, Calif. Jour. Mammalogy. 1936;17(4):p.408
N; Bibliography of North American Geology (1785-1970).
California/Paleontology/Peromyscus/Mammalia/Peromyscus/Calif./Quaternary/California./GEOREF.

2674. Hurst RW, Wood WR, Hume M. The petrologic and tectonic evolution of volcanic rocks in the southern California borderland; a transitional tectonic environment. E.G. Frost, D.L. Martin. Mesozoic-Cenozoic tectonic evolution of the Colorado River region, California, Arizona, and Nevada. : Cordilleran Publ.; 1982. 287-297.

Address: Calif. State Univ., Dep. Geol., Los Angeles, CA, USA.
igneous rocks/magmas/tectonophysics/structural geology/volcanic rocks/differentiation plate tectonics/tectonics/genesis/fractional crystallization/East Pacific Rise/North American Plate/continental margin partial melting/oceanic crust/island arcs/mid-ocean ridges/triple junctions Santa Barbara County/Ventura County/Los Angeles County/Santa Monica Mountains/Santa Cruz Island/Santa Catalina Island/structural geology.

2675. Stock C, Furlong EL. Pleistocene elephant of Santa Rosa Island, Calif. Geol. Soc. America Bull. 1929;40(1):p.176, 257 Abstract N; Bibliography of North American Geology (1785-1970).
California/Paleontology/Elephants/Santa Barbara Channel Islands/Mammalia/GEOREF.

2676. Given RR. The Western Regional Undersea Laboratory: A New Research Facility for Temperate Water Marine Scientists. OCEANS 82 CONFERENCE RECORD: INDUSTRY, GOVERNMENT, EDUCATION - PARTNERS IN PROGRESS - WASHINGTON, D.C., SEPTEMBER 20-22, 1982. 1982;:21-24.

In late 1984 the University of Southern California plans to conduct its first science mission from a new saturation diving-habitat complex at Santa Catalina Island, California. The Western Regional Undersea Laboratory Program will consist of a 9-foot diameter, 40-foot long habitat attached to a baseplate in 70 feet of water, and will allow aquanauts access to a variety of substrates and habitats including large kelp beds, rocky reefs, and a highly productive soft-bottom area. Typical missions will include studies on algae physiology, animal behavior, physical/biological interactions, resource development, pollution, human physiology, gear development and archaeological survey methods. Emphasis will be placed on long- and short-term experimental work, and will be oriented toward making maximum use of the available study sites and the need for saturation capability.

deep sea diving/training/test facilities/scientific personnel/marine ecology/diving physiology/California/USA/California/Santa Catalina Island/US/Univ. Southern California/Santa Catalina Island/ASFA.

- # 2677. Smith WST. Marine terraces on Santa Catalina Island. Am. Jour. Sci. 5th ser. 1933;25(146):p.123
N; Bibliography of North American Geology (1785-1970).
California/Physiographic geology/Santa Catalina Is./Santa Catalina Is. terraces/Terraces/GEOREF.
- # 2678. Hyland J. Monitoring potential environmental effects of oil and gas development and production in the Santa Maria Basin. G. St. Amant. Proceedings of a symposium/workshop on the marine environment of Santa Barbara and its coastal waters. NOAA Technical Memorandum NOS/MEMD No. 23. ; 1988. 44-49. A study was conducted to investigate the initial environmental effects of an offshore oil and copper spill resulting from the sinking of the freighter Pac Baroness approximately 19 km southwest of Point Conception. oil/copper/Pac Baroness/benthic monitoring/environmental impacts/petroleum/Point Conception/water quality/pollution/marine biology/resource management.
- # 2679. Imsand S. Orientation of Armored Euphausiid Prey in the Stomachs of Myctophid Fishes. CRUSTACEANA 1981;41(1):104-107. In the period 1960-1974, two species of lanternfishes, *Triphoturus mexicanus* (Gilbert, 1898) and *T. nigrescens* (Brauer, 1904), were collected by midwater trawl in the California Current and the Central north Pacific Ocean, respectively. Orientation of food inside the stomach of 120 *T. mexicanus* and 28 *T. nigrescens* was recorded and statistically tested for consistency. Results of those tests are significantly different from random, and they stimulated conjectures on how myctophids may feed and how euphausiid armor may function.
prey/escape behavior/orientation/feeding
behavior/morphology/morphology
(organisms)/Euphausiidae/Triphoturus mexicanus/Triphoturus nigrescens/ASFA.
- # 2680. Shepard FP, Grant USI, Dietz RS. The emergence of (Santa) Catalina Island. Am. Jour. Sci. 1939;237(9):p.651
N; Bibliography of North American Geology (1785-1970).
California/Historical geology/Catalina Is./Physical geology/Catalina Is.
emergence/Diastrophism/Terraces/Tertiary/GEOREF.
- # 2681. Hyland J, Kennedy J, Campbell J, Williams S, Boehm P, Uhler A, Steinhauer W. Initial environmental effects of the Pac Baroness oil and copper spill: Results of hydrocarbon and macrofaunal analyses. Proceedings of the 1989 Oil Spill Conference (Prevention, Behavior, Control, Cleanup). ; 1989. 413-419. A study was conducted to investigate the initial environmental effects of an offshore oil and copper spill resulting from the sinking of the freighter Pac Baroness approximately 19 km south-west of Point Conception, CA, at a water depth of 430 m.
oil/copper/Pac Baroness/benthic monitoring/environmental impacts/Point Conception/marine biology/pollution/petroleum/water quality/resource management.
- # 2682. Loeb VJ, Smith PE, Moser HG. Recurrent groups of larval fish species in the California Current area. Calif. Coop. Oceanic Fish. Invest. Rep. 1983;24:152-164.
Sebastes
paucispinis/bocaccio/ichthyoplankton/habitat/distribution/early life history/larvae/community/fish/Cross/MINERALS MANAGEMENT SERVICE.

2683. Loeb VJ, Smith PE, Moser HG. Ichthyoplankton and zooplankton abundance patterns in the California Current area, 1975. Calif. Coop. Oceanic Fish. Invest. Rep. 1983;24:109-131. Ichthyoplankton/seasonality/geographic/spawning/northern anchovy/hake/jack mackerel/Engraulis mordax/Merluccius productus/Trachurus symmetricus/fish/MINERALS MANAGEMENT SERVICE.

2684. Greenblatt P. Small-Scale Distributions of Zooplankton Biomass in the California Current. (SUMMARIES. 5TH MEETING OF THE INVESTIGATION CENTERS OF BAJA CALIFORNIA AND SCRIPPS INSTITUTION OF OCEANOGRAPHY.).; RESUMENES. 5 REUNION DE LOS CENTROS DE INVESTIGACION DE BAJA CALIFORNIA Y SCRIPPS INSTITUTION OF OCEANOGRAPHY. 1979;

The horizontal variability of zooplankton biomass was sampled using a multiple opening-closing plankton net. Thirty-eight plankton hauls were taken over four days and three nights, at 90 m depth, 350 km west of San Diego, California. Temporal patterns showed a day-night change but no finer temporal structure was apparent. No spatial pattern was found on scales of 100m-2.4 kilometres in either day or night samples. However, linear trends resulting from larger-scale variability, were present throughout the sampling period. The data fit a lognormal distribution well, but fit a normal distributions almost as well, indicating that the biomass distributions were not strongly skewed. Small changes in net depth did not significantly influence the observed spatial pattern. If predators upon zooplankton are food generalists, those predators' food supply would be predictable on scales of less than 2.4 kilometres due to the dominance of larger scale variability. zooplankton/biomass/INE/California Current/ISE/California Current/horizontal distribution/diurnal variations/ASFA.

2685. Rand WW. Preliminary report of the geology of Santa Cruz Island, Santa Barbara County, Calif. Mining in California. 1931;27(2):p.214 N; Bibliography of North American Geology (1785-1970).

California/Areas described/Santa Cruz Is./Geologic maps/Igneous and volcanic rocks/Tertiary/GEOREF.

2686. Hyland J, Neff Je). California OCS Phase II Monitoring Program: Year one annual report. ; 1988. unknown. ((Prepared for U.S. Minerals Management Service, Pacific OCS Region, Los Angeles, CA.)).

Contract No. 14-12-0001-30262. Volume I (MMS 87-0115) and Volume II (MMS 87-0116).

Results obtained to date provide a basis for beginning to understand environmental processes and relations that will be important in detecting and interpreting any subsequent impacts caused by oil and gas development and production activities in this region of the California OCS. Much of the predrilling chemical, physical, and biological data generated to date in this program demonstrate that impacts of discharges from oil and gas operations should be detectable, if they occur, and should be distinguishable from natural environmental variability. oil and gas development and production/offshore monitoring/fate and effects of drilling discharges/long-term environmental impacts/Santa Maria Basin/petroleum/water quality/pollution/marine biology/resource management.

2687. Longhurst AR. The pelagic phase of Pleuroncodes planipes Stimpson (Crustacea, Galatheida) in the California Current. Calif. Coop. Oceanic Fish. Invest. Rep. 1967;11:142-154. invertebrates/MINERALS MANAGEMENT SERVICE.

2688. Longhurst AR. Vertical distribution of zooplankton in relation to the eastern Pacific oxygen minimum. Deep-Sea Res. Oceanogr. Abstr. 1967;14(1):51-63. vertical migration/oxygen minimum/zooplankton distribution/california current/east pacific ocean/Pieper/MINERALS MANAGEMENT SERVICE.

2689. Longhurst AR. Diversity and trophic structure of zooplankton communities in the California Current. Deep-Sea Res. 1967;14:392-408. text/birds/MINERALS MANAGEMENT SERVICE.

2690. Longhurst AR. Distribution of the larvae of Pleuroncodes planipes in the California current. Limnol. Oceanogr. 1968;13(1):143-155. crabs/larvae/Pleuroncodes/california current/breeding/Thompson/invertebrates/MINERALS MANAGEMENT SERVICE.

2691. Longhurst AR. Pelagic invertebrate resources of the California current. California Current System - Their Fluctuating Magnitude, Distribution and Susceptibility to Use for the Benefit of the State of California. Symposium held at Lake Arrowhead, CA, Dec. 11-12, 1967. Calif. Coop. Oceanic Fish. Invest. Rep. 1969;13:60-62. 69-05677squids/crabs/cephalopods/resource development/california current/zooplankton/Pieper/MINERALS MANAGEMENT SERVICE.

2692. Salzman AG. The Selective Importance of Heat Stress in Gull Nest Location. ECOLOGY 1982;63(33):742-751. A brief, but intense, heat wave on 9 June 1979 caused catastrophic chick mortality in a population of Western Gulls (*Larus occidentalis*) on Santa Barbara Island, California, USA. Mortality ranges from 0 to 90% in different areas of the colony. Mortality was not a function of the amount of vegetation cover available to chicks, nor did chick age or size affect the probability of mortality during the heat wave. In the absence of a heat wave, chick mortality due to heat stress is rare in this population. Microclimate analysis in 1980 showed that the area of high chick heat stress mortality in 1979 was characterized by higher ground and air temperatures and lower wind velocities than the area of low mortality. The persistent nesting by gulls in areas of high potential chick mortality cannot be explained by habitat shortage or by the competitive inferiority of those birds. Enhanced access to food resources may explain the persistence of one area, but not of several others. The present nesting distribution of gulls on the island has probably not evolved in a regime of frequent heat waves, but rather in response to a long period of highly equable climatic conditions. colonies/juveniles/mortality/thermoregulation/heat stress/USA/California/Santa Barbara Island/biological stress/temperature effects/mortality causes/*Larus occidentalis*/INE/USA/California/Santa Barbara Island/ASFA.

2693. Moody GB. The geology of Santa Rosa Island [Calif.]. Am. Assoc. Petroleum Geologists Bull. 1935;19(1):p.136 Abstract N; Bibliography of North American Geology (1785-1970). California/Historical geology/Santa Rosa Is./Tertiary/GEOREF.

2694. Hewitt R. Distributional Atlas of Fish Larvae in the California Current Region: Northern Anchovy, *Engraulis mordax* Girard, 1966 Through 1979. ATLAS CCOFI. 1980;(28). This atlas depicts the abundance and distribution of the larvae of the northern anchovy, *Engraulis mordax* Girard, in the region of the California Current off the Californias. The charts are drawn from the results of survey cruises conducted by the California

Cooperative Oceanic Fisheries Investigations during the years 1966 through 1979.

fish larvae/ichthyoplankton surveys/geographical distribution/quantitative distribution/atlasses/Engraulis mordax/INE/California Current/ISE/California Current/ASFA.

2695. Knopf EC. Santa Catalina Island, minerals and geology. Pacific Mineralogist. 1938;5(2):p.3-5
N; Bibliography of North American Geology (1785-1970). California/Mineralogy/Santa Catalina Is./Physical geology/Igneous and volcanic rocks/Volcanism/GEOREF.

2696. Love MS, Stephens Jr. JE, Morris PA, Singer MM, Sandhu M, Sciarrota TC. Inshore soft substrata fishes in the Southern California Bight: An overview. Calif. Coop. Oceanic Fish. Invest. Rep. 1986;27:84-104.
fish/Cross Allen TEXT/MINERALS MANAGEMENT SERVICE.

2697. Lasker R. Factors Contributing to Variable Recruitment of the Northern Anchovy (*Engraulis mordax*) in the California Current: Contrasting Years, 1975 Through 1978. THE EARLY LIFE HISTORY OF FISH: RECENT STUDIES.; RAPP. P.-V. REUN. CIEM 1981;178:pp. 375-388.
Studies on the distribution of first-feeding larval anchovy and their food were made to test the hypothesis that the upper mixed layer of the ocean must be in a stable (non-turbulent) state for survival of enough larval anchovy to insure the production of a good year-class. Turbulent conditions destroy food aggregations and dilute potential food organisms to below feeding threshold concentrations of first-feeding larval anchovies. Surveys during the anchovy spawning season of 1975, 1976, and 1978 provided data supporting this hypothesis. Food of first-feeding larval anchovies became limiting when storms (1978) or drastic upwelling (1975) occurred which diluted food aggregations. A complicating factor was that nutritionally inadequate larval fish food could be occasionally overwhelmingly dominant in the larva's environment (1975). The drought year (1976) was characterized by stable conditions in the Southern California Bight and produced one of the best of the last 16 anchovy year-classes; 1975 produced one of the worst. Partial success of the anchovy year-class in 1978 is predicted based on the onset of stable conditions and food aggregations in the latter part of the spawning season.
recruitment/environmental factors/fish larvae/food availability/feeding/upwelling/stock assessment/population dynamics/hydrology/Engraulis mordax/INE/California Current/California Current/ASFA.

2698. Cockerell TDA. Pleistocene shells from San Clemente Island, Calif. Nautilus. 1939;53(1):p.22-23
N; Bibliography of North American Geology (1785-1970). California/Paleontology/Pleistocene/Shells/Gastropoda/Quaternary/California./Pl eist./Pelecypoda/Pleistocene shells/Calif./GEOREF.

2699. Jeck RK. Aerosol particle size measurements at San Nicolas Island during CEWCOM-78. Rep. NRL Prog. 1979;3:22-23
Address: Ocean Sci. Div., Nav. Res. Lab. Washington, DC 20375, USA. Particulate aerosol size spectra obtained during the CEWCOM-78 exercise (8-22 May 1978) at San Nicolas Island, California, are presented for the particle size range 0.7- to 45- m diameter, as measured with a PMS Axially Scattering Spectrometer Probe. In addition, an informal account of the daily meteorological and visibility conditions as observed visually from several vantage points on the island is given to help in the interpretation of the

aerosol and optical data collected during the measurement session. These observations point out: (1) the need for slant path optical transmission measurements due to the generally strong, vertical gradient in visibility in the lowest 300 m or so above sea level (2) the general susceptibility of Sites A and D to surf-generated aerosols and the additional susceptibility to dust for winds above 10 m/s (3) the suitability of the upper two levels of the NRL tower for representative aerosol measurements, except possibly during near calm wind conditions (4) the suitability of SNI as a site for obtaining optical transmission measurements in maritime clouds and (5) the existence of a newly observed phenomenon in which the downward vortex of air behind large, breaking or cresting waves in high-wind situations prevents much of the crest-generated spray from becoming airborne. This mechanism may help explain the recently reported cases where the particle concentrations are lower and the visibilities are better in high-wind situations than is to be expected from aerosol models, where particle number densities increase indefinitely with wind speed.

aerosols/particle size/weather conditions/optical properties/winds/clouds San Nicolas Island pollution/air quality/atmospheric sciences/meteorology.

2700. Alvarino A. The Relation Between the Distribution of Zooplankton Predators and Anchovy Larvae. THE EARLY LIFE HISTORY OF FISH: RECENT STUDIES.; 1981; pp. 197-199; RAPP. P.-V. REUN. CIEM 178.

The plankton collections analyzed for this study correspond to the monthly California Cooperative Oceanic Fisheries Investigation (CalCOFI) cruises of 1954, 1956, 1958. These years were selected because they were respectively "slightly colder", "colder", and "warmer" than the long-term average for the California Current. The total plankton was analyzed for species of Chaetognatha, Siphonophorae, Chondrophorae, Medusae and Ctenophora. Predation by these zooplankters has been observed frequently by planktologists, who find larvae in various stages of digestion in the guts of these predators, which are more effective on actively swimming large fish larvae than on relatively passive yolk-sac larvae. Data on the distribution and abundance of larvae of the northern anchovy (*Engraulis mordax*) were compared with concentrations of predator species. While analyzing collections for the five groups of invertebrate predators, information was also taken on other zooplankton groups which occurred abundantly in the collections; Copepods, Euphausiids, Decapod larvae, Pteropods, Heteropods, Polychaetes, Salps, Doliolids and Pyrosomes.

larvae/abundance/distribution/predators/zooplankton/USA/California Coast/fish larvae/California Coast/Engraulis mordax/INE/USA/California/ASFA.

2701. Cockerell TDA. A Pleistocene snail from San Miguel Island, Calif. Nautilus. 1938;52(1):p.24-25
N; Bibliography of North American Geology (1785-1970).
California/Paleontology/Helminthoglypta/Gastropoda/Quaternary/California./GEOREF.

2702. Jeck RK. Aerosol particle size measurements at San Nicolas Island during CEWCOM-78. Memorandum rept. : Naval Research Lab Washington DC. NRL-MR-3931; 1979. 65.
Particulate aerosol size spectra obtained during the CEWCOM-78 exercise (8-22 May 1978) at San Nicolas Island, California, are presented for the particle size range 0.745 micrometers diameter as measured with a PMS Axially Scattering Spectrometer Probe. In addition, an informal account of the daily meteorological and visibility conditions as observed visually from several vantage

points on the island is given to help in the interpretation of the aerosol and optical data collected during the measurement session. These observations point out: (1) the need for slant path optical transmission measurements due to the generally strong, vertical gradient in visibility in the lowest 300m or so above sea level, (2) the general susceptibility of Sites A and D to surf-generated aerosols and the additional susceptibility to dust for winds above 10m/sec, (3) the suitability of the upper two levels of the NRL tower for representative aerosol measurements except possibly during near calm wind conditions, (4) the suitability of SNI as a site for obtaining optical transmission measurements in maritime clouds, and (5) the existence of a newly observed phenomenon in which the downward vortex of air behind large, breaking or cresting waves in high wind situations prevents much of the crest-generated spray from becoming airborne. This mechanism may help explain the recently reported cases where the particle concentrations are lower and the visibilities are better in high wind situations than is to be expected from aerosol models where particle number densities increase indefinitely with wind speed.

Aerosols/Marine meteorology/Sprays/Micrometeorology/Particle size/Surf/Clouds/Cloud cover/Fog/Meteorological phenomena/Visibility/Pacific Ocean Islands/Measurement/Sea spray/San Nicolas Island/Atmospheric Sciences/Meteorology/air quality/pollution.

2703. Brewer GD, Lavenberg RJ, McGowen GE. Abundance and Vertical Distribution of Fish Eggs and Larvae in the Southern California Bight: June and October 1978. THE EARLY LIFE HISTORY OF FISH: RECENT STUDIES.; RAPP. P.-V. REUN. CIEM 1981;178:p.165. Ten transects and four stations per transect at depths of 8, 15, 22 and 36 m were sampled as well as four stations in San Diego Bay and four stations in Los Angeles Harbor. For this preliminary report, ichthyoplankton abundance and distribution were analyzed from samples of all oblique tows (46 samples) collected during June 1978 and oblique tows and discrete-depth tows from transects 80, 87, and 95 collected during October 1978 (12 stations; 48 samples). Over 66% of all larvae collected from the discrete-depth samples during October were taken from the epibenthic strata, based on numbers per 1000 m super(3). Sixty-eight percent of the eggs collected in the same samples were found in the neuston. All dominant families, except the atherinids and blenniids, were most abundant in the epibenthic samples. However, at the 36 m stations, relatively more larvae occurred in the mid-depth samples. Abundance of total larvae, estimated from oblique tows at each station, was not significantly different from estimates based on combined neuston, mid-depth, and epibenthic samples. The oblique tows yielded lower estimates of egg densities and lower estimates of neustonic larvae (i.e., atherinids) relative to the combined discrete-depth samples. abundance/vertical distribution/fish eggs/fish larvae/check lists/community composition/marine fish/ichthyoplankton surveys/California Coast/San Diego Bay/species composition/Pisces/developmental stages/USA/California Coast/INE/San Diego Bay/INE/USA/California/Los Angeles Harbor/Los Angeles Harbor/ASFA.

2704. Cockerell TDA. San Miguel Island, Calif. Sci. Monthly. 1938;46(2):p.180-187
N; Bibliography of North American Geology (1785-1970).
California/Areas described/San Miguel Is/GEOREF.

2705. Johansson MW. Cleaning behavior comparison of five species of cleaner shrimp from three geographical areas (Hawaii, Virgin Islands, Southern California) [dissertation]. : Loma Linda

University; 1986. 141.

Fish cleaning by shrimp has received little research effort to date compared to fish cleaning by fish, and no comprehensive quantitative study of fish cleaning by shrimp has yet been recorded. The present study, through field and laboratory observation including quantitative event recording of behavioral interactions, quantifies and compares the cleaning behavior of five cleaner shrimp. The five species of cleaner shrimp are from three families (Stenopodidae, Hippolytidae, Palaemonidae). *Stenopus hispidus* and *Lysmata grabhami* were studied in Hawaii, *Lysmata californica* was studied in Southern California, and *Periclimenes pedersoni* and *Periclimenes yucatanicus* were studied in the Caribbean. Nine individual shrimp from each species were tested with three different host fish species for a total laboratory observation time of 3 h/individual and 27 h/shrimp species. In addition to the laboratory observations, over 50 h of qualitative observations were made in the field using SCUBA. Laboratory observations were recorded using a computerized 16 channel event recorder and software collectively known as BEAST (Behavior Analysis and Acquisition System--Windward Technology, Kaneohe Hawaii). Fish cleaning by shrimp was only a small part (1 to 5%) of the shrimp's time budget. Fish hosts spent more time than did the shrimp in cleaning related behaviors. Also, the data indicate that the difference in cleaner shrimp performance is due to the hosts evaluation of the cleaner shrimp as a cleaner. There appears to be an association between the number and duration of host poses and the shrimp response times. Shrimp that responded seemed to get more poses. It appeared that host pose generally initiated a cleaning session. Although shrimp cleaning behavior was qualitatively stereotypic, the five shrimp species studied differed quantitatively in stimulus-response time and in amount of fish cleaning. The genus *Lysmata* had both the best (*Lysmata grabhami*) and the worst (*Lysmata californica*) cleaner. The cleaners most widely distributed geographically had the highest CEI (Cleaning Efficiency Index) scores, while the most localized cleaner had the lowest CEI.

fish cleaning by shrimp/cleaning behavior/cleaner shrimp/*Lysmata californica*/marine biology.

2706. Luken MD, Hess HH. Outer continental shelf hard minerals leasing: Sand, gravel and shell deposits of the southern California borderland. Appendix 10. Program feasibility document. 1981;:75.

mining/natural resources/continental shelves/mineral deposits/government policies/mineral economics/sand/gravel/phosphate deposits/sedimentary rocks/California/limestone/San Miguel Island/Santa Rosa Island/santa Cruz Island/Anacapa Island/Eganhouse/chemical oceanography/MINERALS MANAGEMENT SERVICE.

2707. Wingfield JC, Newman AL, Hunt GLJ, Farner DS. Endocrine Aspects of Female-Female Pairing in the Western Gull (*Larus occidentalis wymani*). ANIM. BEHAV 1982;30(1):9-22. Investigations of the colonies of western gulls on Santa Barbara Island, California, have revealed a surplus of females and the occurrence of female-female pairs that produce clutches with as many as six eggs. Females are able to establish and defend breeding territories, behaviours generally thought to be under the control of androgens. Only females sampled in 1977, in both homo- and heterosexual pairs, have elevated plasma levels of oestrogens, in spring, coincident with the period in which they show courtship behaviors such as food begging and solicitation of copulation.

Given a sex ratio skewed in favour of females, as is apparently the case with the colonies of this species on Santa Barbara Island, and the essentially equal plasma levels of androgens in males and females, it is not difficult to rationalize the formation of female-female pairs. These findings do not support the hypothesis that female-female pairing involves hormonal masculinization of one member of the pair.

sex hormones/homosexual behavior/females/sexual behavior/endocrinology/Larus occidentalis wymani/INE/California/Santa Barbara Island/effects on/ASFA.

2708. Cockerell TDA. Helminthoglypta ayresiana on San Miguel Island, Calif. Nautilus. 1937;51(2):p.71-72
N; Bibliography of North American Geology (1785-1970). California/Paleontology/Helminthoglypta/Gastropoda/GEOREF.

2709. Johnson DL. The origin of island mammoths and the Quaternary land bridge history of the Northern Channel Islands, California. Quat. Res. (N.Y.) 1978;10(2):204-225
Address: DEP. GEOGR., UNIV. ILL., URBANA, ILL. 61801.
land bridge/food/stress/fire/vision/olfaction/genetic variability/swimming/Quaternary/paleogeography/Cenozoic/biogeography/stratigraphy/evolution/Santarosae/transgression Proboscidea/Elephantidae/island mammoths/Mammuthus exilis/Northern California Channel Islands/Santarosae paleozoology/mammalogy/vertebrate paleontology/terrestrial biology.

2710. Lynn RJ. Seasonal variation of temperature and salinity at 10 meters in the California current. Calif. Coop. Oceanic Fish. Invest. Rep. 1967;11:157-186.
california current/Hickey/physical oceanography/temperature data/seasonal variation/salinity data/regression curves/statistical analysis/MINERALS MANAGEMENT SERVICE.

2711. Lynn RJ. On the year-to-year differences in the characteristics of the California current. Pacific Science Association: Thirteenth Pacific Science Congress: Record of Proceedings, Vol. 1. Univ. of British Columbia, Vancouver, B.C. (CAN) 1975;:261.
salinity anomalies/california current/annual variations/temperature anomalies/Hickey/physical oceanography/abstract only/geopotential anomaly/MINERALS MANAGEMENT SERVICE.

2712. Lynn RJ, Simpson JJ. On the continuity of the California undercurrent off southern California. EOS, Trans., Am. Geophys. Union 1986;67(44):1053. physical oceanography/MINERALS MANAGEMENT SERVICE.

2713. Lynn RJ, Bliss KA, Eber LE. Vertical and horizontal distributions of seasonal mean temperature, salinity, sigma-t, stability, dynamic height, oxygen, and oxygen saturation in the California Current, 1950-1978. Calif. Coop. Oceanic Fish. Invest., Atlas No. 30 1982;:513 charts + xii.
atlases/CCOFI/hydrology/Hickey/physical oceanography/text 2/ water temperature/salinity/oxygen/INE/California Current/ISE/California current/MINERALS MANAGEMENT SERVICE.

2714. Lynn RS, Simpson JJ. California Current system--the seasonal variability of its physical characteristics. J. Geophys. Res. 1987;92(C12):12947-12966.
Hickey/text/physical oceanography/MINERALS MANAGEMENT SERVICE.

2715. Smith PE, Eppley RW. Primary Production and the

Anchovy Population in the Southern California Bight: Comparison of Time Series. LIMNOL. OCEANOGR 1982;27(1):1-17.

Two new time series for the Southern California Bight are presented: anchovy biomass, 1951-1979, and primary production, estimated for the years 1920-1979 from 15 cruises conducted between 1974 and 1979. Annual and longer term averages show little relationship to each other except that values for both were low in the climatically warm water years 1957-1958. The primary production time series is similar to two existing time series: CalCOFI zooplankton in the bight and microplankton in Santa Monica Bay, 1951-1966. Thus estimated primary production does reflect the carrying capacity of these waters for lower trophic level consumers. Seasonal averages of anchovy larvae are highest in the winter and spring quarters when primary production is increasing. Interannual variation was pronounced in both seasonal average primary production and seasonal average abundance of anchovy larvae.

primary production/secondary production/time series analysis/ecological efficiency/abundance/energy flow/trophic levels/USA/California Coast/Engraulidae/INE/Southern California Bight/effects on/ASFA.

2716. Church CC. Some recent shallow water Foraminifera dredged near Santa Catalina Island, Calif. Jour. Paleontology. 1929;3(3):p.302-305 N; Bibliography of North American Geology (1785-1970).
California/Paleontology/Foraminifera/GEOREF.

2717. Johnson DL. More comments on the northern Channel Islands mammoths (California). Reply to Madden, C.T. 1981. Quaternary Research 15/1:81:101-104). Quaternary Res (New York) 1981;15(1):105-106
evolution/cenozoic ungulates/mammoths/northern/Channel Islands/paleontology/geology.

2718. Littler MM, Martz DR. Assessments of the distribution, abundance and community structure of rocky intertidal organisms near South Point, Santa Rosa Island. Part 1.14. The distribution, abundance and community structure of rocky intertidal and tidepool biotas in the Southern California Bight 1979B; text/benthic invertebrates/8/MINERALS MANAGEMENT SERVICE.

2719. Lasker R. Factors contributing to variable recruitment of the northern anchovy (*Engraulis mordax*) in the California Current: Contrasting years, 1975 through 1978. Rapp. P.-V. Reun. Cons. Int. Explor. Mer 1981A;178:375-388 2nd International Council for Exploration of the Sea Symposium on the Early Life History of Fish, Woods Hole, MA (USA), 2 Apr 1979. Edited by R. Lasker and K. Sherman.
text/fish/birds/recruitment/environmental/factors/fish larvae/food availability/upwelling/stock assessment/engraulis mordax/zooplankton/pieper/cross/allen/baird/MINERALS MANAGEMENT SERVICE.

2720. Chaney RW, Mason HL. A Pleistocene flora from Santa Cruz Island Calif. Carnegie Inst. Washington Pub. 415, Contr. Paleontology. 1930:p.1-24 N; Bibliography of North American Geology (1785-1970).
California/Paleontology/Santa Cruz Is. flora/Paleobotany/Santa Cruz Is./Calif./Quaternary/California./Floras/GEOREF.

2721. Johnson GF, deWit LA. Ecological effects of an artificial island, Rincon Island Punta Gorda, California. : Army

Coastal Engineering Research Center Miscellaneous Report No. MR-78-3. DACW 72-76-C-0011; 1978. 108. Address: Dames and Moore, Los Angeles, CA. Address: Dames and Moore, L.A., CA 90024. Marine ecological conditions at Rincon Island, located approximately 0.8 kilometer offshore between Ventura and Santa Barbara, California, in a depth of 14 meters are documented. The island, which was constructed between 1957 and 1958 to serve as a permanent platform for oil and gas production, is particularly suitable for ecological study. Habitat features associated with the armor rock and concrete tetrapods surrounding the island support a 'microecosystem' which differs in biotic composition from surrounding natural bottom areas. A major part of the study is devoted to analysis of seasonal dynamics in biotic composition. Data analysis indicates that many species exhibit significant variability in abundance from one season to the next. Other studies include a gill net survey of fish fauna, mapping of mussel 'talus' beds at the base of the island, and a survey of biota along a natural bottom transect between the island and shore. In general, the findings indicate a rich and varied fauna and flora associated with the high-relief solid substrate of Rincon Island which differs substantially from the more depauperate natural bottom habitats in the area. (Sinha-OEIS).

Ecology/Offshore platforms/Environmental effects /Water quality/Outer Continental Shelf/Artificial Islands/Resources development/Biota/Water resources /California/Oil wells/Ecological effects/artificial reefs/manmade/islands/sediments/aquatic organisms/platforms/population composition/population parameters/species diversity/seasonal variations Rincon Island/offshore between Ventura and Santa Barbara petroleum/marine biology.

2722. Loeb VJ, Smith PE, Moser HG. Geographical and seasonal patterns of larval fish species structure in the California Current area, 1975. Calif. Coop. Oceanic Fish. Invest. Rep. 1983B;24:132-151. *Sebastes paucispinis*/bocaccio/ichthyoplankton/larvae/distribution/seasonality/early life history/fish/Cross/Allen TEXT/MINERALS MANAGEMENT SERVICE.

2723. Yingst JY. Factors Influencing Rates of Sediment Ingestion by *Parastichopus parvimensis* (Clark), an Epibenthic Deposit-Feeding Holothurian. ESTUAR. COAST. SHELF SCI 1982;14(2):119-134. Rates of sediment ingestion and organic matter uptake by *Parastichopus parvimensis*, an epibenthic deposit-feeding holothurian have been examined in relation to intraspecific patterns of age-size distribution, differences in sediment type ingested, seasonal variations in temperature and annual evisceration events. Individuals living in areas of rock rubble along cove margins in the vicinity of the Isthmus, Santa Catalina Island, southern California were 27% smaller and seven times more numerous than holothurians living on granular sediments on cove bottoms. Animals feeding on granular sediments consume almost eight times the quantity of organic matter per animal per day than those feeding on sediment from rock surfaces. *P. parvimensis* is non-selective with respect to grain size ingested. By only ingesting the top few millimeters of sediment it does, however, exploit the sediment layer with the highest and most readily utilizable organic matter. Annual evisceration events, which affected 60% of the population during Oct. and Nov., caused a cessation in feeding for

similar to 4 weeks until minimal gut connections were formed, and can result in an annual decrease of 10% in rates of sediment reworking and organic matter removal by the entire population. ingestion/sediments/environmental factors/organic matter/age composition/size distribution/detritus feeders/deposit feeders/California Coast/USA/California/Santa Catalina Island/Parastichopus parvimensis/INE/USA/California/Santa Catalina Island/feeding behavior/Santa Catalina Island/ASFA.

2724. Bremner CSJ. Geology of San Miguel Island, Santa Barbara County, Calif. Santa Barbara Mus. Nat. History Occ. Papers 2. 23 pp., 10 figs., 4 pls. incl. map, June 1, 1933. 1933 N; Bibliography of North American Geology (1785-1970). California/Areas described/San Miguel Is./Geologic maps/Paleontology/Tertiary/California./Quaternary /GEOREF.

2725. MacCall AD. Review of southern California groundfish fisheries: Current data, research, issues and problems. NOAA-NMFS-SWFC Admin. Rep. No. LJ-85-19 1985; MINERALS MANAGEMENT SERVICE.

2726. MacCall AD. Changes in the biomass of the California Current ecosystem. AAAS Select. Symp. Ser. No. 99: Variability and Management of Large Marine Ecosystems, New York, NY (USA) 24-29 May 1986 1986;:33-54. California Current/ISE/CaliforniaCurrent/environmental conditions/ecological balance/ecosystem management/marine fisheries/INVERTEBRATES/ANTHROPOGENIC/anderson Hood/ecosystem/Mammal/Bonnell/Baird/birds/MINERALS MANAGEMENT SERVICE.

2727. Bremner CSJ. Geology of Santa Cruz Island, Santa Barbara County, Calif. Santa Barbara Mus. Nat. History Occ. Papers 1. 33 pp., 12 figs., 5 pls. incl. maps, November 1, 1932. 1932 N; Bibliography of North American Geology (1785-1970). California/Areas described/Santa Cruz Is./Geologic history/Geologic maps/Mollusca/Paleontology/Tertiary/California./Quaternary/GEOREF.

2728. Johnson MF. Significance of life history studies of calcareous sponges for species determination. Bulletin of Marine Science 1978;28(3):570-574 Address: LGL Limited, 103 A Pleasant St., Bryan, TX 77801. Life histories/Taxonomy/Morphology/Cytology/Habitats/Larvae/Growth/Mortality/Population dynamics/Spicules/Reproduction/Porifera/Sponges/Clathrina coriacea/Clathrina blanca/Santa Catalina Island/marine biology.

2729. Koslow JA. Feeding Selectivity of Schools of Northern Anchovy, *Engraulis mordax*, in the Southern California Bight. FISH. BULL 1981;79(1):131-142. Direct field measurements of the feeding of five schools of northern anchovy (*E. mordax*) over four sets of conditions indicate consistent size-selective feeding on the dominant zooplankton taxa. At low-to-moderate prey concentrations (10-40 mg carbon per cubic meter), the schools consumed 35-50% of the total zooplankton biomass and >90% of the largest zooplankters present. The schools' feeding was a positive function of prey size primarily. The density of particular prey items did not significantly affect feeding selectivity. The northern anchovy fed preferentially upon a particular species in only one instance. No significant difference was found in the selectivity of two northern anchovy schools composed primarily of late 0-group and II-group fish, respectively,

that were feeding under similar feeding conditions. At prey concentrations of 10-40 mg carbon per cubic meter, the degree of selectivity was inversely related to the size of the largest prey available. The prey size at which consumption is predicted to be 100% was proportional to the size of the largest prey.
feeding behavior/Engraulis mordax/INE/USA/California/ASFA.

2730. Johnson MF. Studies on the reproductive cycles of the calcareous sponges *Clathrina coriacea* and *C. blanca*. *Marine Biology* 1978;50(1):73-79 Address: LGL Ltd., Environmental Research Assoc., 103 Pleasant St., Bryan, TX 77804.

The reproductive cycles of these 2 closely related calcareous sponges were studied to determine whether they were reproductively isolated. Populations of both species were sampled at Santa Catalina Island, California, for 2.5 yr. The reproductive period is from July to Oct. in *C. coriacea* and from Apr. to Aug. in *C. blanca*. Seawater temperature and habitat influence reproduction in both species. Fragmentation occurs in *C. coriacea* in summer, while asexual reproduction by budding is seen in *C. blanca* throughout the year. The 2 sponges are separate species.

Sexual Reproduction/Seawater temperatures/Habitats/reproductive isolation/temperature effects/asexual breeding/fragmentation/life cycles/oogenesis/embryonic development Porifera/Calcareous Sponges/*Clathrina coriacea*/*Clathrina blanca*/Santa Catalina Island/marine biology.

2731. Stock C, Furlong EL. Occurrence of Pleistocene elephant on Santa Rosa Island, California. *Pan Am. Geologist*. 1928;49(4):p.315

Abstract N; Bibliography of North American Geology (1785-1970). California/Paleontology/Elephant/Pleistocene/Santa Rosa Island/Mammalia/Elephants/GEOREF.

2732. Johnson MF. Gametogenesis and embryonic development in the calcareous sponges *Clathrina coriacea* and *C. blanca* from Santa Catalina Island, California. *Southern California Academy of Sciences*, Los Angeles. *Bulletin*. 1979;78(3):183-191

Address: LGL Ltd., Environmental Research Assoc., 103 Pleasant St., Bryan, TX 77801.

Maturing oocytes were observed in *C. blanca* between Apr. and June in 1973 and 1974, and between Apr. and Aug. in 1975. In *C. coriacea* reproductive elements were seen from July to Sept. in 1973, from July to Aug. in 1974, and from July through Oct. in 1975. Oogenesis is asynchronous in the 2 closely related species *C. coriacea* and *C. blanca*. Spermatogenesis was not observed. Cleavage is total and equal, resulting in the formation of a blastula larva. The larva of *C. coriacea* contains one large posterior granular cell, whereas 2 posterior granular cells are present in the larva of *C. blanca*. Migration of the larval blastomeres into the blastocoel begins while the larva is in the tube of the parent sponge. The differences in the eosinophilic amebocytes, the number of posterior granular cells in the larvae, and the dimensions of the oocytes and larvae, in addition to the differences in the reproductive period between *C. coriacea* and *C. blanca*, reaffirm that the 2 sponges are separate species.

Gametogenesis/Embryology/Larvae/Oogenesis/Taxonomy/posterior granular cells/cleavage/blastula/reproductive biology/asynchronous oogenesis/cleavage/blastula Porifera/*Clathrina coriacea*/*Clathrina blanca*/sponges/ Santa Catalina Island/marine biology.

2733. Tont SA, Delistraty DA. The Effects of Climate on Terrestrial and Marine Populations. *REP. CCOFI* 1980;21:85-89. The variability associated with marine populations in the

California Current system is largely due to climatic fluctuation. The interplay of short (upwelling) and longer term (water mass influx) changes in the physical environment have been shown to regulate diatom blooms. In most cases, however, the mechanisms involved in climatic-biological interaction are not yet clear. climate/environmental impact/marine organisms/upwelling/algal blooms/Bacillariophyceae/INE/California Current/ISE/California Current/ASFA.

2734. Kew WSW. Geologic sketch of Santa Rosa Island, Ventura County, California. Geol. Soc. America, Bull. 1928;39(1):p.267 Abstract N; Bibliography of North American Geology (1785-1970). California/Historical geology/Santa Rosa Island/GEOREF.

2735. Johnson MF. A comparative study of the external form and skeleton of the calcareous sponges *Clathrina coriacea* and *Clathrina blanca* from Santa Catalina Island, California, USA. Can. J. Zool. 1978;56(8):1669-1677 Address: LGL LTD. US INC., 103A PLEASANT ST., BRYAN, TEX. 77801. The external morphology and skeleton of *C. coriacea* (Montagu) and *C. blanca* (Miklucho-Maclay) from Santa Catalina Island, California [USA] were studied to determine whether the differences taken as a whole were consistent and justified the separation into 2 distinct species. *C. coriacea* is an encrusting sponge, whereas *C. blanca* is pedunculate in form. The diameter of the uncontracted anastomosing tubes is significantly greater in *C. coriacea*. The skeleton of the 2 sponges consists of equiangular triradiate spicules; these are more sagittal in *C. blanca*. The junction of the spicule rays is more nearly planar in *C. coriacea* than in *C. blanca*. The spicule dimensions are significantly greater in *C. coriacea*. These differences in external morphology and skeleton between the 2 sponges and the lack of intergrading forms indicate that separate specific names are justified.

Species

differences/spicules/taxonomy/morphology/skeleton/Porifera/calcareous sponges/*Clathrina coriacea*/*Clathrina blanca*/Santa Catalina Island/marine biology.

2736. Mais KF. Pelagic fish surveys in the California Current. Calif. Fish Game Fish. Bull. 1974;162:1-79. Fishes/vertebrates/zoology/fishing grounds/California/Mammals/bonnell/surveys/fisheries/abundance/populations/crabs/squids/marine mammals/Bonnell Dailey Cross Allen/fish/TEXT/MINERALS MANAGEMENT SERVICE.

2737. Mais KF. Acoustic surveys of northern anchovies in the California Current system, 1966-1972. Rapp. P.-V. Reun. Cons. Int. Explor. Mer 1977;177:287-295. TEXT/CROSS/ALLEN/FISH/MINERALS MANAGEMENT SERVICE.

2738. Antonelis GAJ, Fiscus CH. The Pinnipeds of the California Current. REP. CCOFI 1980;21:68-78. There are six species of pinnipeds - California sea lion, *Zalophus californianus*; northern sea lion, *Eumetopias jubatus*; northern fur seal, *Callorhinus ursinus*; Guadalupe fur seal, *Arctocephalus townsendi*; harbor seal, *Phoca vitulina richardsi*; and northern elephant seal, *Mirounga angustirostris* - that inhabit the study area of the California Cooperative Oceanic Fisheries Investigations (CalCOFI). The numbers of animals in each population are given; the size, distribution, and seasonal movements are described. The known prey species of the pinnipeds are listed for each species. The otariids, with certain exceptions, consume the same kinds of prey, although in slightly different amounts. In general they feed most

commonly on the smaller schooling fishes and squids of the epipelagic zone, and the two sea lion species enter nearshore and estuarine waters to prey on small schooling and anadromous fish. The two phocids, again with certain exceptions, prey on different species. The elephant seal apparently feeds in deeper water than the harbor seal on benthic and demersal species and the harbor seal on nearshore demersal and neretic species, occasionally entering estuarine and river waters to prey on anadromous fish and such small schooling fishes that regularly enter these waters.

morphology (organisms)/geographical
distribution/migrations/predators/food preferences/food
fish/population number/Pinnipedia/Zalophus
californianus/Eumetopias jubatus/Callorhinus ursinus/Arctocephalus
townsendi/Phoca vitulina/Mirounga angustirostris/INE/California
Current/ISE/California Current/IE/marine ecology/ASFA.

2739. Kew WSW. Geologic sketch of Santa Rosa Island, Santa Barbara County, California. Geol. Soc. America, Bull. 1927;38(4):pp.645-653 N; Bibliography of North American Geology (1785-1970).

California/Areas described/Santa Rosa Island/Santa Barbara County/Cretaceous/Geologic maps/Tertiary/GEOREF.

2740. Johnson MF. Habitats and habitat preferences of the calcareous sponges *Clathrina coriacea* and *Clathrina blanca* from Santa Catalina Island, California, USA. Wasmann. J. Biol. 1980;38(1-2):1-9

Address: LGL ECOLOGICAL RES. ASSOCIATES, 1410 CAVITT ST., BRYAN, TEX 77801. Habitats of 2 closely related calcareous sponges, *C. coriacea* (Montagu) and *C. blanca* (Miklucho-Maclay), from Santa Catalina Island, California are described. In submarine caves, *C. coriacea* grows in areas exposed to greater illumination and wave action than *C. blanca*. The 2 sponges occur adjacent to one another at some locations.

illumination/wave action/habitat/ecological distribution
Porifera/calcareous sponges/*Clathrina coriacea*/*Clathrina blanca*/Santa Catalina Island/marine biology.

2741. Malone TC. The relative importance of nanoplankton and netplankton as primary producers in the California Current system. U.S. Natl. Mar. Fish. Serv. Fish. Bull. 1971;69(4):799-820. 72-03081 72-3A-01189/nanoplankton/primary/productivity/standing crop/california current/temporal variations/net plankton/plankton/Pieper Hardy/phytoplankton/ TEXT/MINERALS MANAGEMENT SERVICE.

2742. Malone TC. Diurnal rhythms in netplankton and nanoplankton assimilation ratios. Mar. Biol. (Berl) 1971;10(4):284-289.

primary productivity chlorophyll A/California Current/Pieper/photosynthesis/nanoplankton/California current/assimilation ratios/netplankton/diurnal rhythms/plankton/TEXT/MINERALS MANAGEMENT SERVICE.

2743. Bakun A, Parrish RH. Environmental Inputs to Fishery Population Models for Eastern Boundary Current Regions. REPORT AND SUPPORTING DOCUMENTATION OF THE WORKSHOP ON THE EFFECTS OF ENVIRONMENTAL VARIATION ON THE SURVIVAL OF LARVAL PELAGIC FISHES, ORGANIZED BY FAO AS A CONTRIBUTION TO THE IOC PROGRAMME OF OCEAN SCIENCES AND LIVING RES, HELD FROM APRIL 20 TO MAY 5, 1980, INSTITUTO DEL MAR DEL PERU, LIMA, PERU.; WORKSHOP REP. IOC. 1980;(28):67

NOTES Incl. Bibliogr: 93 ref.

The authors discuss in detail the possibilities of incorporating environmental effects into fishery models for fishery management use. The definition of environmental variation is given and population biology considerations are described. Recent advances in the analysis of the fisheries of the Californai Current region are presented.

fishery management/environmental factors/population dynamics/upwelling/stock assessment/marine fisheries/Pisces/INE/California Current/ISE/ California Current/mathematical models/eastern boundary currents/ASFA.

2744. Yates LG. Notes on the geology and scenery of the islands forming the southerly line of the Santa Barbara channel. Am G 1890;5:p.43-52 N; Bibliography of North American Geology (1785-1970).
California/Physiographic geology/Santa Barbara channel islands/GEOREF.

2745. Johnson NK, Marten JA. Evolutionary genetics of flycatchers II. Differentiation in the *Empidonax difficilis* complex. Auk 1988;105(1):177-191 Address: MUSEUM VERTEBRATE ZOOLOGY, UNIV. California, BERKELEY, CALIF. 94720. We used starch-gel electrophoresis to assess variability at 41 genetic loci in 208 individuals from 11 breeding populations of the Western Flycatcher (*Empidonax difficilis*) complex. Genic variability was substantial in most populations and equivalent to levels found in other avian taxa. A sample of *E. d. insulicola* from Santa Catalina Island [California, USA], however, showed reduced heterozygosity and an unusually low percentage of polymorphic loci. We attribute this to a bottleneck at the time of the original colonization. Nei's genetic distances among populations of one taxon ranged from .hivin.D = 0.0003 (in *E. d. difficilis*) to .hivin.D = 0.0033 (in *E. d. hellmayri*). Intertaxon Nei's .hivin.D ranged from 0.009 (*E. d. insulicola* vs. *E. d. difficilis*) and 0.0149 (*E. d. difficilis* vs. *E. d. hellmayri*) to 0.0228 (*E. d. insulicola* vs. *E. d. hellmayri*). Fst statistics revealed significant population subdivision within the complex. With Slatkin's rare-allele method we estimated the gene-flow parameter, Nm. Mainland populations experience moderately high gene flow (9.62 immigrants/generation). In contrast, Santa Catalina Island receives an estimated 0.093 immigrants/generation, pointing to very low gene flow and essential genetic isolation. Genetic distances yielded phenograms and distance. Wagner trees that provide hypotheses for the relationships and phylogenesis of populations in western North America. The lineage leading to modern *E. d. difficilis* split from that leading to *E. flavescens* in the mid-Pleistocene at 866,800 yr BP; the ancestors of modern *E. d. difficilis* diverged from those of present-day *E. d. hellmayri* at 248,700 yr BP; and the stock leading to modern *E. d. insulicola* budded from the lineage that became *E. d. difficilis* in the late Pleistocene, approximately 187,000 yr BP. *Empidonax d. difficilis* and *E. d. hellmayri* nest sympatrically and mate assortatively in the Siskiyou region of northern California. Interbreeding has not been demonstrated conclusively, and we regard these taxa as biologic species. In the absence of a test of sympatry, the well-differentiated form *E. d. insulicola* of the California Channel Islands cannot be proved to be a biologic species. It is clearly a phylogenetic species, however, in the sense of Cracraft.
population variation/gene flow/Slatkin's rare allele method/Nei's genetic distance/genetic variability
phenogram/taxonomy/electrophoresis/Pleistocene
Empidonax/flycatchers/*Empidonax difficilis* *difficilis*/*Empidonax difficilis insulicola*/*Empidonax difficilis hellmayri*/*Empidonax flavescens*/Santa Catalina Island/terrestrial

biology/genetics/ornithology.

2746. Malouta DN, Gorsline DS, Thornton SE. Processes and rates of Recent (Holocene) basin filling in an active transform margin: Santa Monica Basin, California continental borderland. J. Sediment. Petrol. 1981;51:1077-1095. chemical oceanography/eganhouse/venkatesan/MINERALS MANAGEMENT SERVICE.

2747. Delistrary DA, Tont ST. The Effects of Climate on Terrestrial and Marine Populations. REP. CCOFI 1980;21:85-89. The variability associated with marine populations in the California Current system is largely due to climatic fluctuation. The interplay of short (upwelling) and longer term (water mass influx) changes in the physical environment have been shown to regulate diatom blooms. In most cases, however, the mechanisms involved in climatic-biological interaction are not yet clear. climate/environmental impact/marine organisms/upwelling/algal blooms/Bacillariophyceae/INE/California Current/ISE/California Current/ASFA.

2748. Smith WST. The geology of Santa Catalina Island. Cal Ac Sc 1897;Pr (3) G 1.:p.1-71
N; Bibliography of North American Geology (1785-1970). California/Historical geology/Santa Catalina Island/Petrology/Physiographic geology/Geologic history/Geologic maps/Igneous and volcanic rocks/Physiographic geology general/Migration of divides/GEOREF.

2749. Johnston JB, Benson NG, King BDI. Values of ecological characterization studies to assess effects of freshwater inflow to estuaries. Proc. of the National Symposium on Freshwater Inflow to Estuaries. ; 1981. II. p. 155-164.
Address: Fish and Wildlife Service, Slidell, LA. Conference: Proc. of the National Symposium on Freshwater Inflow to Estuaries, San Antonio, TX, Sep. 9-11, 1980.

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Ecological characterization studies compile existing information (utilizing a holistic approach) that identifies functional relationships among natural processes and components of coastal ecosystems. Some studies have mapped habitat changes from aerial photographs over a 20- to 25-year time period. The studies integrate environmental and socioeconomic information in a form useful for planning, impact assessment and analysis. Studies completed or underway include the Chenier Plain of Southwestern Louisiana and Southeastern Texas, Sea Islands Region of South Carolina and Georgia, Pacific Northwest, Northern and Central California, Mississippi Deltaic Plain, Texas Barrier Islands Region, Rocky Coast of Maine, Northeastern Gulf of Mexico, and Southwestern Florida. Data from the Sabine basin of the Chenier Plain study demonstrated the quantified effects of modifying natural river flow on Sabine Lake and the associated estuarine area. Navigation channel developments, construction of reservoirs on the incoming rivers, and impoundment of marshes were the primary causes of ecological changes. The Mississippi Deltaic Plain study mapped habitat changes from the mid-1950's to 1978. Many of the habitat changes resulted from the modification of freshwater inflow. The study indicated that over 500,000 acres (202,000 ha) of Louisiana coastal wetlands were lost or altered during the period. The information developed from the ecological characterizations will enable planners to understand and predict the consequences of future alterations in the coastal zone.
Ecosystems/Coasts/Estuaries/Planning/Coastal zone

management/Environmental effects/River flow/Channelization
/Reservoirs/Marshes/water quality/anthropogenic effects/ecological
impacts/Wetlands/Erosion/Ecological effects Freshwater inflow
Chenier Plain of Southwestern Louisiana/Southeastern Texas/Sea
Islands Region of South Carolina and Georgia/Pacific
Northwest/Northern and Central California/Mississippi Deltaic
Plain/Texas Barrier Islands Region/Rocky Coast of
Maine/Northeastern Gulf of Mexico and Southwestern Florida/Chenier
Plain/Mississippi Deltaic Plain/water quality/pollution/resource
management.

2750. Ritter WE. Some observations bearing on the probable
subsidence during recent geological times of the island of Santa
Catalina off the coast of southern California. Science
1901;14:p.575

N; Bibliography of North American Geology (1785-1970).
California/Physiographic geology/Santa Catalina Island/Changes of
level/southern/GEOREF.

2751. Johnston MJS, Sacks IS, Linde AT, Myron D. Borehole
dilatation strain array; preliminary results from the Mojave
Desert. AGU 1982 spring meeting. Eos, Transactions, American
Geophysical Union 1982;63(18):430
Address: U. S. Geol. Surv., Menlo Park, CA, USA; Carnegie Inst.
Washington, USA. deformation/tectonophysics/field
studies/crust/strain/seismology/observations/dilatometers/borehol
es/arrays/earth quakes/Mojave Desert/San Andreas Fault/San Jacinto
Fault/Southern California/Palmdale/California Channel
Islands/structural geology.

2752. Haury L, Schulenberger E. (Phosphate Balance in the
California Current.). (SUMMARIES, 5TH MEETING OF THE INVESTIGATION
CENTERS OF BAJA CALIFORNIA AND SCRIPPS INSTITUTION OF
OCEANOGRAPHY.).; RESUMENES. 5 REUNION DE LOS CENTROS DE
INVESTIGACION DE BAJA CALIFORNIA Y SCRIPPS INSTITUTION OF
OCEANOGRAPHY. 1979; Inorganic phosphate transport across three
CalCOFI lines (70, 80, 110) has been calculated for January and
July of all years with sufficient data (1950, 1961 (July only),
1964, 1965, 1969, 1978). Phosphate values at CalCOFI standard
depths were integrated to 150 meters; this corresponds to the
approximate depth of zooplankton sampling. Where available, values
of phosphate at 500 and 1000 m aided in interpreting the results.
Net transport of inorganic phosphate across each line has been
combined with estimates of upwelled inorganic phosphate and the
transport of organic phosphate in the form of phytoplankton and
zooplankton to make a rough input-output budget for the California
Current. There is a large net phosphate loss from the Current
within the upper 150 meters. Deeper transport out (as organic or
remineralized phosphate), loss to the bottom, and offshore
transport do not seem adequate to account for the difference.
Differences between seasons (January and July) and within season
differences over the years are discussed. phosphates/transport
processes/seasonal variations/water
currents/upwelling/plankton/vertical distribution/INE/California
Current/ISE/ California Current/ASFA.

2753. Mattei AC. Two Santa Barbara Channel earthquakes.
Seism Soc Am, B 7. 61-66, 1917 1917
N; Bibliography of North American Geology (1785-1970).
California/Physical geology/Santa Barbara Channel
earthquakes/Earthquakes/Santa Barbara channel/GEOREF.

2754. Jones GF, Thompson BE. The ecology of Parvilucina

tenuisculpta (Bivalvia: Lucinidae) on the Southern California USA Borderland. Veliger 1984;26(3):188-198
Address: DEP. BIOL. SCI., UNIV. SOUTHERN California, LOS ANGELES, CALIF. 90089. The pelecypod *P. tenuisculpta* (Carpenter, 1864) is a widely distributed member of the benthos of the southern California borderland where it is a prominent faunal element of every major habitat except the deep basins. In this fairly wide range of environments it lives with a large number of other taxa which may differ markedly from one location to another. The population densities of *Parvilucina* were highest in 2 very dissimilar environments: the insular shelf of the northern Channel Islands and the central part of the mainland shelf (Santa Monica Bay and San Pedro Bay). The insular shelf is primarily a non-depositional environment where relatively strong currents result in the development of coarse sediments rich in biogenic CaCO₃ components. The area is influenced by persistent upwelling. The parts of the mainland shelf where population densities of *Parvilucina* were highest are in equilibrium environments highly influenced by the release of sewage wastewaters. Organic enrichment, in one case upwelling and the other sewage wastewaters, may be the factor responsible for the areas of high population densities.
habitat/population density/sediments/currents/calcium carbonate/upwelling/organic enrichment/sewage/waste water
Bivalvia/Lucinidae/Parvilucina tenuisculpta/northern California Channel Islands/Santa Monica Bay/San Pedro Bay/marine biology/malacology.

2755. Gerard VA. Growth and Utilization of Internal Nitrogen Reserves by the Giant Kelp *Macrocystis pyrifera* in a Low-Nitrogen Environment. MAR. BIOL 1982;66(1):27-35.
An adult giant kelp plant (*Macrocystis pyrifera*), moved from an inshore kelp forest to an offshore, low-nitrogen environment near Santa Catalina Island, California (USA), maintained growth for 2 wk on internal nitrogen reserves. Frond elongation rates decreased significantly during the third week, and plant growth rate (wet wt) dropped from an initial inshore rate of 3.6 to 0.9% d^{super(-1)}. During this 3 wk period, nitrogen contents and free amino acid concentrations decreased, while mannitol and dry contents increased in frond tissues. Net movement of nitrogen occurred within large fronds, but not between different frond size classes. The nitrogen content of holdfast tissue remained relatively constant at 2.4% dry wt and accounted for 18 to 29% of the total nitrogen. Holdfast nitrogen was not used to support growth of nitrogen-depleted fronds. In comparison to *Laminaria longicruris*, which is adapted to long seasonal periods of low nitrogen availability, *M. pyrifera* has small nitrogen-storage capacity. However, internal reserves of *M. pyrifera* appear adequate to make nitrogen starvation uncommon in southern California kelp forests.
growth curves/nitrogen/plant nutrition/*Macrocystis pyrifera*/INE/USA/ California/*Phaeophyceae*/ASFA.

2756. Goodyear WA. San Diego Co.; Santa Cruz Island. Cal St M Bur, An Rp 9. 139-155, 155-170, map, 1890 1890
N; Bibliography of North American Geology (1785-1970).
California/Economic geology/San Diego Co./Historical geology/Santa Cruz Island/GEOREF.

2757. Jones GF, Thompson BE. The ecology of *Cyclocardia ventricosa* Gould 1950 (Bivalvia: Caritidae) on the Southern California Borderland, USA. Veliger 1987;29(4):374-383
Address: DEP. BIOL. SCI., UNIV. SOUTHERN CALIF., LOS ANGELES, CALIF. 90089. The pelecypod *Cyclocardia ventricosa* (Gould, 1850) is a widely distributed member of the benthos of the southern

California borderland. It is particularly prominent in three borderland habitats: the northern portion of the mainland shelf (Point Conception to Pitas Point); the slope adjacent to the central portion of the mainland shelf (Mugu Submarine Canyon to Dana Point), and the shelf of San Miguel and Santa Rosa islands. Its depth range on the borderland was 14 to 574 m, but 75% of the locations where it was collected were in depths of 200 m or less. Within the Amphiodia-Cyclocardia community on the northern portion of the mainland shelf, the dispersion of *C. ventricosa* was aggregated; elsewhere where densities were lower, randomness characterized its distribution. Aggregated dispersion may be a function of the mode of reproduction of this species, which broods its young rather than having planktonic larvae. *Cyclocardia ventricosa* is associated with a diverse array of macrofaunal taxa which differ markedly from one habitat to another.

reproduction/community structure/spatial distribution/habitat
pelecypod/Pelecypoda/bivalves/Bivalvia/*Cyclocardia ventricosa*
southern California borderland/Point Conception to Pitas Point/Mugu Submarine Canyon to Dana Point/shelf of San Miguel Island and Santa Rosa Island marine biology/malacology/ecology.

2758. Allredge AL, Silver MW. Abundance and Production Rates of Floating Diatom Mats (*Rhizosolenia castracanei* and *R. imbricata* var. *Shrubssolei*) in the Eastern Pacific Ocean. MAR. BIOL 1982;66(1):83-88.

Abundance and production rates were measured on free-floating mats composed of the diatoms *Rhizosolenia castracanei* and *R. imbricata* var. *shrubssolei* in the California Current and boundary waters of the central North Pacific during October, 1980. Mats ranged from 3.0 to 10.6 cm in maximum length and had a mean volume of 6.4 ml. Production rates of the diatom mats averaged 4.0 $\mu\text{g C colony}^{-1}\text{h}^{-1}$, more than 10 times higher than that of an equal volume of surrounding water. However, because of their low density at these sites, about 1 mat m^{-3} , diatom mats contributed only about 1% of the total primary production. The two large *Rhizosolenia* species comprised almost all of the phytoplankton biomass within the mats. *Rhizosolenia* species rarely occurred in seawater between mats, where the phytoplankton community was dominated by a diverse array of nanoplankton. The *Rhizosolenia* species in the mats appeared to be in healthy condition and contained intracellular bacteria. The very high production rates of the colonies indicate high nutrient demand and, since these particular diatoms lack the symbiotic cyanobacterium *Richelia intracellularis*, which is implicated in N-fixation in other species of *Rhizosolenia*, our results indicate that other nutrient sources must be present. We discuss the potential role of the intracellular bacteria in nitrogen fixation.

primary production/chlorophylls/environmental factors/population number/horizontal distribution/*Rhizosolenia castracanei*/*Rhizosolenia imbricata*/INE/California Current/ASFA.

2759. Isaacs CM, Tomson JH, Taggart JEJ, Jackson LL. Abundances of major elements and sedimentary components in Miocene and early Pliocene cuttings from a well in the South Elwood oil field area, offshore Santa Barbara Ventura Basin, Southern California. Open File Report U. S. Geological Survey. 1990;27:p.17 U. S. Geol. Surv., Menlo Park, CA, United-States Monographic; Serial; Report B; Bibliography and Index of Geology (1969-present) U. S. Geol. Surv., Denver, CO, United States.

California/economic geology/oil and gas fields/Pacific Ocean/sedimentary rocks/composition/chemical composition/Sisquoc Formation/Monterey Formation/Rincon Formation/USGS/Miocene/Neogene/Tertiary/lower

Pliocene/Pliocene/Pacific Coast/Western U.S./United States/Southern California/Ventura Basin/Santa Barbara Basin/South Elwood Field/offshore/cuttings/well logging/North American Pacific/major elements/mineral composition/GEOREF.

2760. Jones ML, Swartz SL. Radio-telemetric study and aerial census of gray whales during their southward migration in the Channel Islands National Marine Sanctuary, January 1986. Final report. : Cetacean Research Associates, San Diego, CA.; 1987. 142. ((Sponsored by National Oceanic and Atmospheric Administration, Washington, DC.)).

The Channel Islands National Marine Sanctuary (CINMS) is a tract of ocean, about 1,252 n sq. m, encompassing the waters within 6nm of San Miguel, Santa Rosa, Santa Cruz. This island system is uniquely positioned in the Southern California Bight, being the first islands south of Point Conception where the mainland coast turns east toward Santa Barbara. From January 18 to February 4, 1986, a pilot study was conducted in the CINMS with the overall goal of producing baseline information on gray whales (*Eschrichtius robustus*) during the peak period of their southward migration. Strip-surveys were flown to determine the abundance, distribution, behavior, and resource use of gray whales in the CINMS. Aerial surveys/Animal migrations/Census/Animal behavior/Spatial distribution/Abundance/Populations/Radio tracking/Baseline studies/Whales/cetaceans/Gray whales/*Eschrichtius robustus*/California Channel Islands/Channel Islands National Marine Sanctuary/CINMS marine biology/mammalogy.

2761. Brinton E, Townsend AW. Euphausiids in the Gulf of California - The 1957 Cruises. REP. CCOFI 1980;21:211-236. Euphasiid crustaceans in the Gulf of California were examined from four biomonthly CalCOFI grid cruises during February through August of 1957. Of the nine species found to regularly inhabit the Gulf, *Nematoscelis difficilis* and *Nyctiphanes simplex* are common to the warm-temperate California Current. These have the broadest ranges in the Gulf, peaking in abundance and reproducing maximally during February-April and February-June respectively, before intense August heating takes place in the Gulf. *Euphausia eximia*, a species having high densities at zones considered marginal to the eastern tropical Pacific, also varies little in range during the year, consistently occupying the southern half of the Gulf. Tropical *Nematoscelis gracilis* shows a range complementary to that of *N. difficilis*; these species overlap in the southern Gulf. Three *Euphausia* species of the tropical Pacific occupy the southern Gulf in February-April, expanding northward during June-August but, like the cool-water species, scarcely reproducing in the Gulf during the warm season. The distributions and abundances of the species and their life stages, particularly the youngest larvae, are described in relation to seasonal variation in flow and temperature in the Gulf. zooplankton/geographical distribution/breeding seasons/environmental factors/*Euphausiacea*/*Nyctiphanes simplex*/*Nematoscelis difficilis*/*Nematoscelis gracilis*/*Euphausia eximia*/*Euphausia distinguenda*/*Euphausia lamelligera*/*Euphausia tenera*/*Stylocheiron affine*/*Stylocheiron carinatum*/*Nematobrachion flexipes*/*Euphausia diomedae*/ISE/California Gulf/abundance/ASFA.

2762. Miller NR. Strontium isotope chronostratigraphy of primary and secondary carbonates in the Monterey Formation, Santa Barbara Basin, California. Anonymous. Fifth Circum-Pacific energy and mineral resources conference; abstracts. AAPG-Bulletin. 1990;74(6):p.989-990 Univ. Tex. at Dallas, Richardson, TX, United-States Fifth Circum-

Pacific energy and mineral resources conference, Honolulu, HI, July 29-Aug. 3, 1990 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).
California/stratigraphy/Neogene/geochemistry/strontium/Monterey Formation/Pacific Coast/Western U.S./United States/alkaline earth metals/metals/isotopes/Sr 87/Sr 86/stable isotopes/chronostratigraphy/carbonates/Santa Barbara Basin/reservoir rocks/petroleum/solution/calcite/diagenesis/Tertiary/offshore/corals/dolomite/precipitation/carbon/C 13/C 12/GEOREF.

2763. Junger A. Maps and seismic profiles showing geologic structure of the northern Channel Islands platform, California continental borderland. U. S. Geol. Surv., Misc. Field Stud. Map MF-991. ; 1979. 16.
maps/continental shelf/continental borderland/structure/structural maps/seismic surveys/geophysical surveys/profiles/sections/explanatory text Southern California/Channel Islands/marine geology/oceanography.

2764. Thornton SE. Suspended Sediment Transport in Surface Waters of the California Current Off Southern California: 1977-78 Floods. GEO-MAR. LETT 1981;1(1):23-28.
Floods in southern California during the rainy season of 1977-78 followed four years of severe drought when vegetative cover of drainage areas was at a minimum. LANDSAT Band 5 analyses following these floods suggest extensive transport of suspended sediment to 80 to 100 km from the coastline. Current patterns can be explained by a decaying Davidson Current situation and a large semipermanent cyclonic gyre that controls distribution of surface suspended sediment throughout the California Borderland. This gyre, and associated spinoff eddies, produce three distinct cells of suspended sediment in surface waters. These cells may control sedimentation patterns of terrigenous silt and clay.
sediment transport/suspended load/sedimentation/gyres/surface currents/flooding/INE/USA/California/ASFA.

2765. Dellagiardino G. Geologic and geophysical (G&G) data acquisition analysis, U. S. Pacific Coast and Gulf of Alaska marine Tertiary province. Anonymous. Fifth Circum-Pacific energy and mineral resources conference; abstracts. AAPG-Bulletin. 1990;74(6):p.968
U. S. Miner. Manage. Serv., Herndon, VA, United-States Fifth Circum-Pacific energy and mineral resources conference, Honolulu, HI, July 29-Aug. 3, 1990 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).
Pacific Coast/economic geology/petroleum/Pacific Ocean/geophysical surveys/seismic surveys/Monterey Formation/Point Arena Formation/data acquisition/Western U.S./United States/Gulf of Alaska/North American Pacific/common depth point method/Tertiary/Washington/Oregon/Southern California/California/Central California/Northern California/Santa Barbara Channel/maturity/reservoir rocks/sandstone/clastic rocks/Santa Maria Basin/Ano Nuevo Basin/La Honda Basin/Bodega Basin/Point Arena Basin/Eel River basin/Kodiak/Shumagin/continental shelf/GEOREF.

2766. Junger A, Johnson DL. Was there a Quaternary land bridge to the northern Channel Islands? C.M. Power. The California islands; proceedings of a multidisciplinary symposium. Santa Barbara, California: Santa Barbara Mus. Nat. Hist.; 1980. 33-39.
Address: Univ. Calif., Dep. Geol., Santa Barbara, CA, USA; Univ. Ill., Dep. Geogr., Urbana, IL, USA Conference: Multidisciplinary

symposium on the California islands Santa Barbara, CA, Feb. 27-March 1, 1978.

biogeography/stratigraphy/oceanography/biostratigraphy/Quaternary/geophysical surveys/Cenozoic/land bridges/seismic profiles/seismic surveys/Pleistocene/mammals/mammalia/Elephantidae/Elephas/Proboscidea/California Channel Islands/surficial geology/quaternary geology.

2767. Peltzer ET, Bada JL. Low Molecular Weight alpha - hydroxy Carboxylic and Dicarboxylic Acids in Reducing Marine Sediments. GEOCHIM. COSMOCHIM. ACTA 1981;45(10):1847-1854. The occurrence and distribution of low molecular weight alpha - hydroxy carboxylic and dicarboxylic acids was studied in reducing marine sediments collected in the Santa Barbara Basin and the Cariaco Trench. Four compounds were found to occur in both basin sediments: glycolic, lactic, oxalic and succinic acids. In general concentrations were low (less than or equal to 1 mu mol/g for the hydroxy acids and less than or equal to 1000 mu mol/g for the dicarboxylic acids), and generally decreased with depth. Subsurface maxima were observed for lactate and succinate in the Santa Barbara Basin. Both the vertical profiles and lactate enantiomer ratios suggested microbial origin and control for the distribution of these compounds. organic compounds/sediments/chemical composition/carbon compounds/marine environment/INE/Santa Barbara Basin/ASW/Cariaco Basin/reduction/distribution/ASFA.

2768. Bebout GE, Fogel ML. Behavior of nitrogen during metamorphism; case study of the Catalina Schist subduction zone metamorphic terrane. Annual Report of the Director, Geophysical Laboratory, Carnegie Institution. p. 19-26. ; 1989. 19-26. Carnegie Inst., Geophys. Lab., Washington, DC, United-States Analytic; Serial; Report B; Bibliography and Index of Geology (1969-present). 0576-792X. metamorphic rocks/schists/geochemistry/California/petrology/metamorphism/migration of elements/nitrogen/isotopes/N 15/N 14/Catalina Schist/Santa Catalina Island/Pacific Coast/Western U.S./United States/stable isotopes/volatiles/ratios/terrane/GEOREF.

2769. Kallman RE, Wheeler ED. Coastal crude in a sea of conflict. : Blake Printery & Publ. Co.; 1984. 136. pollution/fuel resources/offshore/oil spills/Santa Barbara Basin/Santa Barbara Channel/economic/geology/energy sources/engineering/environmental geology/petroleum.

2770. Noshkin VE, Brunk JL, Jokela TA, Wong KM. super(238)Pu Concentrations in the Marine Environment at San Clemente Island. HEALTH PHYS 1981;40(5):643-659. The concentration of plutonium and other radionuclides measured in samples of surface sediments, seawater and brown algae collected from the the region offshore from North Light Harbor Pier at San Clemente Island, CA, are presented and discussed. Between 1967 and May 1978, different forms of nuclear fuels used in operational or proposed SNAP (Systems for Nuclear Auxillary Power) devices were tested at this site to evaluate the effects of seawater on the heat sources. The super(238)Pu associated with this sediment is slowly redissolving and is in a form that can be taken up by marine algae. Except for a 0.025-km super(2) region around the pier, the total plutonium (super(238)Pu + super(239+240)Pu) in the surface 3.0-cm layer of sediment is within the range of total fallout plutonium reported in Atlantic and Pacific surface deposits from overlying water depths less than 100 m. More super(238)Pu was released during testing than

the amounts accountable in the local surface sediments. Some of this super(238)Pu has undoubtedly migrated outside the region sampled, and dilution of the super(238)Pu with fallout levels in the environment has effectively obscured its detection elsewhere. Subsurface sediment deposits in the region may have inventories of excess super(238)Pu. Analysis of super(238)Pu concentrations in core samples is still in progress. plutonium/pollution monitoring/sea water/sediments/bioaccumulation/USA/ California/San Clemente Island/Phaeophyta/INE/USA/California/San Clemente Island/ASFA.

2771. Chen RF, Bada JL. A laser based fluorometry system for investigations of seawater and porewater fluorescence. Marine Chemistry. 1990;31(4):p.219-230 Scripps Inst. Oceanogr., San Diego, CA, United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present).

Atlantic Ocean/oceanography/sea water/California/organic materials/properties/fluorescence/methods/laser methods/pore water/organic carbon/marine environment/environment/optical properties/fluorimetry/vents/rainfall/hydrothermal conditions/San Clemente Basin/Straits of Florida/Sargasso Sea/Pacific Coast/Western U.S./United States/laser induced fluorescence detector/GEOREF.

2772. Anon. Quake Watching From the Seafloor. OFFSHORE 1981;41(4):172. The article describes a device, known as the Seafloor Earthquake Measurement System (SEMS), that measures the response of the ocean floor to earthquakes and other disturbances. Four advanced prototypes of SEMS are being tested as part of a program to provide better data for the design and construction of safe, cost-effective production platforms in California's Santa Barbara Channel. ocean floor/earthquakes/seismographs/production platforms/INE/Santa Barbara Channel/ASFA.

2773. Morley L, Heuermann P. Prestack wave predictive multiple suppression; application to prospecting in Santa Barbara Channel. Anonymous. Expanded abstracts of the 57th annual international Society of Exploration Geophysicists meeting and exposition. SEG-Abstracts. 1987;57:p.483-485 Entropic Geophys., Cupertino, CA, United-States; Phillips Pet. Co., United-States 57th annual international Society of Exploration Geophysicists meeting and exposition, New Orleans, LA, Oct. 11-15, 1987 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). California/geophysical surveys/seismic surveys/Santa Barbara Channel/Pacific Coast/Western U.S./United States/marine methods/noise/GEOREF.

2774. Kamerling M, Luyendyk BP. Paleomagnetism and tectonics of the islands of the southern California continental borderland. American Geophysical Union; 1981 fall meeting. Eos, Transactions, American Geophysical Union 1981;62(45):855 Address: Univ. Calif., Dep. Geol. Sci., Santa Barbara, CA Conference: American Geophysical Union; 1981 fall meeting San Francisco, CA, Dec. 7-11, 1981. paleomagnetism/tectonophysics/plate tectonics/continental borderland/plate rotation/volcanic rocks/Neogene/Tertiary/middle Miocene/strike-slip faults/faults/Santa Barbara County/California Channel Islands/geology/solid earth geophysics.

2775. Star JL, Mullin MM. Zooplanktonic Assemblages in Three Areas of the North Pacific as Revealed by Continuous Horizontal Transects. DEEP-SEA RES 1981;28(11A):1303-1322. Long serial sequences of macrozooplankton samples from the North

Pacific Central Gyre, the western California Current, and the nearshore area off southern California indicated a strong intraspecific pattern, in that copepodite stages of each of two species in both the nearshore and California Current samples covaried in space. At the same time the authors found interspecific associations in all three areas. In neither case were the associations very strong at particular spatial scales, however. The areas differed in intensity of patchiness of the dominant species but not in characteristic spatial scales of variation, although characteristic scales of distance often differed between day and night within the Central Gyre. There was little indication of pattern in comparisons of the distributions of chlorophyll or of temperature with those of individual categories of zooplankton. When the abundances of the dominant zooplankters in each area were summed, however, this index of the zooplanktonic biomass was related to the distribution of chlorophyll at certain scales in two of the three areas. zooplankton/distribution patterns/associations (ecological)/dominant species/abundance/IN/ASFA.

2776. Mensing S, Byrne R. Pre European/post European vegetation change in Central California; a high resolution record from the Santa Barbara Basin. Anonymous. 1990 California paleontology conference abstracts. Paleobios. 1990;13(49 Suppl.):p.6
Univ. Calif. at Berkeley, Geogr. Dep., Berkeley, CA, United-States
1990 California paleontology conference, Berkeley, CA, 1990
Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).
California/stratigraphy/Holocene/plants/paleoecology/palynomorphs /miospores/Pacific Coast/Western U.S./United States/Central California/Santa Barbara Basin/pollen/microfossils/Quaternary/vegetation/forests/GEOREF.

2777. Kamerling MJ, Luyendyk BP. Paleomagnetism and Neogene tectonics of the northern Channel Islands, California (USA). Journal of Geophysical Research 1985;90(B14):12,485-12,502
Address: ARCO Exploration Co., P.O.B. 5540, Denver, CO 80217.
Geologic observations and previous palaeomagnetic studies have suggested that the W Transverse Ranges arrived at their anomalous E-W orientation by clockwise tectonic rotation. A paleomagnetic study of the N Channel Islands was undertaken, in order to test the extent of rotated areas and to develop constraints on tectonic models concerning the formation of the S California Borderland. The results suggest that the N Channel Islands have been tectonically rotated into place since early(?) Miocene time as the outer borderland area translated northwestward within a large shear zone between the Pacific and N American Plates. tectonic rotation/paleomagnetic study/tectonic models/paleomagnetism/tectonophysics/structural geology/Neogene/stratigraphy/plate tectonics/neotectonics/sedimentary rocks/block structures/Northern California Channel Islands/Anacapa Island/Santa Cruz Island/Santa Rosa Island/San Miguel Island/geology/solid earth geophysics.

2778. Martin JH, Bruland KW, Broenkow WW. Cadmium transport in the California Current. Marine Pollutant Transfer Workshop Savannah, GA (USA), Jan. 1976. 1976;:159-184.
0904753109-04753/209-03045/INE/SA/California/pollution surveys/ANTHROPOGENIC/REISH/eghanouse/chemical oceanography/calcium transport/seawater/phytoplankton/cadmium transport/phosphorus/MINERALS MANAGEMENT SERVICE.

2779. Burkov VA, Pavlova YV. Description of the Eddy Field

of the California Current. OCEANOL. ACAD. SCI. USSR 1980;20(3):272-278. The eddy activity of the California current is investigated. The eddies are identified from monthly dynamic topography charts of the free surface and of the 200-db surface, constructed for the period from 1949 to 1965. Twelve cyclonic and 8 to 9 anticyclonic eddies are observed here on the average during a year. Eddy generation is associated with meandering of the core of the current, and also with constant factors such as bottom topography, the shoreline and upwelling conditions in Californian waters. Cyclonic eddies are concentrated primarily in the shore belt, and anticyclonic eddies along the mainstream of the current. The propagation of the latter to the left of the current (looking down-stream) is blocked by the shore. The characteristics of eddy distribution in the California current distinguish its vortex field from the corresponding fields in the Gulf Stream and the Kuroshio. eddies/dynamic topography/meanders/bottom topography effects/upwelling/cyclones/anticyclones/INE/California Current/ISE/California Current/ASFA.

2780. Reimers CE, Lange CB, Tabak M, Bernhard JM. Seasonal spillover and varve formation in the Santa Barbara Basin, California. Limnology and Oceanography. 1990;35(7):p.1577 Scripps Inst. Oceanogr., La Jolla, CA, United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present). California/oceanography/sediments/marine sediments/geochemistry/foraminifers/ecology/marine environment/sedimentary structures/planar bedding structures/varves/algal flora/diatom flora/Holocene/Pacific Coast/Western U.S./United States/Santa Barbara Basin/North American Pacific/Pacific Ocean/marine sedimentation/environment/phytoplankton/microfossils/pore water/detritus/Quaternary/GEOREF.

2781. Kamerling MJ, Luyendyk BP, Marshall M. Paleomagnetism and tectonic rotation of parts of the Transverse Ranges, California. Eos (Am. Geophys. Union, Trans.) 1978;59(12):1058 Address: Univ. Calif., Dep. Geol. Sci., Santa Barbara, Calif., USA; San Diego State Univ., USA Conference: American Geophysical Union; 1978 fall annual meeting. San Francisco, Calif., Dec. 4-8, 1978. paleomagnetism/stratigraphy/Tertiary/tectonophysics/plate tectonics/orogeny/orogenic belts/Transverse Ranges/rotation/faults/middle Tertiary/Cenozoic Santa Monica Mountains/Santa Barbara Islands/California Channel Islands/stratigraphy/historical geology.

2782. Bugno WT. Fabrication to Installation of a Santa Barbara Channel Jacket. Proceedings of Thirteenth Annual Offshore Technology Conference.; PROC. OFFSHORE TECHNOL. CONF 1981;1:145-152. This paper describes the fabrication, load out, transportation, and installation of the jacket for a platform in the Santa Barbara Channel. The jacket was fabricated in Japan and installed in 318 feet of water off the coast of Ventura, California in 1979. During installation, a falling pile follower caused some damage that required underwater repairs. The presentation includes: (1) Fabrication highlights including lifting a 620-ton panel with only 2 cranes; (2) A load-out that had to be completed within 20 hours; (3) Towing highlights including results from instruments installed on the jacket during a 45 day tow across the Pacific Ocean; (4) Installation highlights including results from strain gages and accelerometers installed on two piles during pile driving; (5) The complete replacement of two structural members damaged during

installation. This was accomplished by dry hyperbaric welding and wet welding in about 100 feet of water.

installation/jackets/offshore platforms/towing/Santa Barbara Channel/construction methods/California Coast/Pacific Ocean northeast/INE/Santa Barbara Channel/INE/USA/California/ASFA.

2783. Alldredge AL, Granata TC, Gotschalk CC, Dickey TD. The physical strength of marine snow and its implications for particle disaggregation in the ocean. *Limnology and Oceanography*.

1990;35(7):p.1415-1428

Univ. Calif. at Santa Barbara, Dep. Biol. Sci., Santa Barbara, CA, United-States; Univ. South. Calif., United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present).

California/oceanography/sedimentation/sediments/marine sediments/grain size/processes/marine sedimentation/Pacific Coast/Western U.S./United States/Santa Barbara Channel/organic materials/tests/chitin/shells/marine environment/environment/strength/GEOREF.

2784. Marton RA, Hammond DE, Ku TL. Ra-228 in two basins of the southern California continental borderland. *EOS, Trans., Am. Geophys. Union* 1985;66(46):939.

eganhouse/geochemistry/chemical oceanography/isotopes/sediments/radium/ra-228/San Pedro Basin/San Nicolas Basin/MINERALS MANAGEMENT SERVICE.

2785. Kamerling MJ, Luyendyk BP, Powell TS, Terres RR. Tectonic rotation of the northern Channel Islands of the Southern California borderland. *American Geophysical Union; 1980 fall meeting. Eos, Transactions, American Geophysical Union* 1980;61(46):1125

Address: Univ. Calif., Dep. Geol. Sci., Santa Barbara, CA American Geophysical Union; 1980 fall meeting. San Francisco, CA, Dec. 8-12, 1980. tectonophysics/plate

tectonics/Miocene/Neogene/Tertiary/Eocene/Paleogene/Transverse Ranges/western Transverse Ranges/fractures/faults/East Pacific Rise/North American Plate/California Channel Islands/northern California Channel Islands/Santa Monica Mountains/Anacapa Island/San Miguel Island/Santa Cruz Island/Santa Rosa Island/East Pacific Rise/North American Plate/structural geology.

2786. Imsand S. Comparison of the Food of *Triphoturus mexicanus* and *T. nigrescens*, Two Lanternfishes of the Pacific Ocean. *MAR. BIOL* 1981;63(1):87-100. Prey (chiefly euphausiids and copepods) eaten by two myctophids (lanternfishes) are compared from incidence in fish stomachs and from abundance in the environment.

One lanternfish species, *Triphoturus mexicanus*, lives in the California Current, and the other, *T. nigrescens*, lives in the central Pacific Ocean. Although these two environments are very different physically and biologically, the feeding habits of the two lanternfishes are surprisingly similar. Prey biomass is 94% euphausiids, 3% copepods, and 3% other organisms for *T. mexicanus* and 88% euphausiids, 4.5% copepods, and 7.5% other organisms for *T. nigrescens*; the difference between the fish species is not significant when tested statistically.

diets/stomach content/comparative studies/ecological distribution/food organisms/*Triphoturus mexicanus*/*Triphoturus nigrescens*/Copepoda/Euphausiidae/I/Pacific/ASFA.

2787. Bruland KW, Silver MW. Sinking Rates of Fecal Pellets From Gelatinous Zooplankton (Salps, Pteropods, Doliolids). *MAR. BIOL* 1981;63(3):295-300. Sinking rates were determined for fecal pellets produced by gelatinous zooplankton (salps, *Salpa fusiformis*

and *Pegea socia* ; pteropods, *Corolla spectabilis* ; and doliolids, *Dolioletta gegenbaurii*) feeding in surface waters of the California Current. Pellets from the salps and pteropods sank at rates up to 2 700 and 1 800 m d super(-1), respectively; such speeds exceed any yet recorded for zooplankton fecal pellets. Fecal pellets of salps of salps were rich in organic material, with C:N ratios from 5.4 to 6.2, close to values for living plankton. The relation between volume and sinking rate indicates that salp and pteropod pellets are slightly less dense than those of pelagic Crustacea; moreover, pellet density varied between different collection dates, probably because of differences in composition. In contrast, doliolid pellets sank at rates up to 208 m d super(-1), a rate much lower than would be expected from pellet size. Thus, density and sinking rates of pellets are much more variable in zooplankton than would be expected from studies of crustaceans alone. These tunicates may be disproportionately important in the flux of biogenic materials during periods when they form dense population blooms.

fecal pellets/organic constituents/zooplankton/sedimentation/Salpa fusiformis/Pegea socia/Corolla spectabilis/Dolioletta gegenbaurii/ISE/ California Gulf/ASFA.

2788. Harbert W. Late Neogene relative motions of the Pacific and North America plates. *Tectonics*. 1991;10(1):p.1-15
Univ. Pittsburgh, Dep. Geol. and Planet. Sci., Pittsburgh, PA, United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present). California/tectonophysics/plate tectonics/Pacific Plate/North American Plate/upper Neogene/Neogene/plate boundaries/transform faults/faults/transpression/plate rotation/plate convergence/Pacific Coast/Western U.S./United States/compression/sedimentary basins/San Andreas Fault/strike slip faults/Fiji/Melanesia/decollement/oceanic crust/crust/accuracy/pole positions/velocity/reconstruction/unconformities/Santa Maria Basin/Santa Cruz Basin/San Joaquin Basin/Los Angeles Basin/Diablo Range/Coast Ranges/evolution/equations/GEOREF.

2789. Karl DM. Adenosine triphosphate and guanosine triphosphate determinations in intertidal sediments. C.D. Litchfield, P.L. Seyfried. Methodology for biomass determinations and microbial activities in sediments. *Am. Soc. Test. Mater.*, Spec. Tech. Publ. 673. ; 1979. 5-20.
Address: Univ. Hawaii, Dep. Oceanogr., Honolulu, Hawaii
Conference: Methodology for biomass determinations and microbial activities in sediments. Fort Lauderdale, Fla., Jan. 30-31, 1978.
sediments/organic materials/oceanography/clastic sediments/geochemistry/sand/coastal environment/chemical analysis/methods/photometry/bacteria/algae/Corona Del Mar/Santa Catalina Island/San Nicolas Island/geology/geochemistry/chemistry.

2790. Matsumoto GI, Hammer WM. Modes of water manipulation by the lobate ctenophore *Leucothea* sp. *Mar. Biol.* (Berl.) 1988;97(4):551-558.
86013467/8807/behavior/swimming/ciliary/propulsion/feeding/papillae/sensory/structure/california bight/usa/ecology/animal behavior/biology/animal behavior/nutrition/general studies/nutritional status/methods/sense organs/general studies/methods/invertebrate morphology/physiology/pathology/ctenophora/invertebrate body regions/appendages/ecology/oceanography/movement/ctenophora/MINERALS MANAGEMENT SERVICE.

2791. Hammer RM. Day-Night Differences in the Emergence of

Demersal Zooplankton From a Sand Substrate in Kelp Forest. MAR. BIOL 1981;62(4):275-280. Day-night differences in abundance and biomass of demersal zooplankton in the water column were determined by trapping these animals as they emerged from the sand substrate in a kelp forest (*Macrocystis pyrifera*) ecosystem off Santa Catalina Island, California, USA. The day and night sampling periods of the 24 June 1979 new moon each lasted 12 h. Abundance and biomass of total demersal zooplankton were significantly higher in night samples. A mean of 2,425 plus or minus 1,168 demersal zooplankton m⁻² 24 h super(-1) migrated over a diel cycle; 97% of these animals were crustaceans. The mean biomass of demersal zooplankton was 94.2 plus or minus 27.6 mg ash-free dry wt m⁻² 24 h super(-1). No significant differences were found in either the abundance or biomass of demersal zooplankton collected in low and high traps, suggesting that most animals collected 25 cm off the bottom can sustain swimming to at least 75 cm and that both traps give comparable estimates of the amount of demersal zooplankton available to planktivorous predators. emergence/sands/diurnal variations/vertical migrations/abundance/zooplankton/*Macrocystis pyrifera*/ASFA.

2792. Bebout GE. Field based evidence for devolatilization in subduction zones; implications for arc magmatism. Science. 1991;251(4992):p.413-416 Carnegie Inst. Washington, Geophys. Lab., Washington, DC, United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present). California/petrology/metamorphic rocks/schists/magmas/genesis/subduction zones/volcanology/volcanism/island arcs/isotopes/oxygen/O 18/O 16/metamorphism/P T conditions/Los Angeles County California/Catalina Schist/Pacific Coast/Western U.S./United States/Southern California/Santa Catalina Island/field studies/degassing/volatiles/Lower Cretaceous/Cretaceous/geochemistry/mass transfer/phase equilibria/water/fluid phase/stable isotopes/GEOREF.

2793. Kastendiek J. Interactions among three species of intertidal algae. Am. Zool. 1980;20(4):952
CONFERENCE PAPER: ANNUAL MEETING OF THE AMERICAN SOCIETY OF ZOOLOGISTS, AMERICAN MICROSCOPICAL SOCIETY, AMERICAN SOCIETY OF LIMNOLOGY AND OCEANOGRAPHY, ANIMAL BEHAVIOR SOCIETY, CANADIAN SOCIETY OF ZOOLOGISTS, ECOLOGICAL SOCIETY OF AMERICA, SOCIETY OF SYSTEMATIC ZOOLOGY, AND THE WESTERN SOCIETY OF NATURALISTS, SEATTLE, WASH., USA, DEC. 27-30, 1980.
growth/shading/*Eisenia arborea*/*Halidryx dioica*/*Pterocladia* sp./Santa Catalina Island/marine biology/phycology/ecology.

2794. Silver MW, Bruland KW. Differential Feeding and Fecal Pellet Composition of Salps and Pteropods, and the Possible Origin of the Deep-Water Flora and Olive-Green "Cells". MAR. BIOL 1981;62(4):263-273. Salps (mainly *Salpa fusiformis* and, to a lesser extent, *Pegea socia*) and a web-building pteropod (*Corolla spectabilis*) were studied in epipelagic water of the central California Current. Although both kinds of gelatinous zooplankton trap phytoplankton in a mucus net, a fecal pellet analysis indicated that their diet differs significantly when they feed together, probably because of differences both in the pore sizes of their nets and in their feeding methods. Salps have a finemesh filter, on which they can retain even the smallest phytoplankton. In contrast, pteropods feeding in the same area produce fecal pellets consisting chiefly of larger phytoplankton, especially diatoms. Since fecal pellets transport most biogenic material to the deep sea, changes in herbivore species composition at a given

geographic location can change the chemistry of materials entering deep water. In addition, fecal pellets of both salps and pteropods include partially digested residues of phytoplankton that appear as olive-green spheres, having an ultrastructure identical with that of the so-called olive-green "cells." Presumably, fecal pellets, after sinking into deep water, ultimately disintegrate, releasing both the viable phytoplankton and the olive-green spheres into aphotic waters. Thus the feces of epipelagic herbivores are likely sources of much of the flora of the deep ocean.

feeding/zooplankton/fecal pellets/deep water/biochemical cycle/food organisms/Salpa fusiformis/Pegea socia/Corolla spectabilis/Bacillariophyceae/Coccolithophorida/Algae/ASFA.

2795. Baker P, Allen M. Occurrence of dolomite in Neogene phosphatic sediments. Burnett WC, Riggs SR. Phosphate deposits of the world; Neogene to modern phosphorites. Fla. State Univ., Dep. Oceanogr., Tallahassee, FL, United-States. IGCP Project No. 156. ; 1990. p. p.75-86.

Duke Univ., Dep. Geol., Durham, NC, United-States; Fla. State Univ., Dep. Oceanogr., Tallahassee, FL, United-States; East Carolina Univ., United-States; Yale Univ., United-States Cambridge Univ. Press, New York, NY Analytic; Book B; Bibliography and Index of Geology (1969-present).

California/sedimentary petrology/sediments/North Carolina/Florida/carbon/isotopes/C 13/C 12/Hawthorn Formation/Pungo River Formation/Monterey Formation/Neogene/Tertiary/dolomite/carbonates/phosphate composition/precipitation/Southeastern U.S./Eastern U.S./United States/Pacific Coast/Western U.S./Peru/South America/pellets/IGCP/stable isotopes/models/apatite/phosphates/authigenic minerals/sedimentation/composition/Santa Barbara Basin/DSDP Site 533/Leg 76/IPOD/Deep Sea Drilling Project/DSDP Site 467/Leg 63/DSDP Site 479/Leg 64/DSDP Site 147/Leg 15/marine sediments/Quaternary/pore water/geochemistry/GEOREF.

2796. Kastendiek J. Competitor mediated coexistence interactions among 3 species of benthic macroalgae. J. Exp. Mar. Biol. Ecol. 1982;62(3) Manipulative field experiments were used to determine the mechanism of coexistence of 3 spp. of benthic macroalgae (*Eisenia arborea* Areschong, *Halidrys dioica* Gardner and *Pterocladia capillacea* (Gmelin)) which occur in a narrow band of substratum from 0.3 to 2.3 m below MLLW [mean low low water] on Santa Catalina Island, California [USA]. *Eisenia* forms a canopy and excludes *Halidrys* from areas beneath this canopy. *Pterocladia* occurs in the space beneath the *Eisenia* canopy. With canopy removal, *Halidrys* grows adventitiously, excludes *Pterocladia*, and preempts all space on the substratum. However, *Pterocladia* is not physiologically restricted to being an understory plant. When the canopy is removed and *Halidrys* is prevented from entering the area, *Pterocladia* flourishes. *Pterocladia* persists in the community because of its ability to utilize the refuge from its superior competitor, *Halidrys*, afforded by the *Eisenia* canopy. *Eisenia*, the competitive dominant to *Halidrys*, therefore, mediates the coexistence of *Halidrys* and its inferior competitor, *Pterocladia*, in a manner similar to the role that predators and physical disturbance play in other marine communities.

predators/physical disturbance/coexistence/competition/*Eisenia arborea*/*Halidrys dioica*/*Pterocladia capillacea*/Santa Catalina Island/marine biology/ecology/phycology/botany.

2797. Gamboa AD, Romero R, Fox C. (Population Census of Sea

Lions (*Zalophus californianus*) by Age and Sex in La Paz Bay and Surrounding Areas, Baja California Sur, Mexico). INF. GEN. LABORES CENT. INVEST. BIOL. BAJA CALIF 1978;:139-154.

A study was made of the population of the sea lion (*Zalophus californianus*) in La Paz Bay, Mexico, to determine the age and sex distribution, preliminary data on migrations and population density of the different breeding sites in that area. Population census were made every 15 days from May to December, 1978. Most of the studies were made at 1 breeding site located on Islote Island, because this was the only site where reproduction took place. A total of 300 individuals were counted, from Santa Cruz Island to Los Frailes Island. 50% of the population were females, 25-30% were adult and subadult males, 10% were juveniles and 15-18% were litters. The male population number is affected by the female and subadult male movements.

population number/sex ratio/seasonal variations/migrations/California Gulf/La Paz Bay/population density/*Zalophus californianus*/ISE/ California Gulf/La Paz Bay/ASFA.

2798. Sautter LR. Seasonal variability in the flux and stable isotopic composition of planktonic foraminifera from an upwelling region; sediment trap results from the San Pedro Basin, Southern California Bight. [dissertation]; 1990. University of South Carolina, United-States; Doctoral Monographic; Thesis B; Bibliography and Index of Geology (1969-present) Univ. Microfilms, Ann Arbor, MI, United States.

177 p.

Pacific

Ocean/geochemistry/isotopes/California/foraminifers/biochemistry/stable isotopes/oxygen/O 18/O 16/carbon/C 13/C 12/Pacific Coast/Western U.S./United States/seasonal variations/microfossils/planktonic taxa/upwelling/sediments/San Pedro Basin/Southern California Bight/stratification/planar bedding structures/sedimentary structures/assemblages/thermocline/*Neogloboquadrina pachyderma*/*Globigerinacea*/*Rotaliina*/foraminifera/*Globigerina quinqueloba*/*Globigerina bulloides*/*Globigerina*/*Globigerinidae*/*Neogloboquadrina dutertrei*/*Orbulina universa*/*Orbulina*/Holocene/Quaternary /GEOREF.

2799. Keenam EM. Amino acid racemization dating: theoretical considerations and practical applications [dissertation]. Newark, Delaware, USA: University of Delaware; 1982. 369.

Intergeneric comparisons of the results of pyrolysis at 152.5(DEGREES)C of mollusks and mixed foraminifera demonstrate that, as in fossils, mollusks and mixed foraminifera are characterized by slow racemizing genera (*Protothaca*, *Mercenaria* and mixed foraminifera) and a fast racemizing genus (*Macoma*). The functions describing the rate of racemization of leucine in all heated material duplicated the non-linear form of the rate curve previously documented in fossils and other heating experiments. The initial rate constants followed the extended linear form seen in the pyrolysis experiments. An activation energy of 27.4 kcal/mole was calculated for the racemization of leucine in the Total *Mercenaria* sample. Intrageneric racemization rates in fossils were reproduced by pyrolysis which indicates that the concerted hydrolysis mechanism occurring in fossils is also the directing force during pyrolysis. The initial and subsequent rate constants in the high molecular weight fraction (MW > 640) of heated *Mercenaria* were strongly influenced by the hydrolysis/racemization of amino acids with

stable peptide bonds such as aspartic acid. The use of pre-packed Sephadex columns for gel filtering the Total sample produced consistent, reproducible trends in the high (> 640 MW) and low (< 640 MW) molecular weight fractions. Tivela and Chione from terraces along the Pacific Coast of Baja California Sur produced four groups of D/L valine and leucine ratios corresponding to oxygen isotope stages 5, 7, (GREATERTHEQ) 9 and the high mean annual temperature of the region dictates that only valine and leucine can be used to resolve amino acid ages. However, even those amino acids were racemic in samples (GREATERTHEQ) 300,000 years. Amino acid ages for Epilucina and Tivela from terraces on San Miguel Island, Channel Islands include: (DIAGRAM, TABLE OR GRAPHIC OMITTED...PLEASE SEE DAI) Analyzed Epilucina frequently produced anomalous D/L ratios whereas Tivela was consistently reproducible. Racemization studies of well-preserved bone samples from Natural Trap Cave, Wyoming indicated that the samples do not conform to trends expected from their chrono-stratigraphic position. Their anomalously high, variable rate constants combined with data on molecular weight distribution of D/L ASP indicate that non-thermal diagenesis has significantly altered the amino acids in these samples.

amino acid racemization dating/fossils/geochronology/organic materials/geochemistry/pyrolysis/temperature/hydrolysis terraces/shells molluscs/Mollusca/Foraminifera/foraminiferans/Protothaca, Mercenaria Macoma/Tivela/Chione/Epilucina/San Miguel Island/Baja California/chemistry/geology/geochemistry.

2800. MBC Applied Environmental Sciences. Point Arguello field pipeline current measurement program. final report. Prep. for Chevron Oil Field Research Company, La Habra, California 1983;II:63.

physical oceanography/MINERALS MANAGEMENT SERVICE.

2801. Nielsen C. On Morphology and Reproduction of "Hippodiplosia" insculpta and Fenestrulina malusii (Bryozoa, Cheilostomata). OPHELIA 1981;20(1):91-125.

H. insculpta and F. malusii were studied at Santa Catalina Island, California. In H. insculpta the protruded lophophores form a continuous incurrent area, and the growing edges are the only excurrent areas. The hydrodynamics of this pattern apparently sets a maximum to the size of the colonies. Female zooids can be recognized already at the growing edge; later on they induce their distal neighbor to form an ovicell. While the first oocyte develops the maternal polypide degenerates and a small, non-feeding polypide develops. These non-feeding zooids develop a series of eggs, the nutrients of which must be supplied by the neighboring zooids. Larvae which were prevented from settling for 12 hours or more were not able to settle or the metamorphosis/ancestrula formation was unsuccessful. In F. malusii almost all zooids produce eggs and the individual polypides are feeding during several cycles of oocyte development and embryogenesis. When two colonies meet and fuse, a maternal zooid from one colony may induce a zooid from the other colony to form an ovicell. reproduction (biology)/morphology (organisms)/life history/colonial characteristics/reproduction/USA/California/Hippodiplosia insculpta/Fenestrulina molusii/ISE/USA/California/ASFA.

2802. Bunnell D. Sea caves of Santa Cruz Island. ; 1988. 123 p. McNally and Loftin, Santa Barbara, CA Monographic; Book B; Bibliography and Index of Geology (1969-present).

California/geomorphology/shore features/caves/Santa Cruz

Island/Pacific Coast/Western U.S./United States/Southern California/erosion features/Santa Barbara Channel/erosion/faults/speleology/solution features/sea caves/GEOREF.

2803. Dymond J, Fischer K, Clauson M, Cobler R, Gardner W, Richardson MJ, Berger W, Soutar A, Dunbar R. A Sediment Trap Intercomparison Study in the Santa Barbara Basin. EARTH PLANET. SCI. LETT 1981;53(3):409-418.

Four sediment traps of radically different design were deployed in the Santa Barbara Basin for approximately 45 days. The measured fluxes ranged from 370 to 774 g m⁻² yr⁻¹ for the different designs. These values lie within flux measurements previously determined for the basin. Compared to the 25-year record (920 g m⁻² yr⁻¹), however, all fluxes determined in this experiment are somewhat low. Because this experiment was conducted during a general period of high storm activity and runoff, measurement of greater than average flux was expected. It is probable that the higher flux recorded by the sediments results from a significant input of detritus into the basin by near bottom transport. The chemical composition of trapped material was nearly identical in all four trap designs.

comparative studies/sediment traps/chemical composition/accumulation rates/INE/Santa Barbara Basin/ASFA.

2804. Melchiorre EB. Geology and history of the Little Fishermans Campground landslide, Santa Catalina Island, California. The Compass. 1990;67(2):p.94-98

Univ. South. Calif., Dep. Geol. Sci., Los Angeles, CA, United States Analytic; Serial B; Bibliography and Index of Geology (1969-present). California/engineering geology/slope stability/San Onofre Breccia/Catalina Schist/Pacific Coast/Western U.S./United States/Southern California/Santa Catalina Island/landslides/mass movements/Little Fisherman's Campground/genesis/Mesozoic/Miocene/Neogene/Tertiary/history/rates/GEOREF.

2805. Keller BR. Structural discontinuity within the Southern California continental margin: seismic and gravity models of the western Transverse Ranges [dissertation]. Santa Barbara, CA: University of California; 1984. 108.

isostasy/tectonophysics/geophysical surveys/anomalies/crust surveys/observations/Transverse Ranges;continental crust continental margin/seismic surveys/gravity surveys/P-waves velocity structure/teleseismic signals/Neogene/Mohorovicic discontinuity/Santa Barbara Channel/California Channel Islands/Santa Ynez Range Coast Ranges/East Santa Cruz Basin Fault/East Pacific Rise/geology/solid earth geophysics.

2806. Moore WS, Bruland KW, Michel J. Fluxes of Uranium and Thorium Series Isotopes in the Santa Barbara Basin. EARTH PLANET. SCI. LETT 1981;53(3):391-399. Samples from the MANOP Santa Barbara Basin sediment trap intercomparison were analyzed for the isotopes of uranium, thorium, radium, lead, and polonium. All of the traps showed approximately the same compositions and isotopic ratios, indicating that they trapped similar materials. The super(234)Th flux via falling particles was very close to the flux predicted from the production and scavenging rates of super(234)Th from the water column. The super(210)Pb content of the trapped particles and the surface sediments were the same, however, the measured flux of super(210)Pb was seven times greater than the predicted flux. Predicted and measured fluxes of super(228)Th and super(210)Pb were similarly out of balance. It is suggested that the Santa Barbara

Basin is an area where scavenging from the water column is intensified and where sediments deposited initially on the margins may be physically remobilized on a short time scale. sediment analysis/sediment composition/radioisotopes/uranium isotopes/thorium isotopes/radium isotopes/lead isotopes/polonium isotopes/INE/ Santa Barbara Basin/ASFA.

2807. Larson KM. Precision, accuracy, and tectonics from the Global Positioning System [dissertation]. ; 1990. Univ. of California, San Diego, United-States; Doctoral Monographic; Thesis B; Bibliography and Index of Geology (1969-present) Univ. Microfilms, Ann Arbor, MI, United States. California/structural geology/tectonics/geophysical surveys/geodesy/surveys/Global Positioning System/accuracy/Pacific Coast/Western U.S./United States/Southern California/Central California/very long baseline interferometry/standard deviation/statistical analysis/networks/Santa Barbara Channel/Gulf of Santa Catalina/strain/Salton Trough/flexure/thickness/GEOREF.

2808. Keller B, Prothero W, Trehu A, Stierman D. 1982 Santa Barbara, California, land-sea seismic refraction experiment. American Geophysical Union; 1982 fall meeting. Eos, Transactions, American Geophysical Union 1982;63(45):1037 Address: Univ. Calif. Santa Barbara, Dep. Geol. Sci., Santa Barbara, CA, USA; U.S. Geol. Surv., USA; Univ. Calif. Riverside, Dep. Earth Sci., USA Conference: American Geophysical Union, 1982 fall meeting. San Francisco, CA, Dec. 7-15, 1982. geophysical surveys/tectonics/seismic surveys/traveltime/refraction methods/seismic methods/ocean bottom seismographs/Pn-waves/North American Pacific/Santa Barbara Channel/Santa Cruz Island Fault/Anacapa Passage/Mid-Channel Fault/Diablo Arch/San Rafael Mountains/Santa Ynez Mountains/Santa Ynez Fault/structural geology.

2809. White LD. Chronostratigraphic and paleoceanographic aspects of selected chert intervals in the Miocene Monterey Formation, California. [dissertation] ; 1989. Univ. of California, United-States; Doctoral Monographic; Thesis B; Bibliography and Index of Geology (1969-present) Univ. Microfilms, Ann Arbor, MI, United States. 250 p. California/stratigraphy/Miocene/paleoclimatology/algal flora/diatom flora/sedimentation/sedimentation rates/cyclic processes/Monterey Formation/Pacific Coast/Western U.S./United States/Neogene/Tertiary/chronostratigraphy/paleo oceanography/chert/chemically precipitated rocks/microfossils/cycles/Bodega Basin/Santa Cruz Basin/Santa Maria Basin/Point Reyes/Ano Nuevo/Mussel Rock/Lions Head/upwelling/ooze/clastic sediments/porcellanite/clastic rocks/shale/dolostone/carbonate rocks/thickness/Milankovitch theory/turbidite/Shell Beach/GEOREF.

2810. Keller B, Prothero WA,, Trehu AM, Stierman DJ. Ray trace model of the Santa Barbara, California, land-sea seismic refraction experiment. Geophys. Res. Lett. 1983;10(10):933-936 Address: Univ. California, Santa Barbara, CA, USA. A seismic refraction profile utilizing shots at sea and receivers on land on the ocean bottom lies on a north-south line from the southernmost Coast Ranges, across the western Transverse Ranges, to the northern Borderland at the longitude of Santa Barbara. Computer ray tracing to model the data from this profile shows significant lateral P velocity variations extending to at least 15 km depth. A deep low velocity trough underlies the Montalvo trend in the Santa Barbara Channel. Lateral velocity variations suggest that

earthquake hypocenters and fault plane solutions calculated assuming a laterally homogenous crust-model may be significantly in error.

seismic refraction profiles/crustal structure/crust/oceanography/geophysical surveys continental shelf/seismic surveys/velocity structure/Transverse Ranges/raypaths/geophysical profiles/refraction methods/seismic methods/deep seismic sounding/deep-seated structures/P-waves/faults/fault planes/earthquakes/continental borderland/discontinuities/low-velocity zones/Santa Barbara Channel/seismology/geology/geophysics.

2811. Heinbokel JF. Studies on the Functional Role of Tintinnids in the Southern California Bight. 2. Grazing Rates of Field Populations. MAR. BIOL 1978;4(2):191-197. The feeding behavior of relatively undisturbed natural populations of tintinnids was studied in a series of experiments which utilized water samples collected in Southern California coastal waters. Dilute suspensions of corn starch were presented to the tintinnids and the rates of ingestion of this visual tracer determined after short (5 to 20 min) incubations followed by fixation in Lugol's iodine fixative. Tintinnids were observed to ingest particles of diameters up to approximately 43% of their lorica oral diameter and at rates proportional to their oral diameters. Grazing rates observed in these experiments ranged up to approximately $10 \mu l$ tintinnid⁻¹ h⁻¹, and generally agreed well with the rates observed in experiments utilizing laboratory cultures of tintinnids. No significant diel periodicity in feeding rates was observed in the one study extending over a 24 h period. grazing/zooplankton culture/ingestion/food composition/Tintinnidae/Tintinnopsis/Amphorella quadrilineata/Eutintinnus pectinis/Amphorellopsis acuta/Salpingella curta/ASFA.

2812. Bohacs KM. Sequence stratigraphy of the Monterey Formation, Santa Barbara County; integration of physical, chemical, and biofacies data from outcrop and subsurface. Keller, Margaret A., McGowen, Mary K. Miocene and Oligocene petroleum reservoirs of the Santa Maria and Santa Barbara-Ventura basins, California; a core workshop. U. S. Geol. Surv., Menlo Park, CA, United-States. SEPM-Core-Workshop. 1990;14:p.139-200 Exxon Prod. Res. Co., United-States; U. S. Geol. Surv., Menlo Park, CA, United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present). California/stratigraphy/Miocene/geochemistry/sedimentary rocks/surveys/Santa Barbara County California/Monterey Formation/Pacific Coast/Western U.S./United States/deposition/environment/changes of level/Neogene/Tertiary/Santa Maria Basin/Santa Barbara Channel/southwestern California/sedimentary structures/organic carbon/organic materials/debris flows/mass movements/faults/folds/pelagic sedimentation/thickness/processes/foraminifers/microfossils/turbidite/porcellanite/clastic rocks/bedding/planar bedding structures/deformation/GEOREF.

2813. Keller BR. Structural discontinuity within the Southern California continental margin: seismic and gravity models of the western transverse ranges [dissertation]. Santa Barbara, California, USA: University of California; 1984. 108. Crustal models of P wave velocity structure and bulk density along a north-south profile across the western Transverse Ranges of California are based on published seismic reflection

profiles, a seismic refraction experiment using shots at sea to receivers on land and at sea, Pn and teleseismic arrivals at permanent seismic stations, and published gravity data on land and at sea. The seismic ray trace model is further constrained by two intersecting east-west crustal refraction profiles. The density model is constrained by an auxiliary profile tying the outer Borderland to oceanic lithosphere. A range of density models is evaluated based on the range of densities reported for particular P wave velocities and the preferred model is selected by regional seismic criteria. Lateral variations in the crust are resolved to greater than 10 km depth. The Santa Ynez Range and Coast Ranges form a block with flat lying structure. The north half of Santa Barbara Channel is a deep low velocity, low density feature. This is deepest in the southern 10 km, where model properties attributable to young sediment are identified to deeper than 10 km. The Channel Islands platform is a higher density and higher velocity block. South of the Santa Cruz Island. fault is a ridge-like body of very high density and velocity associated with outcrops of mafic crystalline rock. South of the East Santa Cruz Basin fault is a sedimentary basin with lower density and velocity to about 5 km depth. Lower crustal material with velocity near 7.0 km/sec may be Neogene oceanic rocks generated at the East Pacific Rise. Moho depth decreases from 31 km under the Santa Ynez Range to 23 km under the outer Borderland, with a step or ramp shaped offset under Santa Barbara Channel. Variations observed in teleseismic arrival times are substantially accounted for by the crustal velocity model. The western Transverse Ranges are not in isostatic balance, the south side being heavier than the north side.

seismology/sediment/ continental margins/seismic reflection profiles/seismic refraction discontinuity layers/Santa Barbara Channel/western Transverse Ranges of California/Santa Ynez Range/East Santa Cruz Basin/fault geology/seismology/geophysics.

2814. McEvoy J, Maxwell JR. Diagenesis of steroidal compounds in sediments from the Southern California Bight (DSDP leg 63, site 467). Proceedings 10th International Meeting Advanced Organic Geochemistry 1983;:449-464.
CA09914108418/steroidal/diagenesis/sediment/pacific/chemical oceanography/geological sediments/marine/steroids/reactions/Eganhouse/MINERALS MANAGEMENT SERVICE.

2815. McGowan JA. Distributional atlas of pelagic molluscs in the California Current region. Calif. Coop. Oceanic Fish. Invest. Atlas No. 6 1967;:218.
mollusks/pelagic/california current/abundance/species list/zooplankton/Pieper Dawson TEXT/MINERALS MANAGEMENT SERVICE.

2816. Heinbokel JF. Studies on the Functional Role of Tintinnids in the Southern California Bight. 1. Grazing and growth Rates in Laboratory Cultures. MAR. BIOL 1978;47(2):177-189. Five species of tintinnids, *Amphorella quadrilineata* Tintinnopsis cf. *beroidea*, T. cf. *acuminata*, *Eutintinnus pectinis* and *Helicostomella subulata*, were isolated from Southern California coastal waters and maintained in laboratory cultures which were used to investigate several aspects of the feeding dynamics and population growth rates of this group of planktonic ciliates. Both *E. pectinis* and *H. subulata* displayed ingestion and growth rates which increased with increasing food concentration until a maximum rate was obtained which then remained essentially constant as food levels increased further. Maximum hourly ingestion was equivalent

to similar to 10 to 20% body weight. *T. cf. acuminata* showed no such maximum ingestion rate, as ingestion rates increased throughout the entire range of food concentrations used. The dependence of growth rate of *T. cf. acuminata* on food concentration also differed from the other species, being characterized by a broad region of maximum growth at intermediate food levels with reduced growth at both lower and higher food concentrations. Maximum observed growth rates represented doubling times of similar to 12 h for both *E. pectinis* and *T. cf. acuminata* and 24 h for *H. subulata*. The data suggested gross growth efficiencies exceeding 50% over much of range of food concentrations used.

grazing/growth/zooplankton culture/food
availability/Tintinnidae/Amphorella
quadrilineata/Tintinnopsis/Eutintinnus pectinis/Helicostomella
subulata/ASFA.

2817. Miles GA, Rigsby CA. Lithostratigraphy and depositional environments of the Vaqueros and upper Sespe/Alegria formations, Hondo Field, Santa Barbara Channel, California. Keller, Margaret A., McGowan, Mary K. Miocene and Oligocene petroleum reservoirs of the Santa Maria and Santa Barbara-Ventura basins, California; a core workshop. U. S. Geol. Surv., Menlo Park, CA, United-States. SEPM-Core-Workshop. 1990;14:p.39-87
U. S. Geol. Surv., Menlo Park, CA, United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present).
California/stratigraphy/Oligocene/Miocene/sedimentary petrology/sedimentary rocks/clastic rocks/sandstone/Monterey County California/Vaqueros Formation/Sespe Formation/Alegria Formation/Rincon Formation/lithostratigraphy/deposition/environment/Hondo Field/Santa Barbara Channel/Transverse Ranges/interpretation/Paleogene/Tertiary/Neogene/lower Miocene/upper Oligocene/Santa Ynez Mountains/faults/folds/Greenfield California/Pacific Coast/Western U.S./United States/angular unconformities/grain size/mollusks/cores/siltstone/foraminifers/microfossils/GEOREF.

2818. McGowan JA. El Nino and biological production in the California current. Trop. Ocean-Atmos. Newsl. 1983;21:23.
Physical Oceanography/MINERALS MANAGEMENT SERVICE.

2819. Kennedy B, Pearse JS. Lunar synchronization of the monthly reproductive rhythm in the sea urchin *Centrostephanus coronatus* Verrill. J. Exp. Mar. Biol. Ecol. 1975;17:323-331
reproductive biology/lunar synchronization/Echinoidea/Diadematidae/*Centrostephanus coronatus*/Santa Catalina Island/Big Fisherman's Cove/marine biology.

2820. McGowan JA. El Nino 1983 in the Southern California Bight USA. El Nino North: Nino Effects in the Eastern Subarctic Pacific Ocean; Meeting in Seattle, WA (USA), Sept. 12-13, 1984 1985;:166-184.
phytoplankton/zooplankton/productivity/Pieper Thompson/invertebrates/Schroeter/algae/spermatophytes/Bray productivity/ecology/oceanography/ecology/bioclimateology/ecology/animal ecology/aquatic wildlife management/general biology/Cross/episodic/El Nino/MINERALS MANAGEMENT SERVICE.

2821. Keller MA. Introduction to stratigraphy and hydrocarbon occurrence in Oligocene and Miocene rocks of the Santa Barbara Ventura and Santa Maria basins of California. U. S. Geol. Surv., Menlo Park, CA, United-States. 1990;14:p.1-11 U. S. Geol.

Surv., Menlo Park, CA, United-States; U. S. Geol. Surv., Menlo Park, CA, United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present).

Keller, Margaret A., McGowen, Mary K. Miocene and Oligocene petroleum reservoirs of the Santa Maria and Santa Barbara-Ventura basins, California; a core workshop.

California/stratigraphy/Oligocene/Miocene/economic geology/petroleum/Sespe Formation/Alegria Formation/Vaqueros Formation/Monterey Formation/Sisquoc Formation/Santa Barbara Basin/Santa Maria Basin/Pacific Coast/Western U.S./United States/Ventura Basin/Neogene/Tertiary/Southern California/Transverse Ranges/sandstone/clastic rocks/conglomerate/deposition/environment/Paleogene/GEOREF.

2822. Keough MJ, Downes BJ. Effects of settlement and post-settlement mortality on the distribution of the ascidian *Trididemnum opacum*. Mar. Ecol. Prog. Ser. 1986;33(3):279-285
Address: Dep. Zool., Univ. Melbourne, Parkville, Vic. 3052 Australia. At Isthmus Reef, Santa Catalina Island, California, colonies of the colonial ascidian *T. opacum* occur disproportionately in cracks and crevices on rock surfaces. Small colonies are found in the open, but large colonies occur only in crevices. Transplantation of established colonies into unprotected open habitats showed that they are preyed upon intensively, probably by fish and urchins (up to 19% mortality d super(-1) and 80% mo super(-1)), with colonies of all sizes being eaten. Recruitment was primarily into pits in experimental substrata. A caging study of recruitment patterns suggested that the recruitment pattern results from disproportionate but not exclusive settlement of larvae into depressions, followed by differential mortality of colonies in the open during the first month after settlement. Sampling in 1985 suggested that changes during El Nino years of 1982-3 may have resulted in altered abundance and size-distributions of *T. opacum*.
colonization/biological settlement/mortality/size distribution/colonies/microhabitats/predation/recruitment patterns/El Nino/ascidian/tunicates/*Trididemnum opacum*/Santa Catalina Island/Isthmus Reef/marine biology/ecology.

2823. Keller MA, McGowen MK. Miocene and Oligocene petroleum reservoirs of the Santa Maria and Santa Barbara Ventura basins, California; a core workshop. U. S. Geol. Surv., Menlo Park, CA, United-States 1990;14
Monographic; Serial Individual articles are cited separately. B; Bibliography and Index of Geology (1969-present).
California/stratigraphy/Miocene/Oligocene/economic geology/petroleum/Santa Maria Basin/Pacific Coast/Western U.S./United States/Ventura Basin/Santa Barbara Basin/Neogene/Tertiary/Paleogene/GEOREF.

2824. Kerstitch A. Up from the deep. Sea Front 1982;28(3):156-157 Most butterflyfishes live in the warm, shallow waters of tropical and subtropical seas. A few, however, occur in less hospitable environments. One exception, the scythe butterflyfish (*Chaetodon falcifer*), normally inhabits cold water. The depth at which it is found can vary from 40 to 250 feet, depending on the temperature of the water. It has been observed as far north as Santa Catalina Island, off California, and as far south as the Galapagos Islands. Without lengthy decompression, specimens collected at great depths cannot be brought to the surface alive. Most bony fishes possess gas bladders filled with oxygen (or nitrogen in some species), which function in buoyancy regulation. The bladder expands if the ambient pressure is

decreased. Therefore, to avoid rupture of the bladder, fishes with gas bladders must be brought to the surface slowly to allow the excess gas to be reabsorbed into the blood.

vertical distribution/swim bladder/decompression/Chaetodon falcifer/scythe butterflyfish/Santa Catalina Island/Galapagos Islands/marine biology/ichthyology.

2825. Nozaki Y, Kasemsupaya V, Tsubota H. The distribution of Ra 228 and Ra 226 in the surface waters of the northern North Pacific. *Geochemical Journal*. 1990;24(1):p.1-6
Univ. Tokyo, Ocean Res. Inst., Tokyo, Japan; Hiroshima Univ., Japan
Analytic; Serial B; Bibliography and Index of Geology (1969-present). Pacific Ocean/oceanography/sea water/geochemistry/isotopes/radium/Ra 228/Ra 226/alkaline earth metals/metals/radioactive isotopes/Ra 228/Ra 226/sedimentation/provenance/West Pacific/North American Pacific/Kuroshio/California Current/Northeast Pacific/methods/GEOREF.

2826. Kies RP. Paleogene sedimentology, lithostratigraphic correlations and paleogeography, San Miguel Island, Santa Cruz Island, and San Diego, California [dissertation]. San Diego, CA: California State University; 1982. 577. sedimentary rocks/paleogeography/sedimentation/faults/Paleogene clastic rocks/environment/orientation/provenance/deltaic environment/strike faults/Mount Soledad Conglomerate/Tertiary Cenozoic/conglomerate/composition/metavolcanic rocks/lithofacies/East Santa Cruz Basin Fault/Malibu Coast Fault System/Mount Soledad Fault/Northern California Channel Islands/San Miguel Island/Santa Cruz Island/San Diego/Santa AnaMountains/northern Mexico/Valle de Las Palmas/stratigraphy/historical geology.

2827. Smith CR, Pope R, DeMaster DJ. Use of multiple radiotracers to elucidate pulsed advective mixing of deep sea sediments. Anonymous. AGU 1990 ocean sciences meeting. *Eos, - Transactions, - American Geophysical Union*. 1990;71(2):p.72 Univ. Hawaii at Manoa, Dep. Oceanogr., Honolulu, HI, United States; N.C. State Univ., United States American Geophysical Union; 1990 ocean sciences meeting, New Orleans, LA, Feb. 12-16, 1990 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).
California/oceanography/sedimentation/Pacific Ocean/geochemistry/isotopes/Pacific Coast/Western U.S./United States/Southern California/North American Pacific/bioturbation/biogenic structures/sedimentary structures/radioactive isotopes/radioactive tracers/Santa Catalina Basin/sea water/marine sediments/diagenesis/mixing/deep sea sedimentation/advective/time series analysis/statistical analysis/GEOREF.

2828. Kies RP, Abbott PL. Paleogene conglomerate assemblages of the Southern California continental borderland. The Geological Society of America, Cordilleran Section, 78th annual meeting. Abstracts with Programs - Geological Society of America 1982;14(4):178
Address: San Diego State Univ., Dep. Geol. Sci., San Diego, CA
Conference: The Geological Society of America, Cordilleran Section, 78th annual meeting. Anaheim, CA, April 19-21, 1982.
California/sedimentary rocks/clastic rocks/conglomerate/Poway Dacite/Owl Creek Dacite/Las Palmas Dacite/Black Dacite/Mount Soledad Formation/continental borderland/Paleogene/Tertiary/Cenozoic/marine environment/fluvial

environment/deltaic environment/dacite/andesite-rhyolite
family/phenocrysts/Santa Barbara County/San Miguel Island/Santa
Cruz Island/Santa Ana Mountains/San Diego County/San
Diego/geology/sedimentary/petrology.

2829. Mearns AJ. Contaminant trends in the Southern
California Bight: Inventory and assessment. Draft report. NOAA
(in prep.) 1989; text/anthropogenic inputs/MINERALS MANAGEMENT
SERVICE.

2830. Wheatcroft RA, Jumars PA. Conservative tracer studies
of horizontal bioturbation rates in a bathyal basin, Southern
California. Anonymous. AGU 1990 ocean sciences meeting. Eos,-
Transactions,-American-Geophysical-Union. 1990;71(2):p.72
Univ. Wash., Sch. Oceanogr., Seattle, WA, United-States American
Geophysical Union; 1990 ocean sciences meeting, New Orleans, LA,
Feb. 12-16, 1990 Analytic; Serial; Conference publication;
Abstract B; Bibliography and Index of Geology (1969-present).
California/oceanography/sedimentation/Pacific
Ocean/geochemistry/isotopes/Pacific Coast/Western U.S./United
States/Southern California/North American
Pacific/bioturbation/biogenic structures/sedimentary
structures/radioactive isotopes/radioactive tracers/Santa Catalina
Basin/sea water/marine sediments/diagenesis/GEOREF.

2831. Kies RP, Abbott PL. Sedimentology and paleogeography
of lower Paleogene conglomerates, Southern California continental
borderland. D.L. Fife, J.A. Minch. Geology and mineral wealth of
the California Transverse Ranges; Mason Hill volume. : South Coast
Geol. Soc.; 1982. 337-349.
Address: Union Oil Co., Anchorage, AK, USA; San Diego State Univ.
sedimentary rocks/conglomerate/lower
Paleogene/rhyolite/clasts/sedimentary
petrology/lithostratigraphy/correlation Southern
California/Transverse Ranges/California Channel Islands/Santa Ana
Mountains/Valle de Las Palmas/San Miguel Island/Santa Cruz
Island/geography/geology/stratigraphy/lithostratigraphy/paleogeog
raphy/paleontology.

2832. Kennedy JA, Brassell SC. Molecular evaluation of
Recent El Nino events in the Santa Barbara Basin. Dymek, Robert F.,
Shelton, Kevin L. Geological Society of America, 1989 annual
meeting. Washington Univ., Dep. Earth and Planet. Sci., St. Louis,
MO, United-States.
Abstracts-with-Programs-Geological-Society-of-America.
1989;21(6):p.5 Stanford Univ., Dep. Geol., Stanford, CA, United-
States; Washington Univ., Dep. Earth and Planet. Sci., St. Louis,
MO, United-States; Univ. Mo.-Columbia, United-States Geological
Society of America, 1989 annual meeting, St. Louis, MO, Nov. 6-9,
1989 Analytic; Serial; Conference publication; Abstract B;
Bibliography and Index of Geology (1969-present).
California/stratigraphy/Holocene/Pacific Coast/Western U.S./United
States/El Nino/Santa Barbara
Basin/Quaternary/paleoclimatology/algal
flora/microfossils/Emiliana
huxleyi/Coccolithophoraceae/algae/alkenones/marine
sediments/glaciation/offshore/Southern
California/dinosterol/GEOREF.

2833. Kies RP, Abbott PL. Rhyolite clast populations and
tectonics in the California continental borderland. Journal of
Sedimentary Petrology 1983;53(2):461-475
Address: Union Oil Co., Anchorage, AK, USA; San Diego State Univ.,

Dep. Geol. Sci., USA.

Four families of exotic, purple-red rhyolitic clasts have been recognized in upper Paleocene and Eocene conglomerates in the California continental borderland. Owl Creek clasts have low percentages of phenocrysts that never include quartz; they are primarily found in northern localities such as the Santa Ana Mountains. Poway rhyolites are packed with phenocrysts, including quartz; they dominate conglomerates in San Diego and the northern Channel Islands. Las Palmas clasts have a distinctive micropore-microgranular groundmass; they abound in Baja California. Black rhyodacites are darker and more brittle and were derived from a closer source; they are most abundant in the earlier deposited conglomerates of the San Diego and northern Channel Islands areas. The similarities between San Diego and northern Channel Islands conglomerates demonstrate that they were once part of an integrated, east-west-oriented depositional system that documents major post-Eocene strike slip in the offshore California continental borderland. The sudden appearance of exotic rhyolitic clasts in mixed suites in upper Paleocene conglomerates, and the subsequent increases in their abundance and decreases in their variety testify to the growth of fewer, longer, and less overlapping rivers through the Eocene. The requisite integration of fluvial drainages followed the eastward-moving front of the Laramide Orogeny, caused by a shallowing angle of Farallon Plate subduction.--Modified journal abstract.

sedimentary rocks/sedimentation/sedimentary petrology/clastic rocks/controls/conglomerate/tectonic controls/Owl Creek Formation/Poway Conglomerate/Las Palmas Formation/Black Rhyodacites/rhyolites/clasts/tectonics/California continental borderland/drainage patterns/Eocene/Paleogene/Tertiary/upper Paleocene/Paleocene/Laramide Orogeny/Farallon Plate/subduction/Peninsular Ranges/provenance/rhyolite clast/populations Santa Ana Mountains/San Diego/California Channel Islands/Baja California/sedimentary petrology/geology.

2834. Olmez I, Sholkovitz ER, Hermann D, Eganhouse RP. Rare earth elements in sediments off Southern California; a new anthropogenic indicator. Anonymous. AGU 1990 ocean sciences meeting. Eos, -Transactions, -American-Geophysical-Union. 1990;71(2):p.124

Mass. Inst. Technol., React. Cent., Cambridge, MA, United-States; Woods Hole Oceanogr. Cent., United-States; SCCURP, Long Beach, CA, United-States American Geophysical Union; 1990 ocean sciences meeting, New Orleans, LA, Feb. 12-16, 1990 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).
California/environmental geology/pollution/Pacific Ocean/geochemistry/trace elements/Pacific Coast/Western U.S./United States/continental margin/Southern California/Santa Barbara Basin/San Pedro Shelf/North American Pacific/rare earths/metals/human activity/marine sediments/Santa Monica Basin/waste disposal/GEOREF.

2835. Kies RP, Abbott PL, Filewicz M. Sedimentology of late Paleocene through middle Eocene Poway clast-bearing marine depositional system, southern California borderland. AAPG-SEG-SEPM Pacific Section meeting. AAPG Bulletin 1982;66(10):1692-1693
Address: San Diego State Univ., San Diego, CA, USA; Union Oil Co., USA Conference: AAPG-SEG-SEPM Pacific Section meeting. Anaheim, CA, April 14-17, 1982.
sedimentation/sedimentary rocks/stratigraphy/processes/clastic rocks/Paleogene/marine sedimentation/lithofacies/Poway Conglomerate/Mount Soledad Formation/continental borderland/upper

Paleocene/Paleocene/Tertiary/lower Eocene/Eocene/middle Eocene/conglomerate/Cenozoic Santa Barbara County/San Diego County/Santa Cruz Island/San Miguel Island/geology/sedimentary petrology.

2836. Mearns AJ, Pierce KV, Sherwood MJ. Health, abundance and diversity of bottomfish and shellfish populations at proposed and existing offshore drilling sites in the Southern California Bight. 1978;:91.
health/abundance/diversity/bottomfish/shellfish/populations/offshore/drilling/T hompson/invertebrates/MINERALS MANAGEMENT SERVICE.

2837. Mearns AJ, Shigenaka G, MacDonald D, Buchman M, Harris H, Golas J. Contaminant trends in the Southern California Bight: Inventory and assessment. NOAA Tech. Mem. 1988;
text/chemical oceanography/MINERALS MANAGEMENT SERVICE.

2838. Reimers CE, Lange CB, Tabak M. Temporal changes at the sediment water interface of the Santa Barbara Basin; a key to laminae formation. Anonymous. AGU 1990 ocean sciences meeting. Eos, -Transactions, -American-Geophysical-Union. 1990;71(2):p.99
Scripps Inst. Oceanogr., La Jolla, CA, United-States American Geophysical Union; 1990 ocean sciences meeting, New Orleans, LA, Feb. 12-16, 1990 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).
Pacific Ocean/oceanography/ocean circulation/North American Pacific/Santa Barbara Basin/sediment water interface/seasonal variations/sea water/marine sediments/pore water/ecology/laminations/planar bedding structures/sedimentary structures/GEOREF.

2839. King CD. The evolution of Chumash society: a comparative study of artifacts used in social system maintenance in the Santa Barbara Channel region before A.D. 1804 [dissertation]. Davis, California, USA: University of California; 1981. 435.
Early Spanish explorers and missionaries described the Chumash Indians of the Santa Barbara Channel as having a well developed economic system in which shell beads were used as currency. The Chumash had chieftains who inherited their positions. Chumash tribes were tied together by kinship ties between chiefs and a historical tradition. The most important responsibility of chiefs was the maintenance of stores of food and wealth to be used for festivals, to feed visitors, and to feed the needy. Artifacts found with burials excavated from the Santa Barbara Channel were studied in order to determine the sequence of beads, ornaments, and other artifacts used to maintain social systems. Segments of the discovered sequence were dated by observation of associates of trade items of known age and by use of carbon 14 dating. Changes in artifacts used to maintain social systems allow us to identify changes in social organization. Two major changes in social organization occurred between 5000 B.C. and A.D. 1770 in the Santa Barbara Channel. One was the development of hereditary leadership positions between 2000 and 1000 B.C., and the other was a marked growth in the importance of the economic system after A.D. 1000. The development of a political system organized around hereditary leaders was accompanied by a decrease in effort spent manufacturing shell beads. This reflects control of the economic system by political leaders. Between 1000 B.C. and A.D. 1000, there was an increase in effort spent manufacturing shell beads as trade relationships between political leaders increased in importance. By A.D. 1100, the economic system had grown so that many people were participating. By this time a

differentiation of two major economic systems had occurred. All people participated in one and the other was restricted to political leaders. After A.D. 1100 both of these economic subsystems continued to grow in importance and complexity until colonization by the Spanish. The development of centralized political systems between 2000 and 1000 B.C. was not unique to the Santa Barbara Channel region. Similar developments occurred at the same time in many parts of North America. The growth of organization and size of societies adjacent to the Chumash made it necessary for Chumash society to grow in size and complexity in order to successfully compete with them. economic system/shell beads/social systems/hereditary leadership/political system/Homo sapiens/Chumash Indians/California Channel Islands/anthropology/archaeology.

2840. Herzfeld UC. COVA functions for unevenly and noncorrespondingly spaced processes. Computers and Geosciences. 1990;16(5):p.733-749 Scripps Inst. Oceanogr., La Jolla, CA, United-States Analytic; Serial Includes appendix. B; Bibliography and Index of Geology (1969-present). California/oceanography/sediments/sedimentation/processes/marine sedimentation/geostatistics/statistical analysis/variograms/variance analysis/Fortran/simulation/El Nino/noise/patterns/signal to noise ratio/Southern California/Pacific Coast/Western U.S./United States/Santa Barbara Basin/COVA/sulfur/precipitation/North American Pacific/Pacific Ocean/GEOREF.

2841. King LB. Medea Creek Cemetery: late inland Chumash patterns of social organization, exchange and warfare [dissertation]. Los Angeles, California, USA: University of California; 1982. 609. Medea Creek Cemetery (LAN-243) is an island Ventureño Chumash site in the Santa Monica Mountains which contains an estimated 397 primary and secondary burials. Early occupation began in Phase 2A of the Late Period (ca. A.D. 1500); the site was abandoned ca. A.D. 1785. It is assumed that the social personae of the deceased were expressed in discriminations made in mortuary treatment. The overall pattern of interment provides evidence that the population was organized beyond the level of a simple, egalitarian society. Mortuary distinctions between the sexes were made on the bases of (1) kinds of grave goods (but not quantity); (2) orientation (males more southerly); and (3) depth of grave (males deeper). But these distinctions were not marked. A survivorship curve indicated that the population represented an expected range of ages, and mortuary distinctions between adults and sub-adults were made on the basis of placement in the cemetery (sub-adults were placed more to the west); position (sub-adults were more frequently on their right sides); orientation (children were more varied in orientation); and in quantities of goods (greater with sub-adults). The Lorenz curve (a device for describing degree of differentiation of wealth) for sub-adults was more differentiated than for adults. I suggest that adult status tended to be expressed more in non-cemetery context, such as annual mourning ceremonies or houseburnings; whereas the status of the immature was more typically expressed during burial rites. Cult paraphernalia was evidence for the presence of members of the elite, regional 'antap organization. Canoe parts indicate people with familial ties to access to the use of canoes on the coast. The proportion of local cemetery goods to imported goods was over 70:1. The community was involved in a complex exchange relationship with

the Santa Barbara Channel Islanders, and the exchange was mediated through coastal Malibu. Medea Creek probably exported acorns, islay and other gathered products; and imported primarily luxury goods, i.e. beads, ornaments, and soapstone utensils. . . . (Author's abstract exceeds stipulated maximum length. Discontinued here with permission of school.).
burial sites/graves/Homo sapiens/Chumash Indians/Santa Monica Mountains/California Channel Islands/anthropology/archaeology.

2842. Messersmith JD, Baxter JL, Roedel PM. The anchovy resources of the California Current region off California and Baja California. Calif. Coop. Oceanic Fish. Invest. Rep. 1969;13:32-38. TEXT/CROSS/ALLEN/FISH/MINERALS MANAGEMENT SERVICE.

2843. Smith CR. Megafaunal mounds, episodic deposition and successional mosaics in deep sea benthos. Anonymous. SEPM annual midyear meeting; abstracts. Abstracts-Society-of-Economic-Paleontologists-and-Mineralogists,-Annual-Midyear -Meeting. 1986. 1986(3):p.103
Univ. Wash., Sch. Oceanogr., Seattle, WA, United-States SEPM annual midyear meeting, Raleigh, NC, Sept. 26-28, 1986 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). Pacific Ocean/sedimentary petrology/sedimentation/environment/deep sea environment/biogenic structures/sedimentary structures/deposition/Santa Catalina Basin/North American Pacific/ecology/GEOREF.

2844. Kleppel G, Manzanilla E, Teter B, Petrich S. Santa Monica Bay plankton distribution. W. Baxcom. Coastal Water Research Project, Biennial Report for the years 1981-1982. Long Beach, CA.: Southern California Coastal Water Research Project; 1982. 71-84. Address: University of Southern California, Los Angeles. Allan Hancock Foundation.
Phytoplankton can be indicative of eutrophication and contamination in estuaries, but is less definitive in open coastal waters. The author's objectives were to determine of phytoplankton abundance and composition near the Hyperion 5-mile outfall differed from that along an onshore-offshore transect in the bay, and to determine if plankton and nutrient distributions were influenced by wastewater discharge. During 1980, monthly samples were taken at nine stations. The results suggest that several nitrogen sources drive phytoplankton growth and distribution in the bay. Nitrate enters the euphotic zone by vertical diffusion and possibly by horizontal advection from the Santa Barbara Channel. Ammonium in the bay may be from discharge from marinas, nearshore outfalls, or recycling by animals and bacteria. Not surprisingly, nitrate and ammonium levels were usually higher near the bottom of the euphotic zone than at the surface, suggesting that light intensity could influence phytoplankton growth. Nitrogen from the 5-mile Hyperion outfall was rarely detectable in the euphotic zone. Nothing unusual was detected in net phytoplankton abundance, distribution, or composition. in the outfall's vicinity. Zooplankton abundance at the outfall station was higher than elsewhere along the transect but defining the process (growth, entrainment, migration) responsible was nearly impossible. Several hypotheses need to be tested regarding the cause of the peak, i.e., that waste discharge causes an elevation in primary production which is grazed down by the zooplankton, and/or that zooplankton feed on materials in the wastefield directly. (Atkins-Omniplan).
Phytoplankton/Zooplankton/Nitroge /Nitrates/Wastewater disposal/Ammonium/Outfall sewers/Water sampling/Ocean circulation/Euphotic zone/Vertical

distribution/Advection/Distribution patterns/Flourescence
Phytoplankton/Zooplankton Hyperion 5-mile outfall/Santa Barbara
Channel/marine biology/water quality/pollution/resource management.

2845. Cranswick E, King KW, Spudich P, Carver DL, Worley DM,
BaNfill R. Site response across the downtown Santa Cruz alluvial
basin. Anonymous. AGU 1989 fall meeting, late abstracts; Loma
Prieta sessions.
Eos, -Transactions, -American-Geophysical-Union. 1990;71(8):p.287 U.
S. Geol. Surv., Denver, CO, United-States; Small Syst. Support, Big
Water, UT, United-States American Geophysical Union 1989 fall
meeting, Loma Prieta sessions, San Francisco, CA, Dec. 4-8, 1989
Analytic; Serial; Conference publication; Abstract B; Bibliography
and Index of Geology (1969-present). California/engineering
geology/earthquakes/Santa Cruz County California/Pacific
Coast/Western U.S./United States/Central California/San Francisco
Bay region/geologic hazards/Loma Prieta earthquake 1989/Santa Cruz
California/ground motion/aftershocks/marine terraces/shore
features/damage/seismic response/GEOREF.

2846. Kolesar PT. Magnesium in calcite from a coralline
alga. J. Sediment. Petrol. 1978;48(3):815-819
Address: Univ. Calif., Riverside, Calif.
algae/magnesium crystal chemistry/geochemistry/carbonates/trace
elements/modern/calcite/growth/rates/abundance/ratios/temperature
/salinity Rhodophyta/red algae/coralline algae/Calliarthron/Santa
Catalina Island/Big Fisherman Cove/chemistry/geology/geochemistry.

2847. Widom E, Schmincke HU, Gill JB. Chemical zonation and
U series disequilibria in Fogo A, San Miguel, Azores. Anonymous.
AGU 1987 fall meeting. Eos, -Transactions, -American-Geophysical-
Union. 1987;68(44):p.1522 Univ. Calif., Dep. Earth Sci., Santa
Cruz, CA, United-States; Ruhr-Univ., Federal-Republic-of-Germany
American Geophysical Union, 1987 fall meeting, San Francisco, CA,
Dec. 6-12, 1987 Analytic; Serial; Conference publication; Abstract
B; Bibliography and Index of Geology (1969-present).
Azores/volcanology/Fogo A/San Miguel Island/Atlantic Ocean
Islands/volcanoes/pumice/pyroclastics/volcanic
rocks/zoning/chemical composition/magmas/trachytic
composition/fractional crystallization/alkali
basalts/basalts/eruptions/partial melting/GEOREF.

2848. Kolpack RL. Sedimentology of the mainland nearshore
region of Santa Barbara Channel, California. Shelf sands and
sandstones. Memoir - Canadian Society of Petroleum Geologists 11.
; 1986. 57-72.
Address: Mar. Processes Res., West Covina, CA, USA; Shell Can.,
CAN. transport/continental shelf/littoral drift/nearshore
environment/Holocene/Quaternary/sand/clastic
sediments/silt/clay/Holocene/Quaternary/clastic
sediments/bathymetry/grain size/physical properties/Santa Barbara
Channel/Point
Conception/Ventura/oceanography/marine geology.

2849. McCulloch DS. Evolution of the offshore central
California margin. Winterer EL, Hussong DM, Decker RW. The eastern
Pacific Ocean and Hawaii. Scripps Inst. Oceanogr., La Jolla, CA,
United-States. N. ; 1989. p. p. 439-470. U. S. Geol. Surv., Menlo
Park, CA, United-States; Scripps Inst. Oceanogr., La Jolla, CA,
United-States; Univ. Hawaii, United-States Geol. Soc. Am., Denver,
CO Analytic; Book B; Bibliography and Index of Geology (1969-
present). California/tectonophysics/plate tectonics/Pacific
Ocean/offshore/Pacific Coast/Western U.S./United States/continental

margin/Pacific Plate/North American Plate/Santa Maria Basin/Sur
Basin/Santa Lucia Basin/Santa Cruz Basin/DNAG/GEOREF.

2850. Kolpack RL, Drake DE. Transport of clays in the
eastern part of Santa Barbara Channel, California. Origins,
transport, and deposition of fine-grained sediments; 1984 SEPM
research conference, Part 1. Geo-Marine Letters
1985;4(3-4):191-196
Address: Mar. Processes Res., West Covina, CA, USA; U. S. Geol.
Surv. Conference: Origins, transport, and deposition of fine-
grained sediments; 1984 SEPM research conference, Part 1. Los
Angeles, CA, Aug. 6-9, 1984.
sedimentation/ocean
circulation/sediments/processes/currents/distribution/continental
shelf/detrital sedimentation/seasonal variations/clay/clastic
sediments/fines/deposition/continental borderland/marine
transport/bottom sediments/bottom currents/California Current
system/transport/clays Santa Barbara Channel/Santa Clara
River/Ventura River/Santa Barbara Basin/Pitas Point/Anacapa
Island/Oxnard/Montalvo Ridge/Hueneme Canyon/Santa Cruz
Island/Marine geology/oceanography.

2851. Minerals Management Service. Benthic organisms and
estuarine communities of the Southern California Bight. POCS Ref.
Pap. No. III. U.S. Dep. Interior, Minerals Management Service,
Pacific OCS Region, Los Angeles, CA 1978;:221.
MINERALS MANAGEMENT SERVICE.

2852. Barnes C, Cochran JK. The geochemistry of uranium in
marine sediments. Guary JC, Guegueniat P, Pentreath RJ.
Radionuclides; a tool for oceanography. Inst. Natl. Tech. Mer.,
Cherbourg, France. ; 1988. p. p.162-170. State Univ. N.Y., Mar.
Sci. Res. Cent., Stony Brook, NY, United-States; Inst. Natl. Tech.
Mer., Cherbourg, France; IPSN, France; Minist. Agric., Fish. and
Food, United-Kingdom Elsevier Appl. Sci. Publ., London
Radionuclides; a tool for oceanography, Cherbourg, June 1-5, 1987
Analytic; Book; Conference publication B; Bibliography and Index
of Geology (1969-present).
Atlantic Ocean/geochemistry/sediments/marine
sediments/uranium/actinides/metals/San Clemente Basin/Cariaco
Trench/pore water/Northwest Atlantic/GEOREF.

2853. Kornicker LS, Myers B. Rutidermatidae of Southern
California, USA (Ostracoda: Myodocopina). Smithson. Contrib. Zool.
1981;0(334):1-35 Address: DEP. INVERTEBRATE ZOOL., NATL. MUSEUM
NATL. HISTORY, SMITHSONIAN INST., WASHINGTON, D.C. 20560.
Four species of Rutiderma that had been described from southern
California are more completely described and illustrated: R.
rostratum Juday 1907, R. lomae (Juday 1907), R. rotundum Poulsen
1965 and R. judayi McKenzie 1965. A new species, R. chessi, from
San Clemente Island, is described from southern California are more
completely described and illustrated. A neotype is selected for R.
lomae. A key is presented to species of Rutiderma in the study
area. new species/description/neotype/key
Ostracoda/Myodocopina/Rutidermatidae/Rutiderma rostratum/Rutiderma
lomae/Rutiderma judayi/Rutiderma chessi southern California/San
Clemente Island/marine biology.

2854. Minerals Management Service. Results of the 1976-78
baseline studies and analysis program: Subtidal benthic
environments of the Southern California Bight. POCS Tech. Pap. No.
81-8. U.S. Dep. Interior, Minerals Management Service, Pacific OCS
Region, Los Angeles, CA 1981;:73.

MINERALS MANAGEMENT SERVICE.

2855. Yerkes RF, Levine P, Lee WHK. Contemporary tectonics along south boundary of central and western Transverse Ranges, Southern California. Anonymous. AGU 1987 fall meeting. Eos, - Transactions, -American-Geophysical-Union. 1987;68(44):p.1510 U. S. Geol. Surv., Menlo Park, CA, United-States American Geophysical Union, 1987 fall meeting, San Francisco, CA, Dec. 6-12, 1987 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). California/structural geology/neotectonics/Transverse Ranges/Santa Barbara Channel/Cajon Pass/San Bernardino County California/Pacific Coast/Western U.S./United States/Southern California/faults/displacements/seismicity/seismotectonics/strike slip faults/fault zones/GEOREF.

2856. Kosiur DR, Warford AL. Methane production and oxidation in Santa Barbara Basin sediments. Estuarine and Coastal Marine Science 1979;8(4):379 Anoxic basin/Seawater/Methane production/Oxidation/Sediment/Santa Barbara Channel/geology/water quality/resource management/pollution.

2857. Schimmelmann A, Lange CB, Berger WH. Climatically controlled marker layers in Santa Barbara Basin sediments and fine scale core to core correlation. Limnology and Oceanography. 1990;35(1):p.165 Scripps Inst. Oceanogr., Geol. Res. Div., La Jolla, CA, United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present). Pacific Ocean/stratigraphy/Holocene/sedimentary structures/planar bedding structures/varves/paleoclimatology/sedimentation/environment/marine environment/algal flora/diatom flora/mollusks/bivalves/cores/correlation/Santa Barbara Basin/North American Pacific/Quaternary/upper Holocene/microfossils/biostratigraphy/GEOREF.

2858. Minerals Management Service. A risk analysis model for marine mammals and seabirds: A Southern California Bight scenario, final report. PCOS MMS 85-0104 1985; MINERALS MANAGEMENT SERVICE.

2859. Kozloff P. Fur Seal Investigations, 1983. Technical memo. : National Marine Fisheries Service, Seattle, WA. Northwest and Alaska Fisheries Center. NOAA-TM-NMFS-F/NWC-78; 1985. 84. note: See also PB85-186047. Northern fur seal, *Callorhinus ursinus*, research in 1983 was conducted on the Pribilof Islands and Bogoslof Island in Alaska and on San Miguel Island and nearby Castle Rock, California. Estimates made of the number of pups born in 1983 on the Pribilof Islands indicate a continuing decline in the number of northern fur seals there. Censuses of juvenile males on the hauling grounds of St. George Island from 1978 to 1983 show a general decline in their numbers. Populations/Breeding/Census/Northern fur seal/*Callorhinus ursinus* Pribilof Islands/Bogoslof Island/San Miguel Island/Castle Rock, California/marine biology/mammalogy.

2860. Hammond DE, Marton RA, Berelson WM, Ku TL. Radium 228 distribution and mixing in San Nicolas and San Pedro basins, Southern California borderland. Journal of Geophysical Research, C, Oceans. 1990;95(3):p.3321-3335 Univ. South. Calif., Dep. Geol. Sci., Los Angeles, CA, United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present).

California/oceanography/continental margin/Pacific Ocean/geochemistry/radium/isotopes/Ra 228/thorium/Th 232/sediments/marine sediments/sea water/Pacific Coast/Western U.S./United States/Southern California/continental borderland/radioactive tracers/mixing/marine transport/ocean circulation/alkaline earth metals/metals/radioactive isotopes/actinides/geochemical profiles/sediment water interface/diffusion/San Pedro Basin/San Nicolas Basin/North American Pacific/GEOREF.

2861. Kozloff P. Fur seal investigations, 1982. Technical memo. : National Marine Fisheries Service, Seattle, WA. Northwest and Alaska Fisheries Center. NOAA-TM-NMFS-F/NWC-71; 1985. 136. Research on the northern fur seal, *Callorhinus ursinus*, in 1982 was conducted on the Pribilof Islands, Alaska; on San Miguel Island, California, and nearby Castle Rock; and in the Bering Sea. An estimate was made of the number of pups born in 1982 on St. Paul Island, Alaska, including the sizes of the 1940, 1977 and 1978 year classes. Studies in 1982 showed that the majority of net fragments in which fur seals become entangled have a stretched mesh size of about 20-25 cm. A study of juvenile survival (birth-age 2 yr) on the Pribilof Islands concluded that survival on land is somewhat higher on St. George than on St. Paul. Pup production at both Adams Cove (1,029) on San Miguel Island and nearby Castle Rock (680) was greater in 1982 than in any previous year. Dietary studies based on the principal prey species of fur seals and the relative abundance of fish-squid resources suggest that fur seals are opportunistic feeders. Chlorinated hydrocarbons were found in the tissues of northern fur seals from St. Paul Island.

Populations/Nets/Survival/Animal behavior/Growth/Chlorohydrocarbons/Tissues/Bioassay/Spatial distribution/Mortality/Isotopic labeling/Diets/Ecosystems/Tracer studies/population biology/mortality/entanglement/northern fur seal/*Callorhinus ursinus*/Pribilof Islands/San Miguel Island/Castle Rock/Bering Sea/marine biology/mammalogy.

2862. Leslie BW, Hammond DE, Berelson WM, Lund SP. Diagenesis in anoxic sediments from the California continental borderland and its influence on iron, sulfur, and magnetite behavior. Anonymous. Special section on Magnetization processes in sediments.

Journal-of-Geophysical-Research,-B,-Solid-Earth-and-Planets. 1990;95(4):p.4453-4470

Univ. South. Calif., Dep. Geol. Sci., Los Angeles, CA, United-States AGU 1987 spring meeting, symposium on Magnetization processes in sediments, Baltimore, MD, May 18-22, 1987 Analytic; Serial; Conference publication B; Bibliography and Index of Geology (1969-present).

California/oceanography/continental margin/Pacific Ocean/sediments/marine sediments/diagenesis/sedimentation/remanent magnetization/geochemistry/processes/solution/iron/sulfur/paleomagnetism/Holocene/Pacific Coast/Western U.S./United States/Southern California/continental borderland/San Pedro Basin/Santa Catalina Basin/San Nicolas Basin/magnetization/North American Pacific/metals/magnetite/oxides/marine environment/environment/anaerobic environment/pore water/reduction/X ray diffraction data/Quaternary/GEOREF.

2863. Kozloff P. Fur Seal Investigations, 1984. Technical memo. National Marine Fisheries Service, Seattle, WA. Northwest and Alaska Fisheries Center. NOAA-TM-NMFS-F/NWC-97; 1986. 91. Contents: Population assessment, Pribilof Islands, Alaska; Live pup weights, St. Paul Island, Alaska; Tetracycline marking of northern

fur seals, St. Paul Island, Alaska; Behavior and biology, Pribilof Islands, Alaska; Northern fur seal tracking study, Bering Sea; Northern fur seal survey, Bogoslof Island, Alaska; Population and behavioral studies, San Miguel Island, California.
population biology/animal
behavior/marking/harvesting/reproduction/tracking/northern fur seals/Callorhinus ursinus/Alaska/San Miguel Island/marine biology/mammalogy.

2864. Mishuck E, Stickel EG. Archaeological literature survey and sensitivity zone mapping of the Southern California Bight area. Volume I. Technical report. 1978;:336.
archaeology/Southern California Bight/crude oil/natural gas/reviews/paleontology/geomorphology/sites/mapping/geochronology/environmental impacts/offshore
drilling/coasts/islands/landforms/ocean bottom/north Pacific Ocean/Eganhouse/chemical oceanography/MINERALS MANAGEMENT SERVICE.

2865. Mitchell BG, Iturriaga R, Kiefer DA. Variability of particulate spectral absorption coefficients in the eastern Pacific Ocean. Proc. Soc. Photo-Opt. Instrum. Eng., Monterey, CA, 25-28 June, 1984 1984;489:179-186. Hardy phytoplankton/North Pacific/gyre/California Current/MINERALS MANAGEMENT SERVICE.

2866. Leslie BW, Lund SP, Hammond DE. Rock magnetic evidence for the dissolution and authigenic growth of magnetic minerals within anoxic marine sediments of the California continental borderland. Anonymous. Special section on Magnetization processes in sediments.
Journal-of-Geophysical-Research,-B,-Solid-Earth-and-Planets. 1990;95(4):p.4437-4452
Univ. South. Calif., Dep. Geol. Sci., Los Angeles, CA, United-States AGU 1987 spring meeting , symposium on Magnetization processes in sediments, Baltimore, MD, May 18-22, 1987 Analytic; Serial; Conference publication B; Bibliography and Index of Geology (1969-present).
California/oceanography/continental margin/Pacific Ocean/sediments/marine sediments/diagenesis/sedimentation/remanent magnetization/geochemistry/processes/solution/paleomagnetism/Holocene/Pacific Coast/Western U.S./United States/Southern California/continental borderland/San Pedro Basin/Santa Catalina Basin/San Nicolas Basin/magnetization/North American Pacific/rocks/authigenesis/cores/magnetic minerals/anaerobic environment/environment/natural remanent magnetization/magnetite/oxides/grain size/sulfides/Quaternary/GEOREF.

2867. Kramsky PS. Seasonal patterns of abundance and population structure of the intertidal brown alga *Sargassum agardhianum* J. Ag. on leeward Santa Catalina Island, California [dissertation]. Fullerton, California, USA: California State University; 1981. 83.
population structure/Sargassum agardhianum/Santa Catalina Island/leeward/marine biology.

2868. Pytte MH. Organic geochemistry of the Miocene Monterey and equivalent formations in five California basins. MacKinnon TC, Randall JW, Garrison RE. Coal and hydrocarbon resources of North America; Volume 1, Oil in the California Monterey Formation. Chevron USA, San Ramon, CA, United-States. ; 1989. p. p. 33-36. Chevron U.S.A., San Ramon, CA, United-States; Chevron USA, San Ramon, CA, United-States; Univ. Calif. at Santa Cruz, United-States Am. Geophys. Union, Washington, DC Analytic; Book B; Bibliography

and Index of Geology (1969-present).
California/economic geology/petroleum/Monterey
Formation/Miocene/Neogene/Tertiary/Pacific Coast/Western
U.S./United States/guidebook/field trips/reservoir
properties/thermal history/Santa Maria Basin/Santa Barbara
Basin/Ventura Basin/San Joaquin Basin/Los Angeles
Basin/kerogen/organic materials/source rocks/biomarkers/GEOREF.

2869. Kraus SP, Tennant RW, Hansen C. Surface oil
displacement by U.S. Coast Guard 82-foot cutters. Final rept. Dec
77-Feb 78. : California Univ., Santa Barbara. Geography Remote
Sensing Unit. USCG-D-34-79; 1979. 83. ((Sponsored by Coast Guard,
Washington, DC)).

The U. S. Navy, in cooperation with the U. S. Coast Guard, is
conducting design and feasibility studies for a portable oil
sorbent spreader and retriever for use aboard military and
commercial vessels-of-opportunity during oil spill clean up
operations. As part of this program, the U. S. Navy's Civil
Engineering Laboratory (CEL), Port Hueneme, California contracted
with the Geography Remote Sensing Unit (GRSU), University of
California, Santa Barbara to provide field support and data
analysis services in conjunction with sea tests to determine the
effects of vessels on surface oil slicks. A total of four sea truth
data acquisition cruises were conducted through natural oil seeps
in the Santa Barbara Channel, California between December 1977 and
February 1978. Coast Guard 82-foot patrol boats served as
representative vessels of opportunity for the tests. This report
describes the data collection program associated with the sea tests
and the results of our analysis of field data.

Oil spills/Oil pollution containment/Coast Guard
ships/Environmental protection/Ocean surface/Containment
(General)/Air water interactions/Sea testing/Weather/Ocean
waves/Santa Barbara
Channel/Mechanical/Industrial/Civil/Marine Engineering/water
pollution/petroleum.

2870. Molnar DL. California undercurrent reconnaissance
between Monterey and Santa Barbara. Gov. Rep. Announce.
1973;73(9):61.
California current/isohaline/isotherms/t-s
data/undercurrents/zooplankton/Pieper/MINERALS MANAGEMENT SERVICE.

2871. Barnes CE, Cochran JK. Uranium removal in oceanic
sediments and the oceanic U balance. Earth and Planetary Science
Letters. 1990;97(1-2):p.94-101 State Univ. N.Y., Mar. Sci. Res.
Cent., Stony Brook, NY, United-States Analytic; Serial State
Univ. N.Y., Mar Sci. Res. Cent., Contrib. No. 693. B; Bibliography
and Index of Geology (1969-present).
sediments/marine sediments/geochemistry/uranium/geochemical
cycle/diagenesis/actinides/metals/pore water/sediment water
interface/Eh/marine environment/environment/anaerobic
environment/geochemical profiles/hemipelagic environment/North
American Atlantic/North Atlantic/Cariaco Basin/North American
Pacific/Pacific Ocean/San Clemente Basin/Black Sea/East
Mediterranean/Mediterranean Sea/South American Atlantic/South
Atlantic/GEOREF.

2872. Krempin DW, McGrath SM, SooHoo JB, Sullivan CW.
Orthophosphate uptake by phytoplankton and bacterioplankton from
the Los Angeles Harbor and Southern California coastal waters.
Marine Biology (Berlin) 1981;64(1):23-33 Address: University of
Southern California, Los Angeles. Dept. of Biological Sciences.
Sea water samples were collected 1 meter below the surface from

four stations in the outer Los Angeles Harbor and one station located 1.5 km outside the harbor breakwater upcurrent of the harbor excurrent plume. Additional samples were taken at a station, SPC-15, which is 15 km offshore in the San Pedro Channel and at Station RB, 0.5 km offshore from Santa Catalina Island in Isthmus Cove. A phytoplankton-enriched size fraction was retained on a 1 micrometer pore-size filter and accounted for 83% of the total chlorophyll a but only 18% of the total bacteria. A bacterioplankton enriched size fraction passed the 1 micrometer filter but was retained on a 0.2 micrometer filter and was found to contain 82% of the total bacteria but only 17% of the total chlorophyll a. These two fractions accounted for 91 and 9% of the microbial carbon, respectively. P-33 uptake by both size fractions was inhibited by low concentrations of 2,4-dinitrophenol, N-ethylmaleimide, carbonyl cyanide and m-chlorophenylhydrazine. Low levels of 3-(3,4-dichlorophenyl)-1,1-dimethylurea selectively inhibited the uptake of P-33 by the plankton-enriched fraction, while valinomycin selectively inhibited P-33 uptake by the bacterioplankton-enriched size fraction.. Consideration of relative surface areas of phytoplankton and bacterioplankton, their P-33 uptake rates in light and dark, and estimates of the population turnover times emphasized the potential importance of bacterioplankton in community phosphorus metabolism. (Baker-FRC).

Plankton/Harbors/Phosphates/Bacteria/Absorption/Phytoplankton/Aquatic plants/Orthophosphates/Seasonal variation
Bacteria/Phytoplankton/Aquatic plants/Los Angeles Harbor/San Pedro Channel/Santa Catalina Island/Isthmus Cove/water
quality/pollution/marine biology/resource management.

2873. Mooers CNK, Robinson AR, Hagan DA. Analysis of eddies, fronts and jets in the California Current. Proceedings, Oceans '83 Conference: Effective Use of the Sea, An Update. San Francisco, CA (USA) 29 Aug - 1 Sep 1983.: Technical Papers. Ocean Science, Ocean Engineering 1983;1:281.

mesoscale eddies/jets/fronts/current predictions/Hickey/physical oceanography/INE/California Current/ISE/MINERALS MANAGEMENT SERVICE.

2874. Bebout GE. Geological and geochemical investigations of fluid flow and mass transfer during subduction zone metamorphism. [dissertation] ; 1989. Univ. of California, United States; Doctoral Monographic; Thesis B; Bibliography and Index of Geology (1969-present) Univ. Microfilms, Ann Arbor, MI, United States.
397 p.

California/petrology/metamorphism/prograde metamorphism/subduction zones/isotopes/metamorphic rocks/stable isotopes/oxygen/O 18/O 16/hydrogen/D/H/carbon/C 13/C 12/Catalina Schist/mass transfer/geochemistry/Pacific Coast/Western U.S./United States/Southern California/Santa Catalina Island/blueschist facies/amphibolite facies/metasedimentary rocks/veins/Lower Cretaceous/Cretaceous/metasomatism/uplifts/host rocks/deuterium/organic carbon/organic materials/mixing /GEOREF.

2875. Kropfli RA. Airflow characteristics in the marine boundary layer over the Santa Barbara Channel during SCCAMP (South Central Coast Cooperative Aerometric Monitoring Program): Part 1. Summary of dual-Doppler radar observations. Technical memo. : National Oceanic and Atmospheric Administration, Boulder, CO. Wave Propagation Lab. NOAA-TM-ERL-WPL-141; 1986. 105. Address: NOAA, Boulder, CO, Wave Propagation Lab.

The two NOAA/Wave Propagation Laboratory 3 cm wavelength (X-band) pulsed Doppler radars were used during the South Central Coast Cooperative Aerometric Monitoring Program (SCCAMP) to map the vertically averaged 2-D flow in the marine boundary layer (MBL) over the central and western portions of the Santa Barbara Channel. This is an area that has been poorly documented in the past and received relatively less intensive coverage by other measurement systems during SCCAMP. The Doppler radar measurements, therefore, were used to fill a critical gap in the authors understanding of low-level mesoscale flows in the region. Radar mapping/Air circulation/Two dimensional flow/Doppler radar/radar echoes/Elevation/Wind(Meteorology)/Wind velocity/Periodic variations/Marine boundary layer/atmospheric boundary layer/remote sensing/climatology/Santa Barbara Channel/atmospheric sciences/meteorology.

2876. Casey RE, Weinheimer AL, Nelson CO. California El Ninos and related changes of the California current system from Recent and fossil radiolarian records. Peterson DH. Aspects of climate variability in the Pacific and the western Americas. U. S. Geol. Surv., Menlo Park, CA, United-States. Geophysical-Monograph. ; 1989. 55. p. p.85-92. Univ. San Diego, Mar. Stud., San Diego, CA, United-States; U. S. Geol. Surv., Menlo Park, CA, United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present). 0065-8448.

California/stratigraphy/Holocene/Pacific Ocean/oceanography/ocean circulation/radiolarians/paleoecology/paleoclimatology/sediments/marine sediments/environmental analysis/Pacific Coast/Western U.S./United States/North American Pacific/California Current/Northeast Pacific/El Nino/microfossils/ocean currents/paleocirculation/modern/Quaternary/marine environment/environment/GEOREF.

2877. Kuris AM. Life cycle, distribution and abundance of *Carcinonemertes epialti*, a nemertean egg predator of the shore crab, *Hemigrapsus oregonensis*, in relation to host size, reproduction and molt cycle. Biol. Bull. 1978;154:121-137 egg predator/parasitism/brood mortality/egg predator/eggs/life history/*Carcinonemertes epialti*/nemertean/*Hemigrapsus oregonensis*/shore crab/Santa Barbara Channel/marine biology/parasitology.

2878. Baumgartner TR, Michaelsen J, Thompson LG, Shen GT, Soutar AN, Casey RE. The recording of interannual climatic change by high resolution natural systems; tree rings, coral bands, glacial ice layers, and marine varves. Peterson DH. Aspects of climate variability in the Pacific and the western Americas. U. S. Geol. Surv., Menlo Park, CA, United-States. ; 1989. 55. p. p.1-14. Cent. Invest. Cient. y Educ. Super. Ensenada, Ensenada, Mexico; U. S. Geol. Surv., Menlo Park, CA, United-States; Univ. Calif. at Santa Barbara, United-States; Ohio State Univ., United-States; Lamont-Doherty Geol. Obs., United-States; Scripps Inst. Oceanogr., United-States; Univ. San Diego, United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present). 0065-8448.

North America/geochronology/Holocene/Peru/Galapagos Islands/methods/paleoclimatology/Pacific region/Western U.S./United States/Mexico/East Pacific Ocean Islands/South America/Santa Barbara Basin/Gulf of California/North American Pacific/Pacific Ocean/changes/high resolution methods/tree rings/corals/ice/varves/planar bedding structures/sedimentary structures/Quaternary/GEOREF.

2879. Kuris AM, Carlton JT. Description of a new species, *Crangon handi*, and a new genus, *Lissocrangon*, of crangonid shrimps (Crustacea: Caridea) from the California coast, with notes on adaptation in body shape and coloration. Biol. Bull. 1977;153:540-559

adaptation/body shape/coloration/new species/new genus
Crustacea/Caridea/Lissocrangon/Crangon handi/crangonid shrimps
Bodega Head/Horseshoe Cove/Shell Beach/California Channel
Islands/marine biology.

2880. Morin RW. Paleotemperature increase about 11,000 years ago beneath the California current; paleontological evidence [abstr.]. 1st Meeting, American Quaternary Association 1970;:95. 578661 70-32935/Paleoclimatology/Quaternary/Pacific Ocean/California/Hickey/physical oceanography/MINERALS MANAGEMENT SERVICE.

2881. Morin RW. Late Quaternary biostratigraphy of cores from beneath the California current. Micropaleontology 1971;17(4):475-491.
biostratigraphy/california current/deep sea cores/fauna/late quaternary/zooplankton/Pieper/MINERALS MANAGEMENT SERVICE.

2882. Ucock H. Reservoir modeling to verify geologic and petrophysical data; a case study. Swanson, Glenn. 1988 California regional meeting; The engineering challenge of today's economics. Pet. Test. Serv., United-States. Proceedings-Society-of-Petroleum-Engineers-of-AIME.-California-Regional-Meeting. 1988. 1988:p.337 Ucnocal Corp., United-States; Pet. Test. Serv., United-States Society of Petroleum Engineers 1988 California regional meeting, Long Beach, CA, Mar. 23-25, 1988 Analytic; Serial; Conference publication SPE 17436. B; Bibliography and Index of Geology (1969-present).
California/engineering geology/petroleum engineering/reservoir rocks/Santa Clara Formation/reservoir properties/models/cores/well logging/Santa Barbara Channel/Pacific Coast/Western U.S./United States/case studies/digital simulation/Southern California/GEOREF.

2883. Kuris AM, Sousa W. Parasite competition: the frequency of multiple infections of larval trematodes in marine snails. Western Soc. Naturalists Ann. Mtg. 1981;62:26 (abstract)
parasites/competition/multiple infections/trematodes/snails/gastropods/Santa Barbara Channel/marine biology/parasitology.

2884. Morrison LR. Surface sediment and seismic reflection profiling, outer Newport submarine canyon, southern California continental borderland. Master's Thesis, Calif. State Univ., Northridge 1982;:150. 1230916
84-22501/California/sediments/carbon/sedimentation/Hood/ecosystem /clay mineralogy/oceanography/geochemistry/transport/areal studies/trace elements/marine transport/Orange County/United States/Southern California/composition/geophysical surveys/seismic surveys/Newport submarine canyon/continental margin/San Diego Trough/grain size/trace metals/marinesediments/Pleistocene/Quaternary/Cenozoic/Santa Ana River/San Pedro Shelf/Holocene/Bolsa Chica/provenance/regression analysis/textures/heavy metals/MINERALS MANAGEMENT SERVICE.

2885. Moser GH, Ahlstrom EH. Development of lanternfishes (family Myctophidae) in the California Current - Part 1: Species

with narrow-eyed larvae. Natural History Museum of Los Angeles County, Serial Publ. SB-7 1970;:145. MINERALS MANAGEMENT SERVICE.

2886. Sung LY, Jackson DD. Lateral structure variations in the crust and upper mantle under Southern California. Anonymous. AGU 1988 fall meeting. Eos, -Transactions, -American-Geophysical-Union. 1988;69(44):p.1324 Univ. Calif., Dep. Earth and Space Sci., Los Angeles, CA, United-States American Geophysical Union 1988 fall meeting, San Francisco, CA, Dec. 6-11, 1988 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). California/seismology/interior/lateral heterogeneity/crust/upper mantle/mantle/Southern California/Pacific Coast/Western U.S./United States/P waves/body waves/elastic waves/traveltime/velocity/Fourier analysis/variations/statistical analysis/Colorado Desert/San Jacinto Mountains/Riverside County California/San Gabriel Mountains/Mojave Desert/Ventura Basin/Santa Cruz Island/Sierra Nevada/Santa Monica Mountains/isostasy/teleseismic signals/Transverse Ranges/Peninsular Ranges/arrays/GEOREF.

2887. Labbe JR, Zimmer MJ. Tension leg platform well system development overview. Proc. Offshore Technol. Conf. 1985 Proceedings 1985;3:205-212 Conference: 17. Annual Offshore Technology Conference Houston, TX (USA) 6-9 May 1985 Report ID = OTC 4981.

In 1979, Chevron U.S.A. Inc. and its OCS 48 Lease Sale partners, Phillips, Champlin and Impkemix, initiated a project to develop the site specific design for a tension leg platform (TLP) for potential use in producing fields in greater than 1,500 feet of water in the Santa Barbara Channel, offshore Southern California. A significant part of this work was the development of a well system suitable for use with a TLP. With the selection of individual production risers as the preferred concept extensive analytical studies were performed to determine system dynamic response component trade-offs were made and a design specification written. Chevron developed system design load cases, and load, stress and fatigue analysis procedures and criteria. This development work culminated in a detailed design and finite element analysis of all load carrying components. petroleum engineering/tension leg platforms/oil and gas production/historical account/offshore engineering/Santa Barbara Channel/petroleum/engineering.

2888. Smith CR, Wheatcroft RA, DeMaster DJ. Age dependent mixing of deep sea sediments. Anonymous. AGU 1988 fall meeting. Eos, -Transactions, -American-Geophysical-Union. 1988;69(44):p.1118 Univ. Wash., Dep. Oceanogr., Seattle, WA, United-States; NCSU, United-States American Geophysical Union 1988 fall meeting, San Francisco, CA, Dec. 6-11, 1988 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). California/sedimentary petrology/sedimentary structures/geochemistry/isotopes/rates/bioturbation/biogenic structures/radioactive tracers/Santa Catalina Basin/thorium/actinides/metals/Th 234/radioactive isotopes/lead/Pb 210/diagenesis/Th 228/organic materials/Pacific Coast/Western U.S./United States/deep sea environment/environment/sediments/GEOREF.

2889. Lackmann CG. Coastal states have control of coastal resources. Natural Resources Journal 1979;19(2):393-397 A recent decision in the U.S. Supreme Court, United States vs. California (1978), held that the economically valuable waters and submerged lands within one mile of the Channel

Islands National Monument belong to California, not the federal government. This holding will have a major impact on the coastal industry around the United States. The Channel Islands National Monument consists of most of the Santa Barbara and Anacapa Islands located west of Los Angeles and lying between Santa Cruz Island and Santa Catalina. The Court's reasoning was based on the Submerged Lands Act of 1953 which gives the states ownership and control of all coastal lands and waters claimed by the federal government under the doctrine of paramount rights. The particular lands and waters in question possess substantial economic value. Actions by California to attempt to lease these lands for oil, gas and mineral exploration led to the case. The instant case involves commercial harvesting of giant kelp, *Macrocystis*. The decision in this case indicates a policy established by Congress and enforced by the Court of placing highly valued coastal resources under control of the states.. (Iervolino-NC).

Coastal resources/Water rights/Channel Islands National Monument(CA)/Beds/Legal aspects/Court decisions/California/Submerged Lands Act of 1953/Paramount rights/Coasts/Islands/Continental Shelf/Legislation/Judicial decisions/Water/coastal zone management/jurisdiction/resource development California Channel Islands/Santa Barbara Channel/Santa Barbara Island/Anacapa Island/Santa Cruz Island/Santa Catalina Island/resource management/water resources planning/law/petroleum/marine resources/policy.

2890. Mullin MM. Longshore variations in the distribution of plankton in the Southern California Bight. Calif. Coop. Oceanic Fish. Invest Rep. 1979;20:120-124.
zooplankton/phytoplankton/MINERALS MANAGEMENT SERVICE.

2891. Schimmelmann A, Kastner M. Time series concentrations of sulfur compounds in laminated Santa Barbara Basin sediments; environmental and diagenetic implications. Anonymous. AGU 1988 fall meeting.
Eos, -Transactions, -American-Geophysical-Union. 1988;69(44):p.1118
Scripps Inst. Oceanogr., La Jolla, CA, United-States American Geophysical Union 1988 fall meeting, San Francisco, CA, Dec. 6-11, 1988 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).
Pacific Ocean/geochemistry/sulfur/interpretation/sediments/Santa Barbara Basin/organic materials/secular variations/bottom water/sedimentation/bacteria/sulfides/diagenesis/GEOREF.

2892. Mullin MM. Spatial and temporal scales and patterns. Lecture notes on coastal and estuarine studies. Vol. 15. Plankton dynamics of the Southern California Bight 1986;:216-273.
phytoplankton/bacterioplankton/fish/zooplankton/zooplankton/Pieper/tidal cycle/lunar cycle/seasonality/vertical migration/patchiness/productivity/topography/nutrients/southern californian bight/microbiology/geesey/Hickey/physical oceanography/chemical oceanography/ecosysteminterrelationships/algae/spermatophytes/Bray hardy/phytoplankton/Dawson TEXT/MINERALS MANAGEMENT SERVICE.

2893. Lagerloef GSE, Bernstein RL. Empirical orthogonal function analysis of advanced, very high-resolution radiometer surface temperature patterns in Santa Barbara Channel. Journal of Geophysical Research - Oceans 1988;93(C6):6863 Address: SCI APPLICAT INT CORP,13400 NORTHUP WAY NE, SUITE 36B, BELLEVUE, WA 98005; SEASPACE INC,SAN DIEGO, CA 92122.
SURVIVAL OF LARVAL FISH/LOBSTER RECRUITMENT/VERTICAL-DISTRIBUTION

OF ICHTHYOPLANKTON/INTERANNUAL VARIABILITY/SEA-SURFACE TEMPERATURE ANOMALIES/SEASONAL PREDICTION/TIDE-GAUGE RECORDS/CANCER-MAGISTER/NORTHERN CALIFORNIA DUNGENESS CRAB/Santa Barbara Channel/marine biology/oceanography.

2894. Mullin MM, Williams WT. Spatial-temporal scales of zooplanktonic assemblages in three areas of the north Pacific -- a further analysis. Deep-Sea Res. Part A 1983;30(5):569-574.
84-00545zooplankton/spatial distribution/temporal distribution/INE/USA/California/INE/California Current/Pieper Bonnell/mammal/california current/Bray/MINERALS MANAGEMENT SERVICE.

2895. Mullin MM, Rau GH, Eppley EW. Stable nitrogen isotopes in zooplankton some geographic and temporal variations in the north Pacific. Limnol. Oceanogr. 1984;29(6):1267-1273.
79066358/8504/coepod/chaetognath/phytoplankton/euphotic zone/carbon-13/nitrogen-14/nitrogen-15/southern california bight/usa/north pacific central gyre/zooplankton/Pieper/algae/spermatophytes/Bray/MINERALS MANAGEMENT SERVICE.

2896. Estes JE, O' NPO, Wilson M. Radar detection of surface oil accumulations. Anonymous. Radar geology; an assessment report of the Radar geology workshop. JPL-Publication. 1980:p.275-292
Univ. Calif., Santa Barbara, CA, United-States Radar geology workshop, Snowmass, CO, July 16-20, 1979 Analytic; Serial; Report; Conference publication B; Bibliography and Index of Geology (1969-present).
California/geophysical surveys/remote sensing/economic geology/petroleum/detection/radar methods/Seasat/SAR/Southern California/Pacific Coast/Western U.S./United States/Santa Barbara Channel/Santa Monica Fault/Santa Ynez Fault/backscattering/simulation/exploration/airborne methods/oil seeps/oil spills/interpretation/applications/GEOREF.

2897. Landesman JG. Horizontal and vertical movements and seasonal population shifts in the blue shark, *Prionace glauca*, near Santa Catalina Island, California [dissertation]. Long Beach, California, USA: California State University; 1984. 92.
movement/population shifts/blue shark/*Prionace glauca*/Santa Catalina Island/marine biology.

2898. Sorensen SS, Grossman JN. Enrichment of trace elements in garnet amphibolites from a paleo subduction zone; Catalina Schist, Southern California. Geochimica et Cosmochimica Acta. 1989;53(12):p.3155
Smithson. Inst., Natl. Mus. Nat. Hist., Washington, DC, United-States; U. S. Geol. Surv., United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present).
California/geochemistry/trace elements/rare earths/metamorphic rocks/amphibolites/Los Angeles County California/Catalina Schist/subduction zones/Southern California/Pacific Coast/Western U.S./United States/Santa Catalina Island/metals/terrane/migmatites/shear zones/X ray data/SEM data/atomic absorption spectra/garnet amphibolite/mineral assemblages/mass transfer/GEOREF.

2899. Lane RS, Miller SE, Collins PW. Ticks (Acari: Argasidae and Ixodidae) from the California Channel Islands. The Pan-Pacific Entomologist 1982;58(2):96-104
The tick fauna of the California Channel Islands, a group of 8 islands lying 20 to 98 km off the coast of southern California has been little studied. Of the 20 species of argasid and 31 species

of ixodid ticks known from California, only 1 argasid, *Ornithodoros talaje* (Guerin-Meneville), and 3 ixodids, *Ixodes peromysci* Augustson, *I. pacificus* Cooley and Kohls, and *I. signatus* Birula reportedly occur there. The record of *O. talaje* from San Clemente Island (Banks, 1908) is of doubtful validity, however. The purpose of this report is to document the geographical, host, and temporal distributions of these ticks. parasites/pests of animals/hosts/seasonal variations/geographical distribution *Otobius megnini* (Arthropoda) - *Cervus canadensis* (Host)/*Haemaphysalis leporispalustris* (Arthropoda) - *Oryctolagus cuniculus* (Host)/*Ixodes pacificus* (Arthropoda) - *Gerrhonotus multicarinatus* (Host) - *Urocyon littoralis littoralis* (Host) - *Homo sapiens* (Host)/*Ixodes peromysci* (Arthropoda) - *Gerrhonotus multicarinatus* (Host) - *Peromyscus maniculatus anacapae* (Host) - *Peromyscus maniculatus elusus* (Host) - *Rattus rattus* (Host)/*Ixodes rugosus* (Arthropoda) - *Urocyon littoralis santacruzae* (Host) - *Spilogale gracilis amphialus* (Host)/California Channel Islands/terrestrial biology/parasitology/entomology.

2900. Murray SN, Littler MM. Year III. Intertidal study of the Southern California Bight (1977/78). Statistical data. Report 1, appendix F. Prep. for U.S. Dep. Interior, Minerals Management Service, Pacific OCS Region, Los Angeles, CA. Prep. by Science Applications, Inc., La Jolla, CA. 1979;IV. MINERALS MANAGEMENT SERVICE.

2901. Murray SN, Littler MM. Experimental studies of the recovery of populations of rocky intertidal macro-organisms following mechanical disturbance. The Distribution, Abundance and Community Structure of Rocky Intertidal and Tidepool Biotas in the Southern California Bight. Southern California Baseline Study. Final Report, Rep. 2.0. Bureau of Land Management, U.S. Dep. of the Interior, Washington, D.C. 1979;II. BRAY/MURRAY/ALGAE/MARINE SPERMATOPHYTES/TEXT/MINERALS MANAGEMENT SERVICE.

2902. Freckleton JR. Geohydrology of the Foothill ground water basin near Santa Barbara, California. Water Resources Investigations. Prepared in cooperation with the City of Santa Barbara 1989;46:p.26
U. S. Geol. Surv., Sacramento, CA, United-States Monographic; Serial; Report B; Bibliography and Index of Geology (1969-present)
U. S. Geol. Surv., Denver, CO, United States.
California/hydrogeology/ground water/surveys/Santa Barbara County California/Santa Barbara Formation/USGS/Pacific Coast/Western U.S./United States/Southern California/Santa Barbara California/Goleta California/Foothill Basin/aquifers/Pliocene/Neogene/Tertiary/Pleistocene/Quaternary/movement/levels /tectonic controls/faults/pumping/recharge/hydrochemistry/discharge/finite difference analysis/statistical analysis/three dimensional models/models/GEOREF.

2903. Langston RL. The Rhopalocera of Santa Cruz Island, California. The Journal of Research on the Lepidoptera 1981;18(1):24-35
Note: Presented at the Multidisciplinary Symposium on the California Islands, Santa Barbara, Calif., 28 Feb. 1978.
Rhopalocera/Santa Cruz Island/terrestrial biology/entomology.

2904. Tajima F. Body wave inversions; rupture of a fresh source and reactivation of a previously ruptured zone. Anonymous. AGU 1987 fall meeting. Eos,-Transactions,-American-Geophysical-

Union. 1987;68(3):p.1374 Univ. Tex. at Austin, Inst. Geophys., Austin, TX, United-States American Geophysical Union, 1987 fall meeting, San Francisco, CA, Dec. 6-11, 1987 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).
seismology/earthquakes/focal mechanism/Santa Cruz Island earthquake 1966/Santa Cruz Island earthquake 1980/Solomon Islands earthquake 1977/Solomon Islands earthquake 1984/rupture/subduction zones/inverse problem/seismic sources/stress/GEOREF.

2905. LaPointe PR, Belfield WC, Helwig JA. Analysis of fracturing and fluid-flow characteristics of the Monterey Formation, Santa Barbara Channel, CA. Western energy frontiers. Proceedings - Annual California Regional Meeting. Society of Petroleum 1984;54:97-106
Address: THUMS Long Beach Co., Long Beach, CA Conference: Western energy frontiers; 1984 California regional meeting. Long Beach, CA, Apr. 11-13, 1984. fractures/stratigraphy/experimental studies/Miocene/reservoir rocks/Monterey Formation/Neogene/Tertiary/statistical analysis/tortuosity/regression analysis/permeability/porous materials/Santa Barbara Channel/structural geology.

2906. Raylor WJ, Prothero WAJ. Three dimensional velocity structure of the Santa Barbara Channel from an inversion of explosion and earthquake travel time data. Anonymous. AGU 1987 fall meeting.
Eos, -Transactions, -American-Geophysical-Union. 1987;68(3):p.1373 Univ. Calif., Dep. Geol. Sci., Santa Barbara, CA, United-States American Geophysical Union, 1987 fall meeting, San Francisco, CA, Dec. 6-11, 1987 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).
California/seismology/crust/data processing/Santa Barbara County California/Ventura County California/Santa Barbara Channel/Pacific Coast/Western U.S./United States/P waves/body waves/elastic waves/velocity structure/three dimensional models/models/raypaths/explosions/earthquakes/inverse problem/GEOREF.

2907. Larson RE, Jeck RK. Atmospheric ²²²Rn measurements at San Nicolas Island during 1980. Memorandum rept. : Naval Research Lab., Washington, DC. NRL-MR-4649; 1981. 10.
The results of radon concentration measurements in the near surface air at San Nicolas Island, California, are presented for five different measurement sessions between May 1978 and July 1980. Emphasis is on the previously unreported results for January and July 1980. For six of eight days during the January session the measured radon concentration was greater than 40 picocuries per cm, corresponding to a continental air mass. Only the first day involved a maritime air mass with radon concentration less than about 6 picocuries per cm. In contrast to all the previous sessions, maritime air dominated the ten day session in July 1980, with radon concentrations generally less than about 5 picocuries per cm. Radon/Marine atmospheres/Measurement/Meteorology/Optical signatures/Electrooptics/Experimental data/Specifications/Data acquisition/Real time/environmental monitoring/air sampling/pollutant detection/air pollution San Nicolas Island Atmospheric Sciences/Meteorology/Nuclear Science/Radioactivity/air quality/pollution/radioactive wastes.

2908. Resig JM. Ecology of foraminifera of Santa Cruz Basin, California [dissertation]. ; 1956.
Univ. of Southern California, United-States; Master's Monographic;

Thesis B; Bibliography and Index of Geology (1969-present).
unknown p.

California/paleontology/foraminifera/foraminifers/ecology/habitat
/microfossils/ Protista/Santa Cruz Basin/Pacific Coast/Western
U.S./United States/GEOREF.

2909. Larson RE, Kasemir W, Bressan DJ. Measurements of
atmospheric ²²²Rn at San Nicolas Island and over nearby California
coastal areas during CEWCOM-78. Memorandum rept. : Naval Research
Lab Washington DC. NRL-MR-3941; 1979. 14. Shipboard and island
measurements show that clean maritime air prevailed over San
Nicolas Island, California, for two periods of a day or more each
during the twelve days of data collection and moderately
continental air prevailed for the remainder of the time. Moderately
continental air was encountered out to 200km from shore on 8 and 9
May on a dogleg course from Monterey to the San Nicolas Island
area. Maritime air was encountered throughout the direct return
trip along the coast, showing that the relative
continental/maritime nature of the air at a given location in the
area is more dependent upon prevailing winds than on distance from
land. Radon measurements at the NRL tower site on San Nicolas
Island were in good agreement with shipboard data throughout the
area, suggesting a relatively uniform distribution of air over a
large area, whether it be maritime or moderately continental. The
moderately continental conditions prevailing at San Nicolas Island
are not unlike those previously encountered for one or more days in
remote Pacific areas in air of Asian origin.

Marine atmospheres/Measuring instruments/Radon/Concentration
(Composition)/Collecting methods/Shipboard/Coastal
regions/Atmospheric chemistry/Radon 222/North Pacific
Ocean/California/San Nicolas Island/Atmospheric
Sciences/Pollution/Radiation/meteorology.

2910. McGowan JA, Miller CB. Larval fish and zooplankton
community structure. Calif. Coop. Oceanic Fish. Invest. Rep.
1980;21:29-36. text/zooplankton/dawson pieper/fish/larvae/plankton
abundance/competition/predators/california current/cruises/species
composition/macrozooplankton /MINERALS MANAGEMENT SERVICE.

2911. Larson RE. Atmospheric ²²²Rn measurements at San
Nicolas Island. Memorandum rept. : Naval Research Lab.,
Washington, DC. NRL-MR-4099; 1979. 7. Radon (²²²) measurements
showed that maritime air prevailed for four of the nine days of
sampling from April 30 to May 10, 1978. There were, in addition,
two days of small continental influence and three days of moderate
continental influence. This period was in contrast to May 8 to 22,
1978 (CEWCOM-78) and November 17 to 21, 1979, where in the former,
there were only two brief periods of maritime air, and in the
latter only one sample was taken that was not continental.

Radon/Air mass analysis/Air quality/Islands/Marine
atmospheres/Radioactive
isotopes/Air/Sampling/Monitoring/Atmospheric chemistry/Radon
222/San Nicolas Island/Atmospheric
Sciences/Radioactivity/Radioactive
Wastes/pollution/meteorology.

2912. Napp JM. Primary productivity maxima in the Southern
California Bight USA distribution predicted depth and nutritional
content. Oceanol. Acta. 1987;10(3):329-338.
phytoplankton/zooplankton/biomass/vertical/structure/grazing/seas
onality/chloro phyll
a/particulate/carbon/nitrogen/ecology/plant/circadian
rhythm/periodic cycles/bioclimateology/biometereology/animal ecology/

oceanography/metabolism/energy/respiratory
metabolism/nutrition/general studies/nutritional
status/methods/plant
physiology/biochemistry/biophysics/photosynthesis/plant
physiology/biochemistry/biophysics/
growth/differentiation/biochemical studies/general/biochemical
studies/
porphyrins/bile/pigments/algae/unspecified/animalia/unspecified/M
INERALS MANAGEMENT SERVICE.

2913. Nardin TR. Seismic stratigraphy of Santa Monica and San Pedro Basins, California continental borderland: Late Neogene history of sedimentation and tectonics. Dissertation, Univ. of South. Calif., Los Angeles, CA 1981;:295. introduction/MINERALS MANAGEMENT SERVICE.

2914. Nardin TR. Late Quaternary depositional systems and sea level change--Santa Monica and San Pedro Basins, California continental borderland. Am. Assoc. Pet. Geol. Bull. 1983;67:1104-1124.
introduction/MINERALS MANAGEMENT SERVICE.

2915. Nardin TR, Edwards BD, Gorsline DS. Santa Cruz Basin, California borderland: Dominance of slope processes in basin sedimentation. Geology of the continental slope. Soc. Econ. Paleontol. Mineral. Spec. Publ. 1979;27:209-221.
introduction/MINERALS MANAGEMENT SERVICE.

2916. Bender M, Jahnke RA, Weiss R, Martin W, Heggie DTOJ, Sowers T. Organic carbon oxidation and benthic nitrogen and silica dynamics in San Clemente Basin, a continental borderland site. Geochimica et Cosmochimica Acta. 1989;53(3):p.685-697
Univ. R.I., Grad. Sch. Oceanogr., Kingston, RI, United-States;
Univ. Calif., United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present).
Pacific Ocean/sedimentary petrology/diagenesis/processes/early diagenesis/sediments/pore water/geochemistry/solution/San Clemente Basin/organic carbon/organic materials/oxidation/silica/nitrates/nitrogen/GEOREF.

2917. Larson RE, Kasemir W, Bressan DJ. Measurements of atmospheric SUP-222 Rn at San Nicolas Island and over nearby California coastal areas during CEWCOM-78. Rep. NRL Prog. 1979;3:23-24
Address: Ocean Sci. Div., Nav. Res. Lab., Washington, DC 20375,
USA Note: NRL Problem no. A03-14.
Shipboard and island measurements show that clean maritime air prevailed over San Nicolas Island, California, for two periods of a day or more each during the twelve days of data collection and moderately continental air prevailed for the remainder of the time. Moderately continental air was encountered out to 200 km from shore on 8 and 9 May on a dogleg course from Monterey to the San Nicolas Island area. Maritime air was encountered throughout the direct return trip along the coast, showing that the relative continental/maritime nature of the air at a given location in the area is more dependent upon prevailing winds than on distance from land. Radon measurements at the NRL tower site on San Nicolas Island were in good agreement with shipboard data throughout the area, suggesting a relatively uniform distribution of air over a large area, whether it be maritime or moderately continental. The moderately continental conditions prevailing at San Nicolas Island are not unlike those previously encountered for one or more days in remote Pacific areas in air of Asian origin.

radon/chemical analysis/atmosphere/atmospheric chemistry/San Nicolas Island/air quality/atmospheric chemistry/pollution.

2918. Chen RF, Bada JL. Sea water and porewater fluorescence in the Santa Barbara Basin. *Geophysical Research Letters*. 1989;16(7):p.687-690 *Scripps Inst. Oceanogr., San Diego, CA, United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present)*.
Pacific Ocean/geochemistry/sea water/properties/fluorescence/sediments/marine sediments/pore water/organic materials/North American Pacific/Santa Barbara Basin/GEOREF.

2919. Lasker R, Pelaez J, Laurs RM. Use of satellite infrared imagery for describing ocean processes in relation to spawning of the northern anchovy (*Engraulis mordax*). *Remote Sensing Environ.* 1981;11(6):439-453 Address: NOAA, Natl. Marine Fisheries Serv., Southwest Fisheries Cent., La Jolla, CA 92038, USA.
Using satellite infrared thermal imagery in conjunction with extensive sampling for anchovy eggs and adults during March and April 1980, we were able to confirm that large areas of the coastal ocean off California were avoided by anchovies during the peak of spawning due to entrainment into the California Current of less than or equal to 14 degree C water that upwelled north of Point Conception. Upwelling began coincident with the onset of winds from the north and proceeded in pulses separated by a few days. Plumes of upwelled water appeared to be advected southward in ladder-like rows by the California Current. A saline 50+-m-deep warm water pool, 40 km off Ensenada, Baja California, Mexico also was avoided by anchovies. The appearance of an inshore 16 degree C refuge and an extensive 220-km warm-water "wake" associated with Santa Catalina Island also were observed.
satellite sensing/radar imagery/spawning populations/sampling methods/avoidance behavior/upwelling/oceanographic data/California current/eggs/entrainment/upwelling/avoidance/remote sensing/satellite IR/thermal imagery Osteichthyes/*Engraulis mordax*/anchovies/Ensenada/Baja California/Santa Catalina Island/north of Point Conception/marine biology/ichthyology/fisheries/resource management.

2920. Egill H, Jones LM. The July 1986 Oceanside earthquake sequence (ML = 5.3) in the continental borderland, Southern California. Anonymous. AGU 1987 fall meeting. *Eos,-Transactions,-American-Geophysical-Union.* 1987;68(44):p.1361 *Univ. South. Calif., Dep. Geol. Sci., Los Angeles, CA, United-States; U. S. Geol. Surv., United-States American Geophysical Union, 1987 fall meeting, San Francisco, CA, Dec. 6-11, 1987 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present)*.
California/seismology/earthquakes/San Diego County California/Oceanside earthquake 1986/Pacific Coast/Western U.S./United States/main shocks/aftershocks/epicenters/San Diego Trough/Bahia Soledad fault zone/strike slip faults/faults/continental borderland/focal mechanism/reverse faults/Southern California/GEOREF.

2921. Laur DR, Ebeling AW. Predator-prey relationship in a guild of surfperches. *Envir. Biol. Fish.* 1983;8:217-229
predation/predator-prey relationships/surfperch/Santa Barbara Channel/marine biology/ichthyology/ecology.

2922. Garcin M, Vachard D. Decouverte d'Hermelles fossiles dans le Messinien de San Miguel de Salinas (Annelides du Miocene

superieur du Sud Est de l'Espagne).

Translated title: Discovery of fossil Hermelles in the Messinian of San Miguel de Salinas; annelids from the upper Miocene of southeastern Spain. *Geobios*. 1987;20(3):p.407-414

Inst. Geol. I.G.A.L., Paris 75270, France Analytic; Serial B; Bibliography and Index of Geology (1969-present).

Spain/paleontology/worms/Polychaetia/Miocene/upper Miocene/Neogene/Tertiary/Messinian/bioherms/Alicante Province/Iberian Peninsula/Southern Europe/Europe/southeastern Spain/Hermelles/Sabellariidae/San Miguel de Salinas Basin/GEOREF.

2923. Neighbors MA. Triacylglycerols and wax esters in the lipids of deep midwater teleost fishes of the Southern California Bight. *Mar. Biol.* 1988;98(1):15-22.

waxes/esters/lipids/depth/Teleostei/buoyancy/California/MINERALS MANAGEMENT SERVICE.

2924. Laur DR, Ebeling AW, Reed DC. Experimental evaluation of substrate types as barriers to sea urchin (*Strongylocentrotus* spp.) movement. *Marine Biology* 1986;93:209-215

Descriptive evidence that sandy surfaces and rock ledges inhibit progress of grazing sea urchins prompted an experimental investigation of physical obstacles to urchin movement in a subtidal area of reef and kelp off southern California in 1980. In laboratory experiments, we found that both red and purple urchins can negotiate sand using their oral spines, although purple urchins are slower and more hesitant to do so. In field experiments, we observed the fates of starved red urchins transported to replicate plots within stands of sand- or rock-based understory kelp. Urchins in rock plots retreated to nearby crevices from where they ate attached kelp. After finding kelp blades, urchins soon disappeared from sand plots because individuals in small groups may have difficulty holding and eating attached kelps on unconsolidated surfaces. In another experiment, red and purple urchins reached kelp on a rock ledge by mounting an artificial ramp. We conclude that by using their tube feet, individuals of both species move best over flat, hard surfaces, although soft substrate may constitute a major barrier only to purple urchins. In the absence of effective predator control, urchins can surmount most sand or rock barriers when water motion subsides. Hence, their ability to coordinate spine movements to negotiate soft substrates may be an adaptation to invade kelp refuges during quiet periods if preferred drift food is unavailable.

movement/substrate types *Strongylocentrotus franciscanus*/red sea urchin/*Strongylocentrotus purpuratus*/purple sea urchin/Santa Barbara Channel/Naples Reef/marine biology/ecology.

movement/substrate types *Strongylocentrotus franciscanus*/red sea urchin/*Strongylocentrotus purpuratus*/purple sea urchin/Santa Barbara Channel/Naples Reef/marine biology/ecology.

2925. Nelson CS. Wind stress and wind stress curl over the California current. *Tech. Rept.* 1978;:95.

PB-273-610-6/7800/upwelling/wind meteorology/ocean currents/north pacific ocean/reviews/seasonal variations/weather

observations/stresses/spatial distribution/california current/equatorial zone/california/wind

direction/coasts/california/cape mendocino/point conception/cape blanco/mexico/Hickey/physical oceanography/MINERALS MANAGEMENT SERVICE.

2926. Ku TL, Kusakabe M, Huh CA, Nelson DE, Southon JR, Vogel J, Korteling RG, Reyss JL, Duplessy JC. Studies of beryllium 10 in the marine environment. Anonymous. Fifth international conference on Geochronology, cosmochronology and isotope geology. Abstracts-International-Conference-on-Geochronology,-

Cosmochronology,-Isotope-Geology. 1982;5:p.196-197

Univ. South. Calif., Dep. Geol. Sci., Los Angeles, CA, United-States; Simon Fraser Univ., Canada; Cent. Faibles Radioact., France
Fifth international conference on Geochronology, cosmochronology and isotope geology, Nikko National Park, June 27-July 2, 1982
Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).
Pacific Ocean/geochemistry/isotopes/Atlantic Ocean/beryllium/alkaline earth metals/metals/Be 10/radioactive isotopes/marine environment/environment/sea water/marine sediments/nodules/San Nicholas Basin/Southern California/California/Pacific Coast/Western U.S./United States/ocean floors/GEOREF.

2927. Nelson DC. Current ripples in Scripps submarine canyon's Sumner Branch. Master's Thesis, San Diego State Univ., San Diego 1976; 877891 78-08736/Pacific Ocean/sedimentation/Hickey/physical oceanography transport/environment/marine transport/marine environment/California/United States/San Diego County/Scripps Canyon/Sumner Branch/East Pacific/ripple marks/bedding plane irregularities/sedimentary structures/statistical methods/symmetry/wave length/MINERALS MANAGEMENT SERVICE.

2928. Laur DR, Ebeling AW, Reed DC. Experimental evaluations of substrate types as barriers to sea urchin (*Strongylocentrotus* spp.) movement. Mar. Biol. 1986;93:209-215
substrate types/barriers/*Strongylocentrotus*/sea urchins/Santa Barbara Channel/marine biology/ecology.

2929. Bebout GE, Barton MD. Fluid flow and metasomatism in a subduction zone hydrothermal system; Catalina schist terrane, California. Geology (Boulder). 1989;17(11):p.976-980
Univ. Calif., Dep. Earth and Space Sci., Los Angeles, CA, United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present). California/geochemistry/trace elements/metasomatism/environment/subduction zones/metamorphic rocks/schists/facies/rare earths/isotopes/deuterium/carbon/C 13/C 12/hydrogen/D/H/oxygen/O 18/O 16/Los Angeles County California/Catalina Schist/Pacific Coast/Western U.S./United States/Southern California/Santa Catalina Island/hydrothermal alteration/Lower Cretaceous/Cretaceous/fluid phase/mass transfer/solubility/mineral assemblages/blueschist facies/amphibolite facies/greenschist facies/metals/stable isotopes/GEOREF.

2930. Lavenberg RJ, Ebeling AW. Distribution of midwater fishes among deep-water basins of the southern California shelf. Proceedings of the symposium of the biology of the California islands. Santa Barbara, CA: Santa Barbara Botanic Gardens; 1967. 185-201.
distribution/Deep-water basins/fishes/Southern California shelf/marine biology/ichthyology.

2931. Neori A, Holm HO, Mitchell BG, Kiefer DA. Photoadaptation in marine phytoplankton changes in spectral absorption and excitation of chlorophyll a fluorescence. Plant Physiol. (Bethesda) 1984;76(2):518-524. Southern California Bight/Scotia Sea/Ross Sea/depth/vertical stability/light intensity/accessory pigment concentration/algae and spermatophytes/Bray/Hardy/phytoplankton/Southern California Bight/TEXT/MINERALS MANAGEMENT SERVICE.

2932. Rullkoetter J, Orr WL. The effects of thermal

maturation on the distribution of sulfur compounds in sulfur rich Monterey crude oils. Anonymous. Abstracts of papers; 197th ACS national meeting.
Abstracts-of-Papers-American-Chemical-Society,-National-Meeting. 1989;197:p.GEOC 47
Nucl. Res. Cent. (KFA), Inst. Pet. and Org. Geochem., Julich, Federal-Republic-of-Germany; Mobil Res. and Dev. Corp., United-States 197th ACS national meeting, Dallas, TX, Apr. 9-14, 1989 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).
California/geochemistry/sulfur/Monterey Formation/thermal maturity/organic sulfur/petroleum/Pacific Coast/Western U.S./United States/kerogen/organic materials/South Elwood Field/Santa Barbara Channel/Santa Maria Basin/aromatic hydrocarbons/hydrocarbons/thiolanes/methyldibenzothiophenes/GEOREF.

2933. Law TE, Wolfram WR. Santa Barbara SALM--A prototype deepwater production riser and floating production system. Journal of Petroleum Technology 1980;32(2):311
Petroleum technology/Santa Barbara Channel/engineering.

2934. Neushul M. Historical review of kelp beds in the Southern California Bight. South. Calif. Edison Research Rep. 81-RD-98 1981;
MINERALS MANAGEMENT SERVICE.

2935. Pytte MH. Comparison of Monterey Formation kerogens from the Salinas Basin and Santa Barbara area, California. Pytte, Margaret H., Hower, James C. A selection of papers from the 4th annual meeting of the Society for Organic Petrology. Chevron U.S.A., San Ramon, CA, United-States. Organic-Geochemistry. 1989;14(3):p.233
Chevron USA, San Ramon, CA, United-States; Chevron U.S.A., San Ramon, CA, United-States; Univ. Ky., United-States 4th annual meeting of the Society for Organic Petrology, San Francisco, CA, Sept. 30-Oct. 3, 1987 Analytic; Serial; Conference publication B; Bibliography and Index of Geology (1969-present).
California/economic geology/petroleum/Monterey Formation/Hames Member/Sandholdt Member/Pacific Coast/Western U.S./United States/kerogen/organic materials/Salinas Basin/Santa Barbara California/Santa Barbara County California/source rocks/anaerobic environment/environment/marine environment/wells/isotopes/carbon/C 13/C 12/stable isotopes/Rock Eval/organic carbon/vitrinite/macerals/coal/organic residues/reflectance/thermal maturity/lithofacies/amorphinite/alginite/Miocene/Neogene/Tertiary/deposition/pyrolysis/pristane/alkanes/aliphatic hydrocarbons/hydrocarbons/phytane/chromatograms/GEOREF.

2936. Laycock G. A scourge of goats. Audubon 1984;86(1):100
feral animals/Vegetation destruction/Soil erosion/feral goats/San Clemente Island/terrestrial biology/mammalogy.

2937. Sung LY. A study of the crust and uppermost mantle under Southern California from inversion of local and regional traveltimes. [dissertation] ; 1989.
Univ. of California, United-States; Doctoral Monographic; Thesis B; Bibliography and Index of Geology (1969-present) Univ. Microfilms, Ann Arbor, MI, United States.
163 p.
California/seismology/crust/mantle/Pacific Coast/Western U.S./United States/tectonophysics/geophysical surveys/seismic surveys/upper mantle/Southern California/P waves/body waves/elastic waves/velocity structure/anisotropy/Fourier

analysis/traveltime/statistical analysis/Colorado/San Jacinto Mountains/Riverside County California/San Gabriel Mountains/Mojave Desert/Ventura Basin/Santa Cruz Island/Sierra Nevada/thickness/teleseismic signals/Transverse Ranges/Peninsula Ranges/Bouguer anomalies/gravity anomalies/Santa Monica Mountains/San Bernardino Mountains/isostasy/GEOREF.

2938. Le Boeuf BJ, Mate BR. Elephant seals colonize additional Mexican and Californian islands. J. Mammal. 1978;59(3):621-622

Address: Crown Coll., Univ. California, Santa Cruz, CA 95064. The elephant seal, *Mirounga angustirostris*, formerly believed to be virtually extinct apart from a small breeding colony on Isla de Guadalupe, Mexico, has recovered substantially due to protection by the Mexican and US governments this century, and three new breeding areas are reported in addition to the nine islands recognized in 1976. The new areas are Isla Natividad, and Isla San Martin (Mexico), and San Clemente Island (California); small numbers of females, pups and juveniles have been observed from each island. Unless disturbed, these incipient colonies are expected to expand rapidly. aquatic mammals/colonization/nature conservation/biological surveys/population dynamics/geographical distribution/endangered species/conservation/elephant seal/*Mirounga angustirostris*/Mexico/Isla Natividad/Isla San Martin/California/San Clemente Island/marine biology/mammalogy.

2939. Noshkin VE, Brunk JL, Jokela TA, Wong KM. (238)Pu concentrations in the marine environment at San Clemente Island. Health Physics. 1981;40(5):p.643 Lawrence Livermore Lab., Environ. Sci., Livermore, CA, United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present). California/environmental geology/pollution/plutonium/isotopes/Pu 238/sediments/marine sediments/geochemistry/algal flora/biochemistry/marine environment/sea water/Pacific Coast/Western U.S./United States/Southern California/San Clemente Island/actinides/metals/radioactive isotopes/microfossils/Holocene/Quaternary/Pu 239/Pu 240/fallout/cores/environment/GEOREF.

2940. Lebow R. San Pedro Harbor to Catalina Island; a deep sea field trip. NAGT-FWS Santa Catalina Island field trip. : Natl. Assoc. Geol. Teachers; 1984. 5-10. Address: Pierce Coll., CA. marine geology/guidebook/faunal list/Santa Catalina Island/San Pedro Channel/Los Angeles-Long Beach Harbor/Santa Monica Bay/marine geology/oceanography.

2941. Molina CA. Micropaleontologic evidence of late Quaternary paleoceanography of the mouth of the Gulf of California, Mexico. Dickinson, William R. Geological Society of America, 1987 annual meeting and exposition. Abstracts-with-Programs-Geological-Society-of-America. 1987;19(7):p.775 Univ. Nac. Auton. Mex., Ciudad Univ., Inst. Cienc. Mar y Limnol., Mexico City, Mexico Geological Society of America, 1987 annual meeting and exposition, Phoenix, AZ, Oct. 26-29, 1987 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). Gulf of California/stratigraphy/Quaternary/Mexico/North American Pacific/Pacific Ocean/biostratigraphy/paleo oceanography/foraminifers/microfossils/radiolarians/quantitative analysis/benthonic taxa/cores/distribution/paleoclimatology/glacial environment/environment/interglacial environment/California Current/Northeast Pacific/Antarctic Deep Water/biofacies/changes of

level/upper Quaternary/GEOREF.

2942. Ledig FT, Conkle MT. Gene diversity and genetic structure in a narrow endemic torrey pine *Pinus torreyana*. Evolution 1983;37(1):79-85 Address: INST. OF FOREST GENETICS, PACIFIC SOUTHWEST FOREST AND RANGE EXPERIMENT STN., USDA FOREST SERVICE, P.O. BOX 245, BERKELEY, CALIF. 94701. Early investigations suggested that genetic variability might be associated with longevity and that tree species were the most heterozygous of organisms. However, these ideas may be modified as species representing a wider range of population structure are investigated. Torrey pine, a California [USA], endemic, occurs in only 2 populations, one on the coast at San Diego and one 280 km northwest on Santa Rosa Island. Populations number only .apprx. 7000 and 2000 individuals, respectively. Each population is composed of identical homozygous genotypes at 59 isozyme loci. The island population is fixed for alternate alleles to those in the coastal population at 2 of the 59 loci. These results agree with other lines of evidence that suggest Torrey pine is characterized by minor differences between relatively uniform populations. Drift is the most likely explanation for lack of variability in Torrey pine. It probably experienced one or more reductions in population size, most recently during the Xerothermic period 8500 to 3000 B.P. The founder effect may have operated during colonization of Santa Rosa Island .apprx. 18,000 B.P. Apparently, the northern Channel Islands to which Santa Rosa belongs were not connected to the adjacent mainland in recent geologic history and colonization would require transport across at least a 6- to 7-km channel. Red pine and western redcedar, conifers with greater ranges than Torrey pine, are only slightly more variable. Thus, despite the presence of mechanisms to maintain high levels of outbreeding, it appears the conifer breeding system can survive inbreeding with its consequence of genetic depauperization. breeding systems/isozyme/loci/longevity/founder effect/genetic drift/inbreeding/endemic species/genetic structure/population genetics/torrey pine/*Pinus torreyana* San Diego/Santa Rosa Island/terrestrial biology/botany/genetics.

2943. Winter BL, Knauth LP. Isotopic investigation of carbonate fracture fills in the Monterey Formation, California. Anonymous. Geological Society of America, Cordilleran Section, 85th annual meeting and Rocky Mountain Section, 42nd annual meeting. Abstracts-with-Programs-Geological-Society-of-America. 1989;21(5):p.160 Ariz. State Univ., Dep. Geol., Tempe, AZ, United-States Geological Society of America, Cordilleran Section, 85th annual meeting and Rocky Mountain Section, 42nd annual meeting, Spokane, WA, May 8-11, 1989 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). California/geochemistry/isotopes/Santa Barbara County California/Ventura County California/Monterey Formation/Pacific Coast/Western U.S./United States/fractures/Santa Barbara Channel/oxygen/carbon/O 18/O 16/stable isotopes/C 13/C 12/pore water/crystallization/temperature/precipitation/Rufugio Beach/Jalama Beach/Carpinteria Beach/GEOREF.

2944. Lee HJ. Offshore soil sampling and geotechnical parameter determination. Journal of Petroleum Technology 1980;32(5):891-898 Address: U. S. Geol. Surv., Menlo Park, CA. soils/petroleum engineering/surveys/foundations/triaxial tests/offshore/sample preparation/marine sediments/shear strength/testing/deformation/settlement/bearing capacity/failures/structures/Santa Barbara

Channel/engineering/environmental geology.

2945. Eppley RW. Plankton dynamics of the Southern California Bight. Lecture Notes on Coastal and Estuarine Studies. 1986;15

Scripps Inst. of Oceanogr., La Jolla, CA, United-States Monographic; Serial B; Bibliography and Index of Geology (1969-present).

Pacific Ocean/environmental geology/ecology/algal flora/planktonic taxa/bacteria/environmental analysis/shorelines/longshore currents/climate effects/polluted water/water quality/physicochemical properties/spatial distribution/temporal distribution/zooplankton/phytoplankton/biomass/microfossils/nutrients/data/graphic methods/photography/aerial photography/California/Pacific Coast/Western U.S./United States/Southern California/remote sensing/geophysical surveys/evolution/Santa Monica California/San Diego California/GEOREF.

2946. Lee WHK, Johnson CE, Henyey TL, Yerkes RL. A preliminary study of the Santa Barbara, California, earthquake of August 13, 1978 and its major aftershocks. US Geological Survey, Circular 1979;797:11 pages The M"SUB L" 5.1 Santa Barbara earthquake of August 13, 1978, occurred at 34"SUP o"22.2'N., long. 119"SUP o"43.0'4km south of Santa Barbara, California, at a depth of 12.5km in the northeast Santa Barbara Channel, part of the western Transverse Ranges geomorphic-structural province. This part of the province is characterized by seismically active, east-trending reverse faults and rates of coastal uplift that have averaged up to about 10m/1000 yr over the last 45 000 yr. No surface rupture was detected onshore. Subsurface rupture propagated northwest from the main shock toward Goleta, 15km west of Santa Barbara, where a maximum acceleration of 0.44 g was measured at ground level and extensive minor damage occurred; only minor injuries were reported. A fairly well constrained fault plane solution of the main shock and distribution of the aftershocks indicate that left-reverse-oblique slip occurred on west-northwest-trending, north-dipping reverse faults; inadequate dip control precludes good correlation with any one of several mapped faults. Santa Barbara/earthquake/Santa Barbara Channel/geology.

2947. Legg MR. Present-day microplate tectonics in the Southern California continental borderland. American Geophysical Union; 1980 fall meeting. Eos, Transactions, American Geophysical Union 1980;61(46):1124-1125 Address: Scripps Inst. Oceanogr., Geol. Res. Div., La Jolla, CA Conference: American Geophysical Union; 1980 fall meeting. San Francisco, CA, Dec. 8-12, 1980. seismology/earthquakes/tectonophysics/focal mechanism/plate tectonics/North American Plate/Pacific Plate/San Andreas Fault/strike-slip faults/faults/dip-slip faults/Transverse Ranges/normal faults/magnitude/models/San Clemente Island/Fortymile Bank/geology/solid earth geophysics.

2948. Matrai PA, Eppley RW. Particulate organic sulfur in the waters of the Southern California Bight. Global Biogeochemical Cycles. 1989;3(1):p.89-103 Scripps Inst. Oceanogr., Inst. Mar. Resour., La Jolla, CA, United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present). California/geochemistry/sea water/Pacific Ocean/sulfur/organic materials/sedimentation/processes/biochemical sedimentation/Pacific Coast/Western U.S./United States/Southern California Bight/North American Pacific/particulate materials/suspended materials/GEOREF.

2949. Legg MR. (Present microplate tectonics on the continental border of southern California.); La tectonica de microplacas actual en el borde continental del sur de California. Trans. Cibcasio. 1982;6:51-97

Address: Scripps Inst. Oceanogr., La Jolla, San Diego, CA 92093, USA
Conference: 6. Meet. of the Centros de Investigacion de Baja California and Scripps Institution of Oceanography. La Jolla, CA (USA). Dec 1980
Note: In Spanish. Earthquake activity in the inner continental borderland of southern California (USA) and northern Baja California (Mexico) indicates that the region is still undergoing active tectonism. The study of the seismicity of this offshore region provides important data useful in describing the tectonic processes presently occurring in the region. Earthquakes in the continental borderland off southern California are found to have focal mechanisms consistent with the northwest trending dextral regional shear couple associated with the San Andreas Fault plate boundary. Preferred fault planes for earthquakes in this region generally trend North to Northwest, with steep dips. In San Clemente Island and Fortymile Bank, most earthquakes had focal mechanisms that were opposite to the mechanisms of San Andreas Fault-type motion.
plate tectonics/faults/earthquakes/seismic surveys/seismic activity/seismic zones/seismic exploration San Andreas Fault/continental borderland of southern California (USA) and northern Baja California (Mexico)/San Clemente Island/Fortymile Bank/geology/seismology.

2950. Nichols FH, Cacchione DA, Drake DE, Thompson JK. Emergence of a subsurface burrower from the sediment of the California Continental Shelf--a response to food-supply enhancement during alongshore current reversals? Estuarine Coastal Sci. (in press) 1989;
text/benthic invertebrates/8/MINERALS MANAGEMENT SERVICE.

2951. Crain WE, Thurston SP. Geology and oil and gas exploration in California's offshore basin. Horn, Myron K. Transactions of the Fourth Circum-Pacific energy and mineral resources conference. Consult. Geol., Tulsa, OK, United-States. Transactions-of-the-Circum-Pacific-Energy-and-Mineral-Resources-Conference. 1987;4:p.43-61
Chevron U.S.A., San Francisco, CA, United-States; Consult. Geol., Tulsa, OK, United-States Fourth Circum-Pacific energy and mineral resources conference, , Aug. 17-22, 1986 Analytic; Serial; Conference publication B; Bibliography and Index of Geology (1969-present).
California/economic geology/petroleum/natural gas/exploration/Pacific Coast/Western U.S./United States/offshore/continental shelf/production/reserves/possibilities/Los Angeles Basin/Santa Barbara Basin/Santa Maria Basin/GEOREF.

2952. Hornafius JS, Echols RJ, Felber BE. Paleogeographic implications of disconformities in Monterey Formation, California. Anonymous. AAPG-SEPM-SEG-SPWLA Pacific Section annual meeting. AAPG-Bulletin. 1989;73(4):p.541 Mobil Explor. and Prod. U. S., Bakersfield, CA, United-States AAPG-SEPM-SEG-SPWLA Pacific Section annual meeting, Palm Springs, CA, May 10-12, 1989 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).
California/stratigraphy/Miocene/Monterey Formation/erosional unconformities/paleogeography/Pacific Coast/Western U.S./United States/Point Arguello Field/Hondo Field/South Elwood Field/gamma ray methods/San Miguel Field/Point Pedernales

Field/hardground/Neogene/Tertiary/Santa Barbara California/Santa Barbara County California/Point Conception California/wells/Santa Barbara Channel/paleobathymetry/correlation/environment/production/petroleum/GEOREF.

2953. Level HR,c. Field guide to Anacapa Island. : Natl. Assoc. Geol. Teachers, Far West. Sect.; 1982. 8.
Address: Ventura Coll., Earth Sci. Dep., Ventura, CA.
San Onofre Formation/Santa Barbara embayment/Miocene/Neogene/Tertiary/volcanic rocks/guidebook/Anacapa Island/areal geology.

2954. Fischer PJ, Thor DR, Cherven VB. Anatomy of Quaternary Conception submarine fan, Santa Barbara Basin, California. Anonymous. AAPG-SEPM-SEG-SPWLA Pacific Section annual meeting. AAPG-Bulletin. 1989;73(4):p.538 Calif. State Univ., Northridge, CA, United-States; MESA, United-States AAPG-SEPM-SEG-SPWLA Pacific Section annual meeting, Palm Springs, CA, May 10-12, 1989
Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).
California/stratigraphy/Quaternary/submarine fans/Santa Barbara Basin/Pacific Coast/Western U.S./United States/Conception submarine fan/seismic profiles/seismic stratigraphy/offshore/GEOREF.

2955. Levisky JS. The masticatory complex and diet of a marine dependent native American population: a case study of human crania from the Northern Channel Islands (California) [dissertation]. Ithica, New York, USA: Cornell University; 1987. 120.

A series of ninety-eight human crania excavated from the Northern Channel Islands along the southern California coast are examined to describe the morphology of the masticatory region to assess relationships to their diet and to determine the anthropometric variables most closely allied to these relationships. Ethnographic, archeological, and geological evidence indicates this population subsisted on a diet primarily from marine resources. Twenty-seven variables are measured on each specimen and show a significant degree of sexual dimorphism. Computing a series of functional indices from these variables removes most of the sexual dimorphism indicating no functional differences exist between the sexes. Statistically significant correlations are found between the size and robusticity of the skeletal components and the locations of origins and insertions of the masticatory muscles. The data is functionally consistent with biomechanical models of mastication. The functional morphology of the masticatory region for this population can be best described using fourteen variables in bivariate and multivariate methods. The descriptive statistics identified in this research form a baseline for future comparative studies of populations with differing subsistence strategies.
masticatory morphology/archaeology/Homo sapiens/Northern California Channel Islands/physical anthropology.

2956. Guenther EW. Mammute und ihre Kueemmerformen von Eurasien bis Mexico. Translated title: Mammoths and their microforms from Eurasia to Mexico. Quartaer. 1987;37-38:p.13-51
Analytic; Serial B; Bibliography and Index of Geology (1969-present).
Alaska/paleontology/Mammalia/California/USSR/Elephantoidea/Pleistocene/Probosceida/Eutheria/Theria/Mammuthus/Elephantidae/Quaternary/teeth/biome

try/endemic taxa/Siberia/Western U.S./United States/Pacific Coast/San Miguel Island/Mexico/Los Angeles California/Los Angeles County California/Rancho La Brea/GEOREF.

2957. Lewbel GS, Wolfson A, Gerrodette T, Lippincott WH, Wilson, J.L., Littler MM. Shallow-water benthic communities on California's outer continental shelf. Mar. Ecol. Prog. Ser. 1981;4(2):159-168
Address: LGL Ecol. Res. Ass., 1410 Cavitt St., Bryan, TX 77801, USA. Benthic macroinvertebrates and macrophytes were studied at depths from about 20 to 30 m on Cortes and Tanner Banks, 180 km offshore from San Diego, California, USA. The structure of these communities is described in terms of percentage cover, biomass, species diversity, and species evenness. Two distinctly different communities were present. The shallow-water community was best developed above 25 m depth, and dominated by the southern sea palm *Eisenia arborea* which formed dense stands on ridges and pinnacles. The community below 30 m was characterized by the encrusting red coralline alga *Lithophyllum proboscideum*. Remote from shore and weather-beaten, Cortes and Tanner Banks harbor subtidal communities whose relative species abundances differ from those of comparable depths near the southern California mainland and Channel Islands.
benthos/community composition/species diversity/abundance/ecological distribution/depth/macroinvertebrate biomass/species evenness/benthic fauna/population dynamics/*Eisenia arborea*/sea palm/*Lithophyllum proboscideum*/encrusting/red coralline alga/Cortes Bank/Tanner Bank/marine biology/botany/phycology.

2958. Erlandson JM. Cultural evolution and paleogeography on the Santa Barbara coast; a 9600 year (14)C record from Southern California. Radiocarbon. 1988;30(1):p.25-39
Univ. Calif., Dep. Anthropol., Santa Barbara, CA, United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present).
paleogeography/Holocene/California/stratigraphy/absolute age/dates/artifacts/Santa Barbara County
California/archaeology/Santa Barbara Basin/Santa Barbara California/Pacific Coast/Western U.S./United States/Southern California/C 14/isotopes/radioactive isotopes/carbon/Quaternary/GEOREF.

2959. Lewis SW, Gallie MR, English DJ, Frost EG. Folding and normal faulting related to inferred strike-slip faulting on Santa Catalina Island; its implications for the inception of the San Andreas Fault system. The Geological Society of America, Cordilleran Section, 77th annual meeting, international meeting. Abstracts with Programs - Geological Society of America 1981;13(2):66 Address: Univ. South. Calif., Dep. Geol. Sci., Los Angeles, CA, USA; San Diego State Univ., Dep. Geol. Sci., San Diego, CA, USA Conference: The Geological Society of America, Cordilleran Section, 77th annual meeting; international meeting. Hermosillo, Sonora, Mexico March 25-27, 1981.
displacements/style/strike-slip faults/synclines/San Andreas Fault/continental borderland/fault scarps/gouge/normal faults/striations/bedding plane irregularities/sedimentary structures/deformation/erosion surfaces/fault zones/growth faults/patterns/Mesozoic/Phanerozoic/Santa Catalina Island/structural geology.

2960. Okutani T. A new species of enoploteuthid squid, *Abraliopsis watasenia felis*, from the California Current. Veliger 1968;11(1):72-79. squids/abraliopsis/california current/new species/taxonomy/zooplankton/Pieper/MINERALS MANAGEMENT SERVICE.

2961. Finney BP, Huh CA. History of metal pollution in the Southern California Bight; an update. Environmental Science and Technology, ES and T. 1989;23(3):p.249-303
Oreg. State Univ., Coll. Oceanogr., Corvallis, OR, United-States
Analytic; Serial B; Bibliography and Index of Geology (1969-present).
California/oceanography/continental shelf/environmental geology/pollution/metals/geochemistry/sediments/diagenesis/sedimentation/environment/marine environment/Los Angeles County California/human activity/Santa Monica Basin/Southern California/Pacific Coast/Western U.S./United States/heavy metals/organic carbon/organic materials/early diagenesis/sewage/GEOREF.

2962. Libby LM, Pandolfi LJ. T317-333I Tree thermometers and commodities: historic climate indicators. Environ. Int. 1979;2(4-6):317-333 Address: Environ. Sci. and Eng., Univ. California, Los Angeles, CA 90024. In 4 modern trees, hydrogen and oxygen isotope ratios track the modern temperature records. In a 2000-yr sequence of a Japanese cedar, there are the same periodicities of variation of D/H and O18/O16 as have been found in O18/O16 in a Greenland ice well. The same periodicities are found in uranium and organic carbon concentrations versus depth in a sea core from the Santa Barbara Channel, and in C-14 variations in a sequence of Bristlecone pine from southern California. In a 2000-yr sequence of Japanese cedar and in a 1000-yr sequence of European oak D/H and O18/O16 are related to each other by a slope of 8, just as they are in world-wide precipitation. In a 72-yr sequence of Sequoia gigantea, measured year by year for its O2 isotope ratios, the 10.5-yr cycle of sunspot numbers found, but not the 21-yr cycle of sunspot magnetism; this it is believed indicates that the sun is affecting the earth's climate with non-magnetic particles, probably photons. All these phenomena are related to periodic changes in sea surface temperature caused by periodic changes in the sun. palaeoclimatology/trees/indicator organisms/hydrogen/oxygen isotopes/Bristlecone pine/Japanese cedar/European oak/Sequoia gigantea/Santa Barbara Channel/Southern California/Greenland/Japan paleontology/paleoclimatology.

2963. Luyendyk BP, Kamerling MJ, Hornafius JS, Haston R, Ross T, Carter JN. Paleomagnetic studies in Neogene rocks from the Peninsular Ranges Terrane, Southern California. Anonymous. Geological Society of America 1988 centennial celebration. Abstracts-with-Programs-Geological-Society-of-America. 1988;20(7):p.63
Univ. Calif., Dep. Geol. Sci., Santa Barbara, CA, United-States Geological Society of America 1988 centennial celebration, Denver, CO, Oct. 31-Nov. 3, 1988 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).
California/tectonophysics/paleomagnetism/Pacific Coast/Western U.S./United States/Neogene/Tertiary/Peninsular Ranges/Southern California/Santa Barbara Channel/Oak Ridge Fault/Baja California/Santa Monica Mountains/Los Angeles Basin/San Joaquin Hills/Channel Islands/Santa Catalina Island/Santa Ynez Range/GEOREF.

2964. Lichtman GS, Shiller GI, Pierson LJ. Geophysical evaluation of submerged post-Wisconsin potential archaeological sites, Santa Barbara Channel, California. Abstracts of papers presented at the 54th annual international SEG meeting. Geophysics 1985;50(2):289

Address: Nekton, USA; Underwater Archaeol. Consult., USA
Conference: Society of Exploration Geophysicists, 54th annual
international meeting. Atlanta, GA, United States, Dec. 2-6, 1984.
stratigraphy/geophysical surveys/archaeology/surveys/marine
methods/marine environment/archaeological sites/estuarine
environment/lagoonal environment/continental
shelf/Holocene/transgression/underwater
archaeology/applications/Wisconsin/Santa Barbara
Channel/anthropology/geology/geophysics/stratigraphy/archaeology.

2965. Bucholtz TBMR, Santschi PH. Radioisotope diffusion in
marine surface sediments. Anonymous. AGU 1987 fall meeting;
abstracts.

Eos,-Transactions,-American-Geophysical-Union. 1987;68(44):p.1336
Lamont-Doherty Geol. Inst., Palisades, NY, United-States; EAWAG,
Switzerland American Geophysical Union; 1987 fall meeting, San
Francisco, CA, Dec. 6-11, 1987 Analytic; Serial; Conference
publication; Abstract B; Bibliography and Index of Geology (1969-
present).
California/oceanography/sediments/Pacific Coast/Western U.S./United
States/marine sediments/radioactive
isotopes/isotopes/geochemistry/diffusion/San Clemente Basin/GEOREF.

2966. Liebherr JK, Hajek AE. Geographic variation in flight
wing development and body size of the tulle beetle *Tanystoma*
maculicolle (Coleoptera: Carabidae). Pan-Pac. Entomol.
1986;62(1):13-22

Address: DEPARTMENT OF ENTOMOLOGY, CORNELL UNIVERSITY, ITHACA, NEW
YORK 14853. The tulle beetle, *Tanystoma maculicolle* (Coleoptera:
Carabidae), a common ground beetle in California [USA], shows
considerable geographic variability in flight wing development and
body size. Flight wings may be fully developed or reduced to flap-
like stubs. Ecologically marginal populations on the mainland
exhibit high percentages of fully winged individuals, whereas
populations from more mesic habitats and from the California
Channel Islands are predominantly brachypterous. Populations with
high percentages of macropterous individuals are restricted to
ecologically marginal habitats, suggesting frequent extinction and
recolonization in these areas. On the mainland, body size increases
clinally from south to north. Stepping-stone gene flow between
mainland populations would facilitate this clinal variation. Body
size of Channel Island populations varies erratically from south to
north but is positively correlated with the floristic diversity of
the islands.
flight/wing development/body size/floristic diversity/population
genetics/stepping-stone/gene flow/cline/wings/morphology/geographic
variations/habitat stability/Coleoptera/Carabidae/tulle
beetle/*Tanystoma maculicolle*/California mainland/California Channel
Islands/terrestrial biology/entomology.

2967. Orcutt HG. Bottomfish resources of the California
Current system. California Current System- Their Fluctuating
Magnitude, Distribution, and Susceptibility to Use for the Benefit
of the State of California. Symposium held at Lake Arrowhead, CA,
Dec. 11-12, 1967. Calif. Coop. Oceanic Fish. Invest. Rep.
1969;13:53-59.
mollusks/trawl fisheries/fishes/shellfish/california
current/bottomfish/zooplankton/Pieper/MINERALS MANAGEMENT SERVICE.

2968. Liu KK, Kaplan IR. (15)N enriched nitrate in the sea
off Southern California and its possible sources. Anonymous. AGU
1987 fall meeting; abstracts. Eos,-Transactions,-American-
Geophysical-Union. 1987;68(44):p.1319-1320 Lamont-Doherty Geol.

Obs., Palisades, NY, United-States; Univ. Calif. at Los Angeles, United-States American Geophysical Union; 1987 fall meeting, San Francisco, CA, Dec. 6-11, 1987 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).

Pacific Ocean/geochemistry/nitrogen/N 15/N 14/isotopes/stable isotopes/Southern California/California/Pacific Coast/Western U.S./United States/genesis/Santa Barbara Basin/denitrification/transport/California Undercurrent/GEOREF.

2969. Lienert BR, Whitcomb JH, Phillips RJ, Reddy IK, Taylor RA. Long term variations in magnetotelluric apparent resistivities observed near the San Andreas Fault in Southern California. J. Geomagn. Geoelec. 1980;32(12):757-775 Address: Calif. Inst. Technol., Seismol. Lab., Pasadena, CA, USA; Jet Propul. Lab., USA. seismology/geophysical surveys/earthquakes/magnetotelluric surveys/seismic sources/San Andreas Fault/epicenters/Los Angeles County/Kern County/Los Angeles/West Antelope Valley/Lytle Creek/Santa Barbara Channel/geology/applied geophysics/seismology.

2970. Lal D, Chung Y, Platt T, Lee TS. Phosphorus recycling in the upper ocean using (32)P and (33)P as tracers. Anonymous. AGU 1987 fall meeting; abstracts. Eos,-Transactions,-American-Geophysical-Union. 1987;68(44):p.1319 Scripps Inst. Oceanogr., La Jolla, CA, United-States; Natl. Sun Yat-Sen Univ., Taiwan; Bedford Inst. Oceanogr., Canada American Geophysical Union; 1987 fall meeting, San Francisco, CA, Dec. 6-11, 1987 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). phosphorus/geochemistry/sea water/in situ/P 32/isotopes/radioactive isotopes/P 33/tracers/Santa Barbara Basin/Santa Catalina Island/Bedford Basin/Celtic Sea/spallation/GEOREF.

2971. Limburg PL, Walsh E, Rovener D. Desalination-power cycles with the biphaser rotary separator turbine, phase 3. Final Report, February 1982. : PB83-146753; 1982. 121. Address: Biphaser Energy Systems, Santa Monica, CA. Tests of a fluidized-bed seawater heat exchanger showed that 330 degrees F was the maximum temperature to which seawater could be heated without scale formation in the bed during once through flow of seawater. Twelve material and coating combinations were exposed to a two-phase salt-water jet to simulate the environment of rotary-separator-turbine rotor materials. The materials, except for bare aluminum and some brittle coatings, passed four-hour screening tests. A hydraulic version of the Biphaser reaction turbine can recover reverse-osmosis reject-brine pressure energy with efficiency of over 70%. A two-phase version can recover pressure energy and provide additional power for pumping from a waste heat source. Integration of a high-pressure reverse-osmosis pump into the turbine is not as efficient as using a separate pump and turbine coupled together. A system configuration was developed for a desalination-power system which uses the waste heat from diesel engines in the power plant at San Nicolas Island, CA. Fluidized-bed/Heat-exchanger/Turbines/Desalination/California/Waste-heat-recovery/Scale/Corrosion/Erosion/Rotary-separator turbine/Energy-recovery/San Nicolas Island Conservation/engineering/resource management.

2972. Buchholtz MR, Santschi PH, Broecker WS. Comparison of radiotracer K(D) values from batch equilibration experiments with in situ determinations in the deep sea using the MANOP Lander; the

importance of geochemical mechanisms in controlling ion uptake and migration. Sibley TH, Myttenaere C. Application of distribution coefficients to radiological assessment models. Univ. Cathol. Louvain, Lab. Physiol. Veg., Louvain-la-Neuve, Belgium. ; 1986. p. 192-206. Lamont-Doherty Geol. Obs., Palisades, NY, United-States; Univ. Cathol. Louvain, Lab. Physiol. Veg., Louvain-la-Neuve, Belgium; Comm. Eur. Communities, Belgium Elsevier Appl. Sci. Publ., London Application of distribution coefficients to radiological assessment models, Louvain-la-Neuve, Oct. 7-11, 1985 Analytic; Book; Conference publication B; Bibliography and Index of Geology (1969-present). sediments/marine sediments/geochemistry/sea water/radioactive isotopes/waste disposal/radioactive waste/isotopes/pollution/Pacific Ocean/MANOP/San Clemente Basin/tracers/Fe 59/metals/iron/Mn 54/manganese/Zn 65/zinc/Cs 134/alkali metals/cesium/Hg 203/Sn 113/Sb 125/Co 60/cobalt/Ba 133/Ce 141/mercury/tin/antimony/barium/alkaline earth metals/cerium/rare earths/adsorption/kinetics/distribution coefficients/batch technique/equilibrium/Eh/laboratory studies/oxidation/GEOREF.

2973. Lindberg DR. On the taxonomic affinities of *Collisella edmittchelli* (Lipps) (Gastropoda: Acmaeidae) a late Pleistocene limpet from San Nicolas Island, California. Southern California Academy of Sciences, Los Angeles. Bulletin 1978;77(2):65-70 Address: Univ. of California, Center for Coastal Marine Studies, Santa Cruz, CA 95064.

The taxonomic affinities between the extinct acmaeid *C. edmittchelli* and Recent California species has been previously studied using highly variable exterior shell characters. Shell structure, a character believed to be more conservative than either shell or radular morphology was used to determine the taxonomic and phylogenetic relationships of this species. The shell structure of *C. edmittchelli* is identical to that of *C. scabra* (Gould, 1846). This shell structure group is not known to occur in any other acmaeid species. Although closely related to *C. scabra*, *C. edmittchelli* is morphologically distinct and is retained as a valid, extinct species known only from Late Pleistocene deposits on San Nicolas Island, California.

Tertiary/Morphology/Comparative morphology/Extinct species/Shells/shell structure/late Pleistocene/Quaternary/Cenozoic/taxonomy/phylogenetic relationships/phylogeny/fossil animals Mollusca/Gastropoda/Acmaeidae/*Collisella edmittchelli*/*Collisella scabra*/Limpets/San Nicolas Island/marine biology/invertebrate paleontology/paleozoology.

2974. Owen RW,J. Distribution of primary production, plant pigment and secchi depth in the California current region, 1969. Calif. Coop. Oceanic Fish. Invest. Atlas 20 1974;IX:98-117. plankton/phytoplankton/ TEXT/MINERALS MANAGEMENT SERVICE.

2975. Owen RW,J. Research to define ocean circulation and transport of substances in the Southern California Bight. NOAA-NMFS-SWFC Admin. Rep. No. LJ-74-12 1974; MINERALS MANAGEMENT SERVICE.

2976. Owen RW,J, Sanchez CK. Phytoplankton pigment and production measurements in the California current region, 1969-72. Data report. 1975;:188. phytoplankton/fishes/north pacific ocean/sampling/primary biological productivity/algae/ocean environments/measuring instruments/tables data/aquatic microbiology/California/Eganhouse/chemical oceanography/MINERALS MANAGEMENT SERVICE.

2977. James MJ. Geological setting and Cenozoic molluscan paleontology of the Galapagos Islands. James, Matthew J. Papers from a symposium; Biogeography and evolution of the molluscan fauna of the Galapagos Islands. Sonoma State Univ., Dep. Geol., Rohnert Park, CA, United-States.

Annual-Report-Western-Society-of-Malacologists. 1989;21:p.5 Sonoma State Univ., Dep. Geol., Rohnert Park, CA, United-States; Sonoma State Univ., Dep. Geol., Rohnert Park, CA, United-States Annual meeting of the Western Society of Malacologists, Rohnert Park, CA, July 17-21, 1988 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). Galapagos Islands/stratigraphy/Cenozoic/East Pacific Ocean Islands/age/Carnegie Ridge/South American Pacific/Nazca Plate/radiation/lithofacies/Santa Cruz Island/South Plaza Island/Baltra Island/San Cristobal Island/shallow water environment/environment/mollusks/clasts/island arcs/Mollusca/GEOREF.

2978. Lindberg DR. A recent specimen of *Collisella edmittchelli* from San Pedro, California, USA (Mollusca: Acmaeidae). Bull. South. Calif. Acad. Sci. 1984;83(3):148-151
Address: MUS. PALEONTOL., UNIV. CALIF., BERKELEY, CALIF. 94720.
The 1st known Recent specimen of *C. edmittchelli* (Lipps, 1966) is reported. The Recent specimen suggests that some of the fossil specimens' characters are preservational. Fossil specimens also may be present on San Miguel Island. This species may have lived lower in the intertidal region than previously thought. fossils Mollusca/Acmaeidae/*Collisella edmittchelli*/San Miguel Island/marine paleontology.

2979. Owen RW,J. Eddies of the California Current system: Physical and ecological characteristics. The California Islands: Proceedings of a Multidisciplinary Symposium 1980;;237-263.
text/birds/santa barbara museum of natural history/physical oceanography/ecosystem/marine mammals/11/10/MINERALS MANAGEMENT SERVICE.

2980. Bebout GE, Barton MD. Veining histories in the Catalina Schist, California; inferences regarding fluid flow and mass transfer in subduction zones. Anonymous. Geological Society of America 1988 centennial celebration; program and abstracts. Abstracts-with-Programs-Geological-Society-of-America. 1988;20(7):p.44 Univ. Calif., Dep. Earth & Space Sci., Los Angeles, CA, United-States Geological Society of America 1988 centennial celebration, Denver, CO, Oct. 31-Nov. 3, 1988 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). California/petrology/metamorphism/Catalina Schist/Pacific Coast/Western U.S./United States/veins/quartz veins/Santa Catalina Island/P T conditions/fluid phase/stable isotopes/isotopes/oxygen/O 18/O 16/hydrogen/deuterium/D/H/GEOREF.

2981. Lindberg DR, Warheit KI, Estes JA. Prey preference and seasonal predation by oystercatchers on limpets at San Nicolas Island, California, USA. Mar. Ecol. Prog. Ser. 1987;39(2):105-113
Address: Mus. Paleontol., Univ. California, Berkeley, CA 94720, USA. The authors present data from 2 studies on San Nicolas Island, California, USA. First, they document changes in distribution and abundance of the Island's American black oystercatcher *Haematopus bachmani* population. As the oystercatcher population increased exponentially, the birds used more of the Island's rocky intertidal communities for

feeding and roosting during winter and spring. Second, they document differential predation on members of a herbivorous limpet guild (primarily *Collisella* spp.) by a wintering flock that expanded into a previously unexploited portion of the island. The combined phenomena of variation in oystercatcher distribution in space and time and differential predation on members of the patellacean limpet guild may have important implications for the ecology of rocky intertidal communities. predator-prey interactions/food preferences/spatial distribution/abundance/food organisms/community structure/predation/seasonal variations/American black oystercatcher/*Haematopus bachmani*/*Collisella* spp./San Nicolas Island/terrestrial biology/terrestrial ecology/marine biology/ornithology.

2982. Brandsma D, Lund SP, Henyey TL. Paleomagnetism of late Quaternary marine sediments from Santa Catalina Basin, California continental borderland. *Journal of Geophysical Research, B, Solid Earth and Planets*. 1989;94(1):p.547-564 Univ. South. Calif., Dep. Geol. Sci., Los Angeles, CA, United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present). California/oceanography/continental margin/stratigraphy/Quaternary/sedimentation/sedimentation rates/marine sedimentation/paleomagnetism/Pacific Ocean/geochronology/secular variations/Pacific Coast/Western U.S./United States/Southern California/Santa Catalina Basin/upper Quaternary/marine sediments/accuracy/high resolution methods/North American Pacific/marginal basins/continental borderland/GEOREF.

2983. Linhart YB. Maintenance of variation in cone morphology in California closed-cone pines: the roles of fire, squirrels and seed output. *Southwest. Nat.* 1978;23(1):29-40 Address: Dep. Environ., Popul. and Organismic Biol., Univ. Colorado, Boulder, CO 80309. In the Californian representatives of the Subsection *Oocarpae* (*Pinus attenuata*, *P.muricata* and *P.radiata*), there is variability in several cone characters. The cones range from being thin-scaled and attached to branches at relatively right angles, to having very thick scales and prominent apophyses on one side and attached to branches at acute angles. Thick-scaled cones provide more protection for the seeds from the high temperatures of fires than do thin-scaled cones and may deter attacks from the squirrels *Tamiasciurus* and *Sciurus*. These cones carry fewer seeds per given weight of cone which is energetically less efficient for the squirrels to harvest. Squirrels are known to selectively feed on cones carrying more seeds per cone. Thin-scaled cones yield more seeds per given cone weight. This is energetically advantageous to reproductive success but may make them favorite targets for squirrel feeding. Consequently, individuals with thin-scaled cones can only be favored in areas where fires are not too hot and where squirrels are rare or absent. Such conditions seem to be met for pine populations on Santa Cruz, Santa Rosa, Guadalupe and Cedros Islands, and San Vicente and. Ensenada, Baja California. It is precisely in these populations where cones with thin scales are most frequent. In areas where fires may be expected to be hotter and squirrels more common, individuals with thick-scaled asymmetric cones predominant. cones/predation/fires/species diversity/forests/temperature/cone characteristics/fire Rodentia/rodents/Sciuridae/squirrels/*Tamiasciurus*/*Sciurus*/*Coniferopsida*/*Oocarpa e*/*Pinus attenuata*/*Pinus muricata*/*Pinus radiata*/Santa Cruz Island/Santa Rosa Island/Guadalupe Island/Cedros Islands/San Vicente/Ensenada/Baja California/terrestrial biology/botany.

2984. Palmer HD. The use of manned submersibles in the study of ocean waste disposal. Submersibles and Their Use in Oceanography and Ocean Engineering 1977;:317-334.

marine geology/waste disposal/manned submersible/New York Bight/Southern California Bight/Santa Monica Bay/Eganhouse/chemical oceanography Anderson/anthropogenic/Santa Monica Bay/Southern California Bight/New York Bight/radioactive waste/sewage/solid waste/industrial waste/manned submersibles/dredge spoils/submersible technology/waste disposal/Atlantic/Pacific/MINERALS MANAGEMENT SERVICE.

2985. Pao GA. Sedimentary history of California continental borderland basins as indicated by organic carbon content. Master's Thesis, Univ. of South. Calif., Los Angeles 1977; eganhouse/geochemistry/chemical oceanography/sedimentation/organic materials/carbon/continental borderland/MINERALS MANAGEMENT SERVICE.

2986. Lund SP. Stratigraphy and chronology on Holocene marine sediment cores from the California continental borderland and their paleoceanographic/paleoclimatic significance. 5th workshop on Climate variability of the eastern North Pacific and western North America; proceedings. U. S. National Science Foundation, Washington, DC, United-States. Annual-PACLIM-Workshop. Sponsored by Monterey Bay Aquarium Res. Inst. and U. S. Geol. Surv. 1988;5:p.38 Univ. South. Calif., Los Angeles, CA, United-States; U. S. National Science Foundation, Washington, DC, United-States 5th workshop on Climate variability of the eastern North Pacific and western North America, Pacific Grove, CA, March 20-24, 1988 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). California/stratigraphy/Holocene/changes of level/Quaternary/marine sediments/Pacific Coast/Western U.S./United States/paleo oceanography/paleoclimatology/secular variations/paleomagnetism/Santa Catalina Basin/sedimentation rates/correlation/continental borderland/GEOREF.

2987. Lissner AL. Factors affecting the distribution and abundance of the sea urchin *Centrostephanus coronatus* Verrill at Santa Catalina Island [dissertation]. Los Angeles, CA: University of Southern California; 1978. 168. distribution/abundance/*Centrostephanus coronatus*/sea urchin/Santa Catalina Island/marine biology.

2988. Paries-Sierra A, O'Brien JJ. The seasonal and interannual variability of the California Current System: A numerical model. J. Geophy. Res. 1989;94(3):3150-3180. text/physical oceanography/MINERALS MANAGEMENT SERVICE.

2989. Teng LS, Gorsline DS. Neogene sedimentation of continental borderland basins, offshore Southern California. Anonymous. AAPG annual convention with divisions SEPM/EMD/DPA; technical program and abstracts. AAPG-Bulletin. 1987;71(5):p.621 Natl. Taiwan Univ., Taipei, Taiwan; Univ. South. Calif., United-States AAPG annual convention with divisions SEPM/EMD/DPA, Los Angeles, CA, June 7-10, 1987 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). California/sedimentary petrology/sedimentation/Pacific Coast/Western U.S./United States/continental shelf/seismic surveys/geophysical surveys/sedimentary basins/Neogene/Tertiary/Patton Basin/Tanner Basin/Santa Cruz

Basin/San Nicolas Basin/Catalina Basin/Santa Barbara Basin/Santa Monica Basin/San Pedro Basin/San Diego Trough/sedimentation rates/evolution/GEOREF.

2990. Lissner AL. Taxonomic key and ecology of Asteroidea collected during the BLM benthic survey of the Southern California Bight (1975-1978). : Tax. Proc. So. Cal. Coast. Water Res. Proj. June 1979; 1979. 10.
key/survey/Asteroidea/sea stars/starfish/Southern California Bight/marine biology.

2991. Hauksson E, Jones LM. The July 1986 Oceanside (ML = 5.3) earthquake sequence in the continental borderland, Southern California. Bulletin of the Seismological Society of America. 1988;78(6):p.1885-1906
Univ. South. Calif., Los Angeles, CA, United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present).
California/seismology/earthquakes/focal mechanism/data processing/Oceanside earthquake 1986/Pacific Coast/Western U.S./United States/aftershocks/reverse faults/faults/stress/HYPOINVERSE/VELEST/GEOREF.

2992. Lissner AL. Some effects of turbulence on the activity of the sea urchin *Centrostephanus coronatus* Verrill. J. Exp. Mar. Biol. Ecol. 1980;48:185-193 turbulence/Centrostephanus coronatus/sea urchin/Santa Catalina Island/marine biology.

2993. Patton ML, Harman R. Factors controlling the distribution and abundance of the subtidal macrofauna of the Southern California Bight. Part IV: Artificial substrates. Southern California Edison's Research and Development Series 83-RD-5D 1983D;
fish/invertebrates/MINERALS MANAGEMENT SERVICE.

2994. Beatty SW. Mass movement effects on grassland vegetation and soils on Santa Cruz Island, California. Annals of the Association of American Geographers. 1988;78(3):p.491-504
Univ. Calif., Dep. Geogr., Los Angeles, CA, United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present).
California/engineering geology/slope stability/geomorphology/mass movements/landform evolution/Santa Barbara County California/Pacific Coast/Western U.S./United States/Santa Cruz Island/landslides/vegetation/ecology/grasslands/GEOREF.

2995. Lissner AL. Taxonomic key and ecology of Echinoidea collected during the BLM Benthic survey of the Southern California Bight (1975-1978). : Tax. Proc. So. Cal. Coast. Water Res. Proj.; 1980. 5.
key/survey/ecology/Echinoidea/echinoids/sea urchins/Southern California Bight/marine biology.

2996. Pavlova IV. Seasonal variations of the California Current. Okeanologiia 1966;6(6):1003-1013.
67-01934/california
current/transport/verticaldistribution/countercurrents/california coast/seasonal variations/current velocities wind fields/atmospheric circulation/density/dynamic topography/Hickey/physical oceanography/MINERALS MANAGEMENT SERVICE.

2997. Pavlova YV. Seasonal variations of the California Current (English translation). Oceanology 1966;6:806-814.

text/ecosystem interrelationships/MINERALS MANAGEMENT SERVICE.

2998. Lissner AL. Biological and geological reconnaissance survey of two offshore southern California banks. *Estuaries* 1981;4(3):304 Address: Interstate Electronics Corp., Anaheim, CA, USA Conference: 6. Biennial International Estuarine Research Conference Gleneden Beach, OR (USA) 1-5 Nov 1981. A manned submersible survey was conducted along 52 nmi of transects at Tanner and Cortes Banks to study and map the distribution of biological communities occurring in rocky outcrop areas. Bathymetric and side scan sonar surveys provided additional information which permitted interpolation of biological data between submersible transects based on relationships between organisms, substrate and depth. Communities represented were similar to those of the Channel Islands however, the abundances and/or depth ranges of many species were greater than reported for other areas of the Southern California Bight. geological surveys/biological surveys/aquatic communities/marine organisms/community composition/ecological distribution/Tanner Bank/Cortes Bank/California Channel Islands/marine biology.

2999. Martin P, Berenbrock C. Ground water monitoring at Santa Barbara, California; Phase 3, Development of a three dimensional digital ground water flow model for Storage Unit I of the Santa Barbara ground water basin. *Water Resources Investigations*. 1986;58:p.10 U. S. Geol. Surv., Sacramento, CA, United-States U. S. Geological Survey, Reston, VA Monographic; Serial; Report B; Bibliography and Index of Geology (1969-present) U. S. Geol. Surv., Denver, CO, United States. Santa Barbara County/California/hydrogeology/ground water/surveys/data processing/Pacific Coast/Western U.S./United States/digital simulation/mathematical models/models/monitoring/movement/Santa Barbara/Santa Barbara ground water basin/Southern California/steady flow/three dimensional models/urban planning/USGS/water management/water resources/GEOREF.

3000. Lissner AL. Intraspecific competition by *Centrostephanus coronatus* (Echinoidea: Diadematidae) as a mechanism of partitioning habitat space. T.M. Lawrence. *Echinoderms: Proceedings of the international Conference*. Rotterdam: A.A. Balkema Publishers; 1982. ? interspecific competition/resource partitioning/space/Echinoidea/Diadematidae/*Centrostephanus coronatus*/Santa Catalina Island/marine biology.

3001. Pelaez J, F. Guan. California Current chlorophyll measurements from satellite data. *Calif. Coop. Oceanic Fish. Invest. Rep.* 1982;23:212-225. Hardy/phytoplankton/satellite photography/TEXT/MINERALS MANAGEMENT SERVICE.

3002. Pelaez-Hudlet J. Phytoplankton pigment concentrations and patterns in the California Current as determined by satellite. Dissertation, Univ. of Calif., San Diego 1984;:98. Hardy/Phytoplankton/Text/MINERALS MANAGEMENT SERVICE.

3003. Lissner AL. Relationship of water motion to the shallow water distribution and morphology of 2 spp. of sea urchins. *J. Mar. Res.* 1983;41(4):691-710 Address: OCEAN SCI. DEP., INTERSTATE ELECTRONICS CORPORATION, 10231 MAIKAI DRIVE, HUNTINGTON BEACH, CALIF., 92646. A 13-mo. field and laboratory study was conducted at Santa Catalina Island, California, USA to determine some of the effects of water

motion on the shallow water distribution of the sea urchin *Centrostephanus coronatus* Verrill. The depth distribution of another sea urchin species, *Strongylocentrotus franciscanus* (A. Agassiz), includes shallow areas of strong water motion (< 2 m depth) from which *C. coronatus* is absent. Differences in attachment strength and morphology of the 2 spp. were investigated as possible mechanisms affecting the differences in depth distribution. Density of *C. coronatus* along subtidal transects generally increased with increased depth, ranging from 0 individuals at depths less than 2 m to 1.7/m² at 16 m depth; the majority of the population occurred deeper than 4.2 m. The shallowest depths of occurrence of *C. coronatus* are characterized by high levels or sharp increases in water motion. Laboratory wave channel experiments indicate that *C. coronatus* are dislodged at lower wave amplitudes when exposed to sharp increases in amplitude, than when exposed to more gradual increases. Areas of strong water motion such as noted along the field transects probably directly or indirectly limit the distribution of *C. coronatus*. The effects of water motion on *C. coronatus* seem to be relatively direct. *C. coronatus* are dislodged at lower wave amplitudes than are *S. franciscanus*. The ability of *C. coronatus* to withstand dislodgement during exposure to strong water motion was estimated indirectly by comparing the number of podia used in attachment by *C. coronatus* and *S. franciscanus*. Although other factors such as differential predation may contribute to the observed field distributions, *C. coronatus* is probably not well adapted to conditions of strong water motion, and limitations in attachment strength, relative to *S. franciscanus*, probably limit the shallow water distribution of this species. attachment strength/podia/water motion/ecological distribution/sea urchin/*Centrostephanus coronatus*/*Strongylocentrotus franciscanus*/Santa Catalina Island/marine biology.

3004. Pereira e Silva MVF. Thermal calibration of satellite infrared images and correlation with sea-surface nutrient distribution. Master's Thesis, Naval Postgraduate Sch., Monterey, CA 1982;:65.

satellite/mosaics/upwelling/thermal radiation/surface temperature/nutrients/INE/California Current/Hickey/physical oceanography/hardy/phytoplankton/MINERALS MANAGEMENT SERVICE.

3005. Hamlin SN. Ground water quality in the Santa Rita, Buellton, and Los Olivos hydrologic subareas of the Santa Ynez River basin, Santa Barbara County, California. Water Resources Investigations. 1985;75:p.24

U. S. Geol. Surv., Sacramento, CA, United-States U. S. Geological Survey, Reston, VA Monographic; Serial; Report B; Bibliography and Index of Geology (1969-present) U. S. Geol. Surv., Denver, CO, United States. Santa Barbara County/California/hydrogeology/ground water/surveys/hydrology/Santa Ynez River basin/Pacific Coast/Western U.S./United States/Southern California/USGS/GEOREF.

3006. Lissner AL. Deep water biological assemblages of a hard-bottom bank-ridge complex of the Southern California, USA Continental Borderland. Bull. South. Calif. Acad. Sci. 1986;85(2):87-101

Address: APPLIED ENVIRON. SCI., SCI. APPLICATIONS INT. CORP., 476 PROSPECT ST., LA JOLLA, CALIF. 92037.

A manned submersible survey of Tanner and Cortes Banks and Santa Rosa-Cortes Ridge, offshore of southern California, U.S.A., was conducted to characterize the hard-bottom, biological assemblages from 14 m to approximately 150 m depth. Four major assemblages were observed; their dominant taxa were: 1) *Eisenia arborea*/erect coralline algae from at least 14 to 40 m; 2) *Agarum*

fimbriatum/Laminaria farlowii from 40 to 60 m; 3) encrusting coralline algae from 60 to 90 m; and 4) Florometra serratissima/ophiuroid from 90 to at least 150 m depth. Subdominate organisms in the shallow assemblage consisted of understory algae (reds and browns) and brittle stars; coralline algae, brown algae, gorgonians and seastars at mid-depth; and seastars, gorgonians and sponges at greater depths. The species and assemblages observed on the banks and ridge are very similar with those occurring in other hard-bottom areas adjacent to the southern California mainland and Channel Islands. However, the depth ranges for these assemblages and several of their species are much greater than observed elsewhere. An exception of this observation is the Florometra/ophiuroid assemblage, which is quite common in some deeper-water (100 m to at least 300 m) areas of the Southern California Bight and the Santa Maria Basin. The increased depth ranges and high abundance of the bank assemblages appear to be influenced by water clarity, probably related to their isolation from coastal influences including runoff, the potential for a deep mixed layer caused by strong wave and surge activity, and the greater survey are compared with other studies. hard bottom communities/Eisenia arborea/Agarum fimbriatum/Laminaria farlowii/Florometra serratissima/Tanner Bank/Cortes Bank/Santa Rosa-Cortes Ridge/marine biology.

3007. Perkins HC. Survey of pelagic fishes of the California current area. U.S. Fish Wildl. Serv. Fish. Bull. 1966;65(3):625-682.
TAXONOMY/ECOLOGY/ZOO/GEOGRAPHY/FAUNAL/ISTONTOGENY/POPULATION DENSITY/ SIZE DISTRIBUTION/LIFE HISTORY/SPECIFICATIONS/NETS/SURVEYS/FISHES/CALIFORNIA CURRENT/PELAGIC/SAMPLERS/TRAWLS/MAMMAL/MINERALS MANAGEMENT SERVICE.

3008. Littler MM. The effects of recurrent sedimentation on rocky intertidal macrophytes. J. Phycol. 1980;16(SUPPL.):26
Address: DEP. ECOL. EVOL. BIOL., UNIV. CALIF., IRVINE, CALIF. 92717
CONFERENCE PAPER: ANNUAL MEETING OF THE PHYCOLOGICAL SOCIETY OF AMERICA, VANCOUVER, B.C., CANADA, JULY 12-16, 1980.
J.
sedimentation/Chaetomorpha linum/Enteromorpha intestinalis/Cladophora columbiana/Blue green bacteria/San Nicolas Island/marine biology.

3009. Greene HG, Clarke SHJ, Field ME, Linker FI, Wagner HC. Preliminary report on the environmental geology of selected areas of the Southern California continental borderland. Open File Report U. S. Geological Survey. 62 p 1975 U. S. Geological Survey, Reston, VA Monographic; Serial; Report B; Bibliography and Index of Geology (1969-present) U. S. Geol. Surv., Open-File Serv. Sect., West. Distrib. Branch, Fed. Cent., Denver, CO, United States. California/environmental geology/geologic hazards/oceanography/continental margin/Pacific Coast/Western U.S./United States/USGS/GEOREF.

3010. Littler MM, Murray SN, Arnold KE. Seasonal variations in net photosynthetic performance and cover of intertidal macrophytes. Aquat. Bot. 1979;7(1):35-46
Address: Dep. Ecol. Evol. Biol., Univ. California at Irvine, Irvine, CA 92717. Standing stocks and net photosynthetic performances were determined concurrently for the 13 most abundant intertidal macrophytes from San Clemente Island, California over a 4-season period. A summer cover maximum and winter minimum occurred for Colpomenia sinuosa, Egregia menziesii, Gigartina canaliculata, Halidrys dioica, and

Sargassum agardhianum, whereas Eisenia arborea and Corallina officinalis var. chilensis had fall maxima and summer minima in cover. Ulva californica and Gelidium pusillum had maximal cover during spring. Pterocladia capillacea was the only species with peak cover in winter while three macrophytes, Lithothrix aspergillum, blue-green algae, and Phyllospadix torreyi displayed little seasonality in standing stocks. Highest net production rates were measured during summer for nine of the 13 species and minimum rates were recorded in spring and to a lesser extent during winter. Correlations between seasonal fluctuations in standing stock and productivity were evident for only eight species. Total daily community production reached a peak in the fall (1.22 g C fixed/m² of substratum/day) and declined sharply through winter to a spring low (0.47 g C/m²/day), closely paralleling changes in ambient water temperature. Blue-green algae, C. officinalis var. chilensis, P. capillacea, and E. menziesii contributed 76% of the total community primary productivity for the year. Seasonal patterns of photosynthetic performances were highly variable with a tendency for most species to attain peak daily photosynthetic rates coincident with higher temperatures and longer daylength. photosynthesis/aquatic plants/seasonal variations/seaweeds/algae/intertidal environment/standing stock/primary productivity/temperature/day length Colpomenia sinuosa/Egregia menziesii/Eisenia arborea/Gigartina canaliculata/Halidrys dioica/Sargassum agardhianum/Eisenia arborea/Corallina officinalis/Ulva californica/Gelidium pusillum/Lithothrix aspergillum/Pterocladia capillacea/Cyanophyta/Phaeophyta/Rhodophyta/Chlorophyta/blue-green algae/Phyllospadix torreyi/San Clemente Island/marine biology/botany/phyecology.

3011. Moore GW, Beyer LA. Seismic reflection profiles R/V Kelez, Nov. Dec. 1973, continental borderland of Southern California. Open File Report U. S. Geological Survey. 43 p. ; 1975.

U. S. Geological Survey, Reston, VA Monographic; Serial; Report B; Bibliography and Index of Geology (1969-present) U. S. Geol. Surv., Open-File Serv. Sect., West. Distrib. Branch, Fed. Cent., Denver, CO, United States. 0196-1497. California/geophysical surveys/seismic surveys/Pacific Ocean/Pacific Coast/Western U.S./United States/USGS/GEOREF.

3012. Littler MM, Littler DS. Heteromorphic life history strategies in the brown alga Sctrosiphon lomentaria. J.Phycol. 1983;19(4):425-431 Address: DEP. BOTANY, NATIONAL MUSEUM NATURAL HISTORY, SMITHSONIAN INSTITUTION, WASHINGTON, D.C. 20560. The adaptive significance of a life-history strategy, expressed as divergent morphologic forms, was examined for the heteromorphic alga S. lomentaria. Successional studies were performed by physically clearing mature, temporally constant intertidal communities on San Clemente Island, California [USA]. At wk 6, after clearing, complanate thalli dominated the successional plots (mean cover = 23.5%) and began to decline as the cylindrical form became abundant. The latter attained its peak cover (82.3%) at wk 13, at which time it too began a precipitous reduction. The crustose ralfsioid form appeared surprisingly early (4-13 wk) in trace amounts but did not achieve its greatest cover (85.0%) until wk 43. The ranking from high to low primary productivity (cylindrical form = 8.1 mg C .cntdot. g dry wt-1 .cntdot. h-1, complanate form = 6.5 mg, crustose form = 0.5 mg) corresponded closely with the data for photosynthetic vs. structural components (cylindrical = 92.3% pigmented, complanate = 65.3%, crustose =

32.0%). This finding indicates that selection in the crust form, which is more readily accessible to epilithic grazers, has tended to increase allocation of materials to nonpigmented structural tissue at the expense of photosynthetic tissue and reduced production rates. The results for thallus losses to urchin grazing over 48 h were complanate form = 82.7% lost, cylindrical = 81.4% and crustose = 16.2%, which correlates with the calorific contents of the 3 forms (i.e., complanate = 4.97 kcal .cntdot. ash-free g dry wt-1, cylindrical = 4.46 kcal and crustose = 3.55 kcal). The crustose form had tougher thalli (26 g .cntdot. mm-2 to penetrate thallus) than either the complanate form (12 g) or the cylindrical form (15 g). Apparently opposing selective factors resulted in the evolutionary divergences observed in algae with heteromorphic life histories. Previous work may have overemphasized the selective role of grazing because the crustose form is also adapted to withstand physical forces (sand-scouring, burial and wave-shearing) or as an overwintering stage under physiologically stressful conditions. adaptive significance/evolutionary divergence/primary productivity/sea urchin grazing/thallus form/physical force/resistance/over-wintering/life-history strategy/succession/Sctrosiphon lomentaria/San Clemente Island/marine biology/botany/phycology.

3013. Campbell RH, Wolf SC, Hunter RE, Wagner HC, Junger A, Vedder JG. Geologic map and sections, Santa Barbara Channel region, California. Open File Report U. S. Geological Survey 1975:1 sheet U. S. Geological Survey, Reston, VA Monographic; Serial; Report; Map B; Bibliography and Index of Geology (1969-present) U. S. Geol. Surv., Open-File Serv. Sect., West. Distrib. Branch, Fed. Cent., Denver, CO, United States. California/areal geology/maps/Pacific Coast/Western U.S./United States/USGS/GEOREF.

3014. Lohse DP. Epibionts of *Mytilus californianus* and the maintenance of diversity in the rocky intertidal [dissertation]. Santa Barbara, California: University of California; In preparation. Unknown pages. In the rocky intertidal community of the northwestern America is has been demonstrated that living space on the rock is continually in short supply, and that the mussel *Mytilus californianus* is the best competitor for this limited resource. Furthermore, for the past two decades it has been widely accepted that unless prevented by the predatory starfish *Pisaster ochraceus*, this mussel would become abundant enough to occupy all available rock surfaces, thereby eliminating all other space-occupying species from the community. Therefore, predation has been viewed as the mechanism which keeps the number of species in the community high. However, this argument is based on the supposition that the only spaces available for colonization in the rocky intertidal are rock surfaces. An examination of mussel beds at 15 sites along the Californian and Oregonian coastline revealed that this is not true; virtually all of the species that compete for space with *M. californianus* were also found living on the shells of this mussel. Therefore, these species can so-exist with *M. californianus* even where it occupies all available surfaces, and the prevailing view of the importance of predation in maintaining the species diversity of this community is incorrect.. To determine if individual performance is affected by living on mussel shells rather than rock, the population dynamics of the three commonest species found on both substrates, the barnacles *Balanus glandula* and *Chthamalus fissus*, and the limpet *Collisella scabra*, were monitored. Recruitment of barnacles was higher on the mussels than on the rock, and the recruitment on mussels was not affected by their filter feeding. Overall growth rates were slightly higher on the

rock, but survivorship was higher on the mussels. In addition, the reproductive status of the adults was the same on both substrates. Therefore, it appears that there are trade-offs involved with living on either substrate. More substrates produce gametes, the propagation of these species is insured even if *M. californianus* occupied all rock surfaces. There is also evidence suggesting that the population dynamics of *M. californianus* is affected by the organisms living on their shells. Barnacles have no real effect on the growth rate, biomass of gonads, or attachment strength of this mussel to the rock, but they do offer them protection from predation by *P. ochraceus*. Algae also have no real effect on the growth rate or biomass of gonads produced by *M. californianus*, but they do reduce both the attachment strength of the mussels and the likelihood of being preyed upon by *P. ochraceus*. Therefore, mussels appear to benefit from the presence of barnacles on their shells, while algae have both positive and negative effects on their mussel hosts.

predation/competition/keystone predators/space/rocky intertidal species diversity/recruitment/mortality/survivorship reproduction/*Pisaster ochraceus*/sea star/starfish/*Balanus glandula*/*Chthamalus fissus*/barnacle/*Collisella scabra*/limpet/*Mytilus californianus*/mussels/mussel locations ranging from Carpinteria, CA to Boiler Bay, OR, including sites along the Santa Barbara Channel/marine biology/ecology.

3015. Pickwell GV, Bezy RL, Fitch JE. Northern occurrences of the sea snake *Pelamis platurus* in the eastern Pacific with a record of predation on the species. *Calif Fish Game* 1983;69(3):172-177.
77049685/8404/davidson current/predation california/usa/baja-california/ mexico/Hickey/physical oceanography/MINERALS MANAGEMENT SERVICE.

3016. Stewart S, Spellicy R, Polcyn F. Analysis of multispectral data of the Santa Barbara oil slick. Open File Report U. S. Geological Survey. 70 p 1973 U. S. Geological Survey, Reston, VA Monographic; Serial; Report B; Bibliography and Index of Geology (1969-present) U. S. Geol. Surv., Open-File Serv. Sect., West. Distrib. Branch, Fed. Cent., Denver, CO, United States. California/geophysical surveys/remote sensing/environmental geology/pollution/Pacific Coast/Western U.S./United States/multispectral analysis/oil spills/Santa Barbara Channel/USGS/GEOREF.

3017. Lonsdale P. A deep-sea hydrothermal site on a strike-slip fault. *Nature* 1979;281(5732):531-534
Address: SIO, Marine Physical Lab., P.O. Box 1529, La Jolla, CA 92093. Submersible exploration 70 km SW of San Diego, California, in the South San Clemente Basin indicated an uneven line of cones, columns, and irregular piles of mineral deposits with an average height of 2-3 cm, and a longitudinal extension of ≥ 100 m. The mineral masses made of barite crystals are interpreted as effects of mineralized thermal springs discharging along the fault line. Photographs of the barite crystals depict dense tangles of tube worms on or near the deposits which were later identified as the vestimentiferan *Lamellibrachia barhami*. Unidentified bluish-gray organisms formed apparently gelatinous masses draped over some barite surfaces and worm tubes, and large stalkless crinoids were attached to several barite cone tops. The features of these springs are compared with those at other locations such as midocean ridges, Galapagos Islands, East Pacific Rise, and the Red Sea. A mechanism for barium crystal formation is given. Faulting/Barium compounds/Mineral deposits/Thermal discharges/deep-sea hydrothermal

site/barite crystals/mineralized thermal springs/ Lamellibrachia barhami/Polychaeta/Annelida/crinoids/Crinoidea/South San Clemente Basin/marine biology/marine geology.

3018. Martin P. Ground water monitoring at Santa Barbara, California; Phase 2, Effects of pumping on water levels and on water quality in the Santa Barbara ground water basin. U. S. Geological Survey Water Supply Paper. 1984;31:p.20 U. S. Geol. Surv., United-States U. S. Geological Survey, Reston, VA Monographic; Serial; Report B; Bibliography and Index of Geology (1969-present). Santa Barbara County/California/hydrogeology/ground water/surveys/Pacific Coast/Western U.S./United States/monitoring/Santa Barbara/USGS/GEOREF.

3019. Lott DF, Minia S. Home ranges of American bison cows on Santa Catalina Island, California. J. Mammal. 1983;64(1):161-162 Address: Div. Wildl. & Fish. Biol., Univ. California, Davis, CA 95616,. About 400 plains bison (Bison bison) live on Santa Catalina Island, 34 km W Los Angeles (33.DEGREE.22'N, 118.DEGREE.22'W). The area is 200 km². The elevation range from sea level to 610 m. The bison have free and undisturbed access to 172 km² of the island. Because part of it is very poor bison habitat, the cows confine their activity to about 150 km² of the island. Rainfall averages 33 cm plus the equivalent of an additional 20 cm of rain in coastal influence. The plant community is composed primarily of grasses, but also has areas of coastal sage scrub with good stands of scrub oak. This study was designed to describe the long term and seasonal home ranges of bison cows on Santa Catalina Island and their rate of movement during and outside the rut.
home range/habitat utilization/American bison/Bison bison/Santa Catalina Island/terrestrial biology/mammalogy.

3020. Anderson JG. The September 4, 1981, Santa Barbara Island, California earthquake; interpretation of strong motion data. Hays WW, Kitzmiller CJ, Darnell D. A workshop on Site-specific effects of soil and rock on ground motion and the implications for earthquake-resistant design. U. S. Geol. Surv., Reston, VA, United-States. Open-File-Report-U.-S.-Geological-Survey. ; 1983. p. p.191-226. Univ. Calif. at San Diego, La Jolla, CA, United-States; U. S. Geol. Surv., Reston, VA, United-States U. S. Geological Survey, Reston, VA Site-specific effects of soil and rock on ground motion and the implications for earthquake-resistant design, Santa Fe, NM, July 25-27, 1983 Analytic; Serial; Report; Conference publication B; Bibliography and Index of Geology (1969-present) U. S. Geol. Surv., Open-File Serv. Sect., West. Distrib. Branch, Fed. Cent., Denver, CO, United States. 0196-1497.
Los Angeles County/Ventura County/Santa Barbara County/California/engineering geology/earthquakes/geologic hazards/aseismic design/Pacific Coast/Western U.S./United States/effects/ground motion/Santa Barbara Island earthquake, 1981/spectral analysis/strong motion/USGS/GEOREF.

3021. Lott DF, Minta SC. Random individual association and social group instability in American bison, Bison bison. Z. Tierpsychol. 1983;61(2):153-172 Address: DIV. WILDLIFE AND FISHERIES BIOL., UNIV. CALIF., DAVIS, CALIF. 95616. Individual association was recorded to determine group stability in a population of 400 freely roaming American bison (Bison bison) on Santa Catalina Island, California [USA] over a 44 mo. period. The application of cluster analysis and simple probability techniques revealed that individual associations between 16 marked cows and 8

marked calves were essentially random, except for cow-calf bonds. Cow-calf relations were severed abruptly and were random thereafter. Random association between individuals combined with spatial heterogeneity generates a negative binomial model giving a close fit for several equilibrium group size distributions. Random association may occur because it facilitates each cow matching its physiological needs at any moment with the needs of other potential co-group members at the same moment. Random association may have facilitated exploration of the unstable Great Plains environment where modern bison evolved. cow/calf/cluster analysis/probability technique/physiological need/social interactions/mother-offspring interactions/spatial distribution/American bison/Bison bison/group stability/Santa Catalina Island/terrestrial biology/mammalogy.

3022. Rowland RW, Clarke SHJ, Greene HG. Marine geological profiles in the southern California continental borderland collected in 1974 on the R/V S.P. Lee. Open File Report U. S. Geological Survey. 2 p. ; 1982.
U. S. Geological Survey, Reston, VA Monographic; Serial; Report B; Bibliography and Index of Geology (1969-present) U. S. Geol. Surv., Open-File Serv. Sect., West. Distrib. Branch, Denver Fed. Cent., Lakewood, CO, United States. 0196-1497.
California/oceanography/continental shelf/Pacific Ocean/marine geology/geophysical surveys/surveys/acoustical surveys/bathymetry/Pacific Coast/Western U.S./United States/continental borderland/geophysical profiles/magnetic surveys/North American Pacific/seismic surveys/Southern California/USGS /GEOREF.

3023. Love MS, Axell B, Morris P, Collins R, Brooks A. Life history and fishery of the California scorpionfish *Scorpaena guttata* within the Southern California Bight, USA. U.S. Natl. Mar. Fish. Serv. Fish. Bull. 1987;85(1):99-116 Address: VANTUNA RESEARCH GROUP, OCCIDENTAL COLL., MOORE LAB. ZOOL., LOS ANGELES, CALIF. 90041.

We examined the life history of the California scorpionfish in the Southern California Bight. Based on sportfish creel census data, the species was most abundant in the southern part of the Bight, particularly around Catalina, San Clemente, and the Coronado Islands. Trawl studies from 1974 to 1984 indicated that California scorpionfish populations varied considerably in abundance, with numbers peaking in 1982. Though the species usually associates with hard substrata, it was abundant over mud about the Palos Verdes Peninsula, site of a major sewage outfall. We think that this anomalous abundance was due to the presence of large numbers of a prey species, the ridgeback prawn, *Sicyonia ingentis*, which was attracted to the nutrient-rich substrata. Female California scorpionfish lived to 21 years, males to 15. Females grew faster than males. Von Bertalanffy age-length parameters for females were $L = 44.3$, $k = 0.13$, $t_0 = -1.9$, and for males $L = 36.3$, $k = 0.12$, $t_0 = -3.86$. Over 50% of both females and males were mature at 2 years of age. Males tended to mature at a slightly smaller size. Spawning occurred from May through August, peaking in July. California scorpionfish formed large offshore spawning aggregations in waters deeper than their off-season habitat. Tagging results indicated that fish return to the same spawning area annually. Crabs, primarily juvenile *Cancer anthonyi*, were the most important food item of fishes inhabiting soft substrata in shallow water.
life history/prey species abundance/spawning/sex difference/growth/temperature/sport fishing statistics/fishery biology/California scorpionfish/*Scorpaena guttata*/ridgeback prawn/*Sicyonia ingentis*/Southern California Bight/Santa Catalina Island/San Clemente Island/Coronado Islands/Palos Verdes

Peninsula/marine biology/ichthyology/fisheries/resource management.

3024. Pisias NG. Paleooceanography of the Santa Barbara Basin and the California Current during the last 8000 years. Dissertation, Univ. Rhode Island, Kingston, RI (USA) 1978;:236. california/pacific ocean/radiolaria/paleoclimatology/paleoecology/stratigraphy/holocene/physical oceanography/ocean circulation/temperature/unitedstates/southerncalifornia/santa barbara basin/quaternary/paleo-oceanography/californiacurrent/northeastpacific/assemblages/sediments/cores/time series/current/nearshore environment/sedimentation/marine transport/distribution Hickey/physical oceanography/MINERALS MANAGEMENT SERVICE.

3025. Given DD, Koesterer CL. Station arrival data for a quarry blast on Santa Catalina Island, California. Open File Report U. S. Geological Survey. 1983;13:p.1 U. S. Geological Survey, Reston, VA Monographic; Serial; Report B; Bibliography and Index of Geology (1969-present) U. S. Geol. Surv., Open-File Serv. Sect., West. Distrib. Branch, Denver Fed. Cent., Lakewood, CO, United States. Los Angeles County/California/engineering geology/explosions/seismology/crust/velocity structure/arrays/arrival time/Pacific Coast/Western U.S./United States/continental borderland/elastic waves/P waves/body waves/Santa Catalina Island/Southern California/USGS/GEOREF.

3026. Love MS, Ebeling AW. Food and habitat of three switch-feeding fishes in the kelp forests off Santa Barbara, California. Fish. Bull., U.S. 1978;73:257-271 feeding behavior/foraging behavior/fishes Santa/Barbara Channel/marine biology/ecology/ichthyology.

3027. Pommeranz T, Moser HG. Data report on the vertical distribution of the eggs and larvae of northern anchovy, *Engraulis mordax*, at two stations in the Southern California Bight. U.S. Dep. Commer., NOAA Tech. Mem., NOAA-TM-NMFS-SWFC-75 1987;:9. MINERALS MANAGEMENT SERVICE.

3028. Green HG. Western Santa Barbara Channel Point Conception. Clarke, S. H., Greene, H. G., Field, M. E., Lee, W. H. K. Reconnaissance geology and geologic hazards of selected areas of the Southern California continental borderland. U. S. Geol. Surv., Menlo Park, CA, United-States. Open-File-Report-U.-S.-Geological-Survey. 1983:p.41-61 U. S. Geol. Surv., Menlo Park, CA, United-States; U. S. Geol. Surv., Menlo Park, CA, United-States U. S. Geological Survey, Reston, VA Analytic; Serial; Report B; Bibliography and Index of Geology (1969-present) U. S. Geol. Surv., Open-File Serv. Sect., West. Distrib. Branch, Denver Fed. Cent., Lakewood, CO, United States. California/oceanography/continental shelf/Pacific Ocean/environmental geology/geologic hazards/Pacific Coast/Western U.S./United States/continental borderland/natural gas/North American Pacific/outer shelf/petroleum/Point Conception/Santa Barbara Channel/seismic surveys/geophysical surveys/site exploration/Southern California/USGS/GEOREF.

3029. Love MS, Westphal W, Collins R. Distributional patterns of fishes captured aboard commercial passenger fishing vessels along the northern Channel Islands, California. Fish. Bull. 1985;83(3):243-251 Address: VANTUNA Res. Group, Moore Lab. Zool., Occidental Coll.,

Los Angeles, CA 90041.

The authors surveyed fishes taken aboard commercial passenger fishing vessels along the four northern Channel Islands (San Miguel, Santa Rosa, Santa Cruz, and Anacapa) within the Southern California Bight. Fourteen species declined in abundance along the Northern Channel Island chain. Colder water forms decreased to the east, while temperate species declined to the west. In the shallowest depth interval (0-36 m), the mean lengths of four rockfish species increased toward the west. In general, the size of these four species also increased with depth. They believe these phenomena are linked to the differences in water temperature between the islands.

spatial distribution/water temperature/marine fish/population dynamics/ecological distribution/species diversity/temperature effects/angling/fish catch statistics/sport fishing statistics/abundance Pisces/rockfish/northern California Channel Islands/San Miguel Island/Santa Rosa Island/Santa Cruz Island/Anacapa Island/marine biology/ichthyology/fisheries/resource management.

3030. Field ME. Central Santa Rosa Cortes Ridge. Clarke, S. H., Greene, H. G., Field, M. E., Lee, W. H. K. Reconnaissance geology and geologic hazards of selected areas of the Southern California continental borderland. U. S. Geol. Surv., Menlo Park, CA, United-States. Open-File-Report-U.-S.-Geological-Survey. 1983:p.29-41

U. S. Geol. Surv., Menlo Park, CA, United-States; U. S. Geol. Surv., Menlo Park, CA, United-States U. S. Geological Survey, Reston, VA Analytic; Serial; Report B; Bibliography and Index of Geology (1969-present) U. S. Geol. Surv., Open-File Serv. Sect., West. Distrib. Branch, Denver Fed. Cent., Lakewood, CO, United States.

California/oceanography/continental shelf/Pacific Ocean/environmental geology/geologic hazards/Pacific Coast/Western U.S./United States/continental borderland/natural gas/North American Pacific/outer shelf/petroleum/Santa Rosa Cortes Ridge/site exploration/Southern California/USGS/GEOREF.

3031. Luken MD, Hess HH. Outer continental shelf hard minerals leasing: sand, gravel and shell deposits of the Southern California Borderland. Appendix 10. Program feasibility document. : Geological Survey, Menlo Park, CA.; 1979. 75. Note: See also Appendix 9, PB81-192619, and Appendix 11, PB81-192635. Also available in set of 17 reports PC E99, PB81-192544.

The study is an investigation of the OCS marine resources of sand, gravel and shell in the Southern California Borderland. Arid and volumetric estimates of these resources on the mainland shelf and northern shelf areas of San Miguel, Santa Rosa, Santa Cruz and Anacapa Islands. Assuming minimum deposit depth of 1 meter and a maximum of 5 meters (1) total gravel volume ranges from 24-120 million cubic meters; (2) coarse sand from 64-320 million cubic meters; (3) medium sand ranges 880 to 4400 million cubic meters; and (4) shell deposits range 160-820 million cubic meters. Combined total of all resources are 1130-5660 million cubic meters. The study identifies three main areas where sand and gravel resources exist as the San Diego, San Pedro and Santa Monica shelves.

Mining/Natural resources/Continental shelves/Mineral deposits/Government policies/Mineral economics/Sand/Gravel/Phosphate deposits/Sedimentary rocks/California/Limestone/Mineral leases/Outer continental shelves/Phosphorites/San Miguel Island/Santa Rosa Island/Santa Cruz Island/Anacapa Island/San Diego shelf/San Pedro shelf/Santa Monica shelf/Mining/Engineering/Earth Sciences/geology.

3032. Power J. Larval anchovy (*Engraulis mordax*) drift in the California Current: Results of a simulation model. NOAA-NMFS-SWFC Admin. Rep. No. LJ-83-23 1983;
MINERALS MANAGEMENT SERVICE.

3033. Clarke SH, Greene HG. Gulf of Santa Catalina and adjacent shelf. Clarke SH, Greene HG, Field ME, Lee WHK. Reconnaissance geology and geologic hazards of selected areas of the Southern California continental borderland. U. S. Geol. Surv., Menlo Park, CA, United-States.
Open-File-Report-U.-S.-Geological-Survey. ; 1983. p. p. 7-29. U. S. Geol. Surv., Menlo Park, CA, United-States; U. S. Geol. Surv., Menlo Park, CA, United-States U. S. Geological Survey, Reston, VA Analytic; Serial; Report B; Bibliography and Index of Geology (1969-present) U. S. Geol. Surv., Open-File Serv. Sect., West. Distrib. Branch, Denver Fed. Cent., Lakewood, CO, United States. 0196-1497.
California/oceanography/continental shelf/Pacific Ocean/environmental geology/geologic hazards/Pacific Coast/Western U.S./United States/continental borderland/Gulf of Santa Catalina/natural gas/North American Pacific/outer shelf/petroleum/site exploration/Southern California/USGS/GEOREF.

3034. Luyendyk BP, Hajic EJ, Simonett DS. Image enhancement of side-scan sonar mapping. Proceedings of the Twelfth International Symposium on Remote Sensing of Environment 1978;2:1025-1026
Address: California Univ., Santa Barbara Conference: Twelfth International Symposium on Remote Sensing of Environment, held in Manila, Philippines, 20-26 April 1978. Environmental Research Institute of Michigan, Ann Arbor. The Santa Barbara Channel is typical of many border lands in that information on environmental geology is needed to provide citizens, industry and government with a realistic and accurate estimate of the geologic hazards affecting present and future resource development in coastal areas (oil and gas, fisheries, mining). For example, at the present time many offshore oil installations, including the world's deepest water platform (in construction), are located in the fault-laced Santa Barbara Channel. Existing geophysical information such as seismic reflection profiles, provide data mostly on older faults in deeper sub-bottom layers of the Channel. Side-scan sonar surveys will provide unique information on the character and stability of the sea bed itself. Side-scan sonar mapping allows a broad swath of seafloor textural information to be obtained in a short period of time and fault scarps, cracks, outcrops, sand waves, dunes, and ripples can be recognized. (Sinha-OEIS).
Remote sensing/Mapping/Hazards/Water pollution control/Resources development/Oil and gas/Outer Continental Shelf/Side-scan sonar/maps/geophysical surveys/cartography/acoustical surveys/acoustical methods/sonar methods/geophysical methods/digital techniques/imagery/side-scanning methods/Santa Barbara Channel.

3035. Clarke SH, Greene HG, Field ME, Lee WHK. Reconnaissance geology and geologic hazards of selected areas of the Southern California continental borderland. Open File Report U. S. Geological Survey. 1983;81:p.100 U. S. Geol. Surv., Menlo Park, CA, United-States U. S. Geological Survey, Reston, VA Monographic; Serial; Report; Map Individual papers are cited separately. B; Bibliography and Index of Geology (1969-present) U. S. Geol. Surv., Open-File Serv. Sect., West. Distrib. Branch,

Denver Fed. Cent., Lakewood, CO, United States.
California/oceanography/continental shelf/Pacific
Ocean/environmental geology/geologic hazards/Pacific Coast/Western
U.S./United States/continental borderland/maps/natural gas/North
American Pacific/outer shelf/petroleum/seismic surveys/geophysical
surveys/site exploration/Southern California/USGS/GEOREF.

3036. Greene HG, Clarke SH, Field ME, McCulloch DS, Beyer L,
Cacchione DA. Geologic hazards, Southern California Borderland. U.
S. Geological Survey Professional Paper. 1981:p.124-125
U. S. Geological Survey, Reston, VA Analytic; Serial; Report B;
Bibliography and Index of Geology (1969-present).
Pacific Ocean/engineering geology/geologic
hazards/California/oceanography/continental shelf/Pacific
Coast/Western U.S./United States/North American
Pacific/USGS/GEOREF.

3037. Luyendyk BP, Hajic EJ, Simonett DS. Side-scan sonar
mapping and computer-aided interpretation in the Santa Barbara
Channel, California. Marine Geophysical Researches
1983;5(4):365-388
Address: Dept Geological sciences, Univ of California, Santa
Barbara, CA 93106. We have experimented with digital processing of
side scan sonar data taken in a 14km"SUP 2" area of continental
shelf offshore southern California. The data were FM tape recorded
during the survey and digitized and processed later in the
laboratory. The digital image processing included both image
correction and image enhancement. Geometric corrections were
applied to correct for image distortions due to variable ship
position and speed and sonar slant range. Enhancements that were
tried included contrast stretching, band-pass filtering, image
restoration (inverse filtering), and various edge enhancements
such as density slicing and standard deviation filters.
Interpretive procedures were also attempted and included digital
mosaicking, stereoscopic viewing, and false-color display. The most
effective processing was geometric correction combined with
contrast stretching. Mosaicking proved difficult due to imprecise
navigation (+ or - 50m), but was very effective in increasing the
understanding of the geologic structure in the survey area.
automatic data processing/acoustical surveys/marine
methods/geophysical methods/sonar methods/cartography/image
analysis/computers/maps/side-scanning sonar/continental
shelves/geophysical data/side scan sonar/Santa Barbara
Channel/Anacapa Passage/surficial geology/geomorphology.

3038. Stauffer K, Adams MV, Habrat R, Bourgeois D.
Technological feasibility of deep water drilling and production.
Powers, Richard B. Geologic framework, petroleum potential,
petroleum-resource estimates, environmental hazards, and deep-water
drilling technology of the maritime boundary region, offshore
Southern California borderland. U. S. Geol. Surv., United-States.
Open-File-Report-U.-S.-Geological-Survey. 1981:p.61
U. S. Geol. Surv., United-States; U. S. Geol. Surv., United-States
U. S. Geological Survey, Reston, VA Analytic; Serial; Report B;
Bibliography and Index of Geology (1969-present) U. S. Geol.
Surv., Open-File Serv. Sect., West. Distrib. Branch, Denver, CO,
United States.
California/economic geology/fuel resources/Pacific
Ocean/engineering geology/marine installations/Pacific
Coast/Western U.S./United States/continental borderland/deep water
environment/drilling/feasibility studies/natural gas/North American
Pacific/offshore/petroleum/pipelines/production/Southern
California/technology/USGS/GEOREF.

3039. Parrish RH, Nelson CS, Bakun A. Transport mechanisms and reproductive success of fishes in the California Current. Biol. Oceanogr. 1981;1(2):175-203. text/birds/marine mammals/fish/larvae/spawning/distribution/fish/MINERALS MANAGEMENT SERVICE.

3040. Pelaez J, McGowan JA. Phytoplankton pigment patterns in the California Current as determined by satellite. Limnol. Oceanogr. 1986;31(5):927-950. ecosystem/interrelationships/Hardy/phytoplankton/chlorophyll/TEXT /MINERALS MANAGEMENT SERVICE.

3041. Vedder JG. Environmental and bottom hazards. Powers, Richard B. Geologic framework, petroleum potential, petroleum-resource estimates, environmental hazards, and deep-water drilling technology of the maritime boundary region, offshore Southern California borderland. U. S. Geol. Surv., United-States. Open-File-Report-U.-S.-Geological-Survey. 1981:p.54
U. S. Geol. Surv., United-States; U. S. Geol. Surv., United-States
U. S. Geological Survey, Reston, VA Analytic; Serial; Report B; Bibliography and Index of Geology (1969-present) U. S. Geol. Surv., Open-File Serv. Sect., West. Distrib. Branch, Denver, CO, United States.
California/economic geology/fuel resources/environmental geology/geologic hazards/Pacific Ocean/engineering geology/Pacific Coast/Western U.S./United States/USGS/GEOREF.

3042. Vedder JG. Other mineral resources. Powers, Richard B. Geologic framework, petroleum potential, petroleum-resource estimates, environmental hazards, and deep-water drilling technology of the maritime boundary region, offshore Southern California borderland. U. S. Geol. Surv., United-States. Open-File-Report-U.-S.-Geological-Survey. 1981:p.50
U. S. Geol. Surv., United-States; U. S. Geol. Surv., United-States
U. S. Geological Survey, Reston, VA Analytic; Serial; Report B; Bibliography and Index of Geology (1969-present) U. S. Geol. Surv., Open-File Serv. Sect., West. Distrib. Branch, Denver, CO, United States.
California/economic geology/mineral resources/Pacific Ocean/nodules/manganese composition/composition/barite deposits/Pacific Coast/Western U.S./United States/continental borderland/deep sea environment/deep sea sedimentation/fuel resources/manganese/manganese ores/metal ores/natural gas/North American Pacific/offshore/petroleum/phosphate deposits/Southern California/USGS/GEOREF.

3043. Macdonald J, Shields JD, Zimmer-Faust RK. Acute toxicities of eleven metals to early life history stages of the yellow crab, *Cancer anthonyi*. Marine Biology 1988;98:201-207
toxicity/metals/early life history/Cancer anthonyi/yellow crab/Santa Barbara Channel/marine biology.

3044. Powers RB, Scott EW. Estimates of undiscovered in place petroleum resources. Powers, Richard B. Geologic framework, petroleum potential, petroleum-resource estimates, environmental hazards, and deep-water drilling technology of the maritime boundary region, offshore Southern California borderland. U. S. Geol. Surv., United-States.
Open-File-Report-U.-S.-Geological-Survey. 1981:p.39-49
U. S. Geol. Surv., United-States; U. S. Geol. Surv., United-States
U. S. Geological Survey, Reston, VA Analytic; Serial; Report B; Bibliography and Index of Geology (1969-present) U. S. Geol.

Surv., Open-File Serv. Sect., West. Distrib. Branch, Denver, CO, United States.

California/economic geology/fuel resources/Pacific Ocean/petroleum/Pacific Coast/Western U.S./United States/continental borderland/evaluation/natural gas/North American Pacific/offshore/resources/Southern California/USGS/GEOREF.

3045. MacFarlane H. Techniques for the location, identification and assessment of submerged cultural resources on the Pacific Outer Continental Shelf, Santa Barbara Channel region, offshore Southern California [dissertation]. Fullerton, California, USA: California State University; 1982. 204. submerged cultural resources/Homo sapiens/Santa Barbara Channel/anthropology/archaeology.

3046. Scott EW, Vedder JG, Griggs D. Petroleum resource potential. Powers, Richard B. Geologic framework, petroleum potential, petroleum-resource estimates, environmental hazards, and deep-water drilling technology of the maritime boundary region, offshore Southern California borderland. U. S. Geol. Surv., United-States. Open-File-Report-U.-S.-Geological-Survey. 1981:p.25-38 U. S. Geol. Surv., United-States; U. S. Geol. Surv., United-States U. S. Geological Survey, Reston, VA Analytic; Serial; Report B; Bibliography and Index of Geology (1969-present) U. S. Geol. Surv., Open-File Serv. Sect., West. Distrib. Branch, Denver, CO, United States.

California/economic geology/fuel resources/Pacific Ocean/petroleum/Pacific Coast/Western U.S./United States/continental borderland/natural gas/North American Pacific/offshore/possibilities/Southern California/USGS/GEOREF.

3047. Madden CT, Johnson DL. Origin(s) of mammoths from northern Channel Islands, California: discussion and reply. Quaternary Research (New York) 1981;15(1):101-106 Address: Univ. Colo. Mus., Boulder, CO, USA; Univ. Ill., USA Note: For reference to paper by Johnson, Donald Lee, see Quat. Res., Vol. 10, p. 204, 1978.

paleontology/Quaternary/biometry/taxonomy/nomenclature/evolution/size/dwarf taxa/Cenozoic/upper Pleistocene/Pleistocene Mammalia/Elephantoidea/Proboscidea/Mammuthus/dwarf mammoth teeth/Santa Barbara County/California Channel Islands/San Miguel Island/Santa Rosa Island/vertebrate paleontology.

3048. Vedder JG. Geologic framework. Powers, Richard B. Geologic framework, petroleum potential, petroleum-resource estimates, environmental hazards, and deep-water drilling technology of the maritime boundary region, offshore Southern California borderland. U. S. Geol. Surv., United-States. Open-File-Report-U.-S.-Geological-Survey. 1981:p.7-24 U. S. Geol. Surv., United-States; U. S. Geol. Surv., United-States U. S. Geological Survey, Reston, VA Analytic; Serial; Report B; Bibliography and Index of Geology (1969-present) U. S. Geol. Surv., Open-File Serv. Sect., West. Distrib. Branch, Denver, CO, United States.

California/economic geology/fuel resources/Pacific Ocean/oceanography/ocean floors/Pacific Coast/Western U.S./United States/USGS/GEOREF.

3049. Madden CT. Mammoths of North America [dissertation]. Boulder, Colorado, USA: University of Colorado; 1981. 289. Systematic revision indicates that six species of mammoths (Genus Mammuthus) described from North America are valid; 25 have been recorded from that continent. M. hayi is the most

3052. Raymond LP. The effect of food density on survival and growth of early post yolk sac larvae of the northern anchovy (*Engraulis mordax girard*) in the laboratory. *J. Exp. Mar. Biol. Ecol.* 1970;5(2):187-197. 71-00183
71-1A-00184/engraulis/anchovies/food sources/california current/survival/year-class strength/zooplankton/Pieper/MINERALS MANAGEMENT SERVICE.

3053. Magee ME. Advanced magnetic modeling techniques applied to the Southern California continental borderland [dissertation]. Santa Barbara, CA: University of California; 1985. 177.
geophysical surveys/magnetic surveys/continental slope/ocean floors/Fourier analysis/anomalies/San Clemente Fault/distribution/modeling methods/fracture zones/San Clemente Island/marine geology/oceanography.

3054. Redalje DG. Phytoplankton carbon biomass and specific growth rates determined with the labeled chlorophyll a technique. *Mar. Ecol. Prog. Ser.* 1983;11(3):217-226.
Microflagellate/southern california bight/usa/carbon-14/labeled/bi carbonate/algae/spermatophytes/Bray/Eganhouse/geochemistry/chemical oceanography/phytoplankton/carbon/biomass/Hardy TEXT/MINERALS MANAGEMENT SERVICE.

3055. Yerkes RF, Greene HG, Tinsley JC, Lajoie KR. Maps showing seismotectonic setting of the Santa Barbara Channel area, California. *Miscellaneous Field Studies Map.* 25 p 1981
U. S. Geological Survey, Reston, VA Monographic; Serial; Report; Map B; Bibliography and Index of Geology (1969-present).
California/tectonophysics/plate tectonics/maps/seismology/seismicity/seismotectonics/Pacific Coast/Western U.S./United States/explanatory text/geotectonic maps/Santa Barbara Channel/seismotectonic maps/Southern California/USGS/GEOREF.

3056. Mankiewicz C. Biogeochemistry of Recent marine sediments; effects of the epibenthic holothurian *Parastichopus parvimensis* [dissertation]. Los Angeles, CA: University of California; 1980. Unknown.
sediments/organic materials/oceanography/geochemistry biochemistry/alteration/paleontology/diagenesis/sedimentation genesis/biogenic processes/biochemical sedimentation/continental shelf/shelf environment/Holocene/Quaternary/living taxa/hydrocarbons/fatty acids/benthonic taxa/fecal materials/Echinodermata/Echinozoa/Holothuroidea/Parastichopus parvimensis/Santa Catalina Island/fatty acids/hydrocarbons/experimental studies/Holocene/Quaternary/living taxa/metabolism/petroleum/marine sediments/surficial geology/quaternary geology.

3057. Reed WE, Kaplan IR, Sandstrom M, Mankiewicz P. Petroleum and anthropogenic influence on the composition of sediments from the Southern California Bight. *Proceedings 1977 Oil Spill Conference (Prevention, Behavior, Control, Cleanup)*, New Orleans, LA, (USA), March 8-10, 1977 1977;:183-188.
California/sediments/environmental geology/geochemistry/pollution/hydrocarbons/petroleum/California Bight/United States/composition/Southern California/intertidal environment/ waste disposal/organic materials/marine environment/industrial waste/oil spills/ANTHROPOGENIC/anderson/sediments/pollution/southern

California Bight/waste disposal/oil spills/Eganhouse/chemical
oceanography/Geesey/ microbiology/ TEXT/MINERALS MANAGEMENT
SERVICE.

3058. Vedder JG, Wagner HC, Schoellhamer JE, Yerkes RF,
Yenne KA, McCulloh TH, Hamilton RM, Brown RDJ, Burford RO, DeNoyer
JM. Geology, petroleum development, and seismicity of the Santa
Barbara Channel region, California. U. S. Geological Survey
Professional Paper. 77 p 1969
U. S. Geological Survey, Reston, VA Monographic; Serial; Report.
Santa Barbara County/California/areal geology/Santa Barbara
Channel/Pacific Coast/Western U.S./United States/USGS /GEOREF.

3059. Mankiewicz C, Reed WE. Biogeochemistry of Recent
marine sediments; effects of an important bioturbating animal,
Parastichopus parvimensis. The Geological Society of America, 93rd
annual meeting. Abstracts with Programs -Geological Society of
America 1980;12(7):475
Address: Univ. Calif., Dep. Earth and Space Sci., Los Angeles, CA
Conference: The Geological Society of America, 93rd annual
meeting. Atlanta, GA, Nov. 17-20, 1980.
sediments/paleontology/marine sediments/Holocene/organic
materials/Quaternary/bioturbation/biogenic structures/sedimentary
structures/hydrocarbons/fatty acids/mass spectra/gas
chromatography/petroleum/organic geochemistry/sedimentary
geochemistry/shelf
sediments/Echinodermata/Holothuroidea/Parastichopus
parvimensis/Santa Catalina Island/surficial geology/quaternary
geology/petroleum/geochemistry/biochemistry/chemistry.

3060. Reid JL,J. Some examples of seasonal and non-seasonal
changes in circulation. Proceedings of the 11th Pacific Science
Congress. Vol. 1-4 Held Aug.23-Sept.2, 1966, at Tokyo, Japan
1966;:140.
circulation/california current/Hickey/physical
oceanography/MINERALS MANAGEMENT SERVICE.

3061. Hess HD. Preliminary resource assessment; phosphorites
of the Southern California Borderland. Special Maps. 1979;51:p.77
U. S. Geol. Surv., Menlo Park, Calif., United-States U. S.
Geological Survey, Reston, VA Monographic; Serial; Report; Map B;
Bibliography and Index of Geology (1969-present) U. S. Geol.
Surv., Menlo Park, Calif., United States. California/economic
geology/phosphate deposits/Pacific Coast/Western U.S./United
States/California Borderland/chemically precipitated
rocks/deposits/economic geology maps/maps/phosphate/phosphate
rocks/resources/sedimentary rocks/Southern California/USGS/GEOREF.

3062. Reid JL,J, Roden GI, Wyllie JG. Studies of the
California Current System. Calif. Coop. Ocean. Fish. Invest. Prog.
Rep. 1958;5:27-57. Hickey/physical oceanography/Bray Murray Bonnell
Dailey/marine
ecosystem/interrelationships/mammals/spermatophytes/algae/MINERALS
MANAGEMENT SERVICE.

3063. Marks JG, Marianos AW, Gonzaga FR, Pflum CE.
Foraminiferal correlation of Quaternary sediments in the Santa
Barbara Channel, California. W.V. Sliter. Studies in marine
micropaleontology and paleoecology: a memorial volume to Orville
L. Bandy. Cushman Found. Foraminiferal Res., Spec. Publ. 19. ;
1980. 127-133.
foraminifera/sediments/stratigraphy/lithostratigraphy/Quaternary/
lithofacies/Santa Yuez Unit/Cenozoic/correlation/planktonic

taxa/coiling/benthonic taxa/zoning/assemblages
foraminiferans/Foraminifera/Rotaliina/Neogloboquadrina
pachyderma/Santa Barbara Channel/surficial geology/quaternary
geology.

3064. Luken MD, Hess HD. Sand, gravel and shell deposits of
the Southern California Borderland. ; 1979. 69 p.63 Refs.
Analytic; Report; Map B; Bibliography and Index of Geology (1969-
present) U. S. Geol. Surv., Menlo Park, Calif., United States.
California/economic geology/sand/gravel/limestone/Pacific
Coast/Western U.S./United States/California
Borderland/deposits/economic geology maps/maps/clastic
sediments/carbonate rocks/shells/USGS/GEOREF.

3065. Yerkes RF, Greene HG, Tinsley JC, Lajoie KR.
Seismotectonic setting of Santa Barbara Channel area, Southern
California. Open File Report U. S. Geological Survey. 42 p 1980
U. S. Geological Survey, Reston, VA Monographic; Serial; Report;
Map B; Bibliography and Index of Geology (1969-present) U. S.
Geol. Surv., Open-File Serv. Sect., Branch Distrib., Denver, Colo.,
United States. California/engineering geology/geologic
hazards/seismology/seismicity/seismotectonics/Pacific Coast/Western
U.S./United States/maps/Santa Barbara Channel/Santa Barbara
County/Southern California/USGS /GEOREF.

3066. Mate BR. History and present status of the northern
(stellar) sea lion, *Eumetopias jubatus*. Mammals in the Seas. Volume
4(5). Small cetaceans, seals, sirenians and otters. Selected
papers of the scientific consultation on the conservation and
management of marine mammals and their environment. : FAO Fish.
Ser.; 1982. 311-317.

Address: Oregon State Univ., Mar. Sci. Cent., Newport, OR 97365,
USA Conference: Scientific Consult. on the Conservation and
Management of Marine Mammals and their Environment Bergen (Norway)
1976. Report ID = ISBN 92-5-100514-1. The northern sea lion (*E.
jubatus*) breeds from the Kurile Islands north and west through
the Aleutian and Pribilof Islands and south along the North
American coast to San Miguel Island. Populations in California,
Oregon, Washington and British Columbia are estimated to number
about 5,000-7,000, 2,000, 600 and 5,000 animals, respectively.
Combined estimates of the size of Soviet stocks exceed 20,000
animals. Nearly 200,000 northern sea lions are thought to inhabit
Alaskan waters. Sea lions in the eastern Pacific migrate north
following the breeding season (mid-May to mid-July). The species
moves south to inhabit waters around northern Hokkaido from late
January to late May, reaching a maximum of 10,000-13,000 animals in
March. Approximately 12,500 and 2,500 animals are killed each year
in connection with foreign and U.S. fishing operations,
respectively. Competition with other pinnipeds may be the most
important factor affecting the abundance and distribution of
northern sea lions.

population number/geographical
distribution/exploitation/migration/population biology/reproductive
biology/competition/*Eumetopias jubatus*/northern sea lion/Kurile
Islands/Aleutian Islands/Pribilof Islands/San Miguel Island/marine
biology/mammalogy.

3067. Alpha TR. Southern California borderland; oblique map
of the northwestern part. Open File Report U. S. Geological Survey
1978 U. S. Geological Survey, Reston, VA Monographic; Serial;
Report; Map B; Bibliography and Index of Geology (1969-present)
U. S. Geol. Surv., Open-File Serv. Cent., Br. Distrib., Denver,
Colo., United States.

California/areal geology/maps/Pacific Coast/Western U.S./United States/general/oblique maps/south/USGS/GEOREF.

3068. Mate BR. History and present status of the California sea lion *Zalophus californianus*. Mammals in the seas. Volume 4(5). Small cetaceans, seals, sirenians and otters. Selected papers of the scientific consultation on the conservation and management of marine mammals and their environment. : FAO Fish. Ser.; 1982. 303-309.

Address: Oregon State Univ., Mar. Sci. Cent., Newport, OR 97365, USA Conference: Scientific Consult. on the Conservation and Management of Marine Mammals and their Environment Bergen (Norway) 1976 Report ID = ISBN 92-5-100514-1. Three sub-species of *Z. californianus* have been identified *Z. c. californianus* is found along the eastern North Pacific coast of North America from British Columbia south to at least Manzanillo, Mexico it breeds in late May and early June from the tip of Baja California north to San Miguel Island and throughout the Sea of Cortez. *Z. c. wollebacki* breeds in the Galapagos Islands from October to December, *Z. c. japonicus* was in the past found in the Sea of Japan from 34 to 37 degree N. *Z. c. californianus* was heavily exploited in the 1800s although estimates of population size are uncertain, there appear to be at least 75000-100000 animals present. Populations of the sub-species and of *Z. c. wollenbacki*, estimated to include 20 000 animals, are protected and are either growing in size or are stable. *Z. c. japonicus* is rare or extinct. population number/population dynamics/protected resources/reproductive biology/*Zalophus californianus*/Pacific coast of North America/San Miguel Island/Galapagos Islands/marine biology/mammalogy.

3069. Sylvester MA, Covay KJ. Stream quality in the San Lorenzo River basin, Santa Cruz County, California. Report Available Only through NTIS. 1978 U. S. Geological Survey, Reston, VA Monographic; Serial; Report B; Bibliography and Index of Geology (1969-present) NTIS, Springfield, Va., United States. Santa Cruz County/California/hydrogeology/hydrology/surveys/San Lorenzo River basin/Pacific Coast/Western U.S./United States/hydrochemistry/rivers and streams/water quality/USGS/GEOREF.

3070. Mathieson AC, Penniman CA. A phytogeographic interpretation of the marine flora from the Isles of Shoals, U.S.A. Bot. Mar. 1986;29(5):413-434 Address: Dep. Bot. and Plant Pathol., Univ. New Hampshire, Durham, NH 03824. The present account gives a comparative phytogeographic evaluation of the seaweed populations at 15 northwest Atlantic sites, ranging from Woods Hole, Massachusetts, to South Wolf Island, New Brunswick. Major emphasis is placed upon the floristic affinities of the Isles of Shoals, an archipelago of eight offshore islands in southern Maine and New Hampshire. The pattern of seasonal occurrence of seaweed populations at the Shoals (i.e. eight islands combined) showed a pronounced summer maximum (150 taxa) and a winter minimum (77 taxa). A similar pattern was recorded for five other northwest Atlantic sites, with the southernmost location (Woods Hole) exhibiting the highest ratio of annual/perennial taxa (1.29) and all of the more northern sites, except Campobello Island, exhibiting ratios of < 1.0. In contrast to the low floristic similarities of the southern California Channel Islands ($x = 45.4\%$), all 15 northwest Atlantic sites had much higher floristic affinities ($x = 71.9\%$). phytogeography/seaweeds/seasonal variations/marine environment/biogeography/Isle of Shoals/Northeast/California Channel Islands/Woods Hole/Massachusetts/South Wolf Island/New Brunswick/marine biology/botany/phycology.

- # 3071. Crouch JK, Holmes ML, McCulloh TH, Long AT, Brune RH. Multichannel seismic reflection and sonobuoy refraction data in the outer southern California borderland. Open File Report U. S. Geological Survey. 1978
U. S. Geological Survey, Reston, VA Monographic; Serial; Report B; Bibliography and Index of Geology (1969-present) U. S. Geol. Surv., Open-File Serv. Cent., Br. Distrib., Denver, Colo., United States.
California/geophysical surveys/seismic surveys/Pacific Coast/Western U.S./United States/continental margin/continental shelf/data/marine methods/reflection methods/refraction methods/sonobuoy methods/south/Southern California/USGS/GEOREF.
- # 3072. Matsumoto GI. Ctenophores and water flow. Proceedings of the 68th annual meeting of the Western Society of Naturalists. ; 1987. 33. Conference Location: Long Beach, CA.
water flow/locomotion Ctenophora/ctenophores Antarctica/Friday Harbor/ Washington/Southern California Bight/marine biology.
- # 3073. Wayland RG, Acuff AD, McCulloh TH, Raleigh CB, Vedder JG, Yenne KA. Facts relating to Well No. 5, Pitas Point Unit area, and the earthquake of August 13, 1978, Santa Barbara Channel, California. Open File Report U. S. Geological Survey. 67 p 1978
U. S. Geological Survey, Reston, VA Monographic; Serial; Report B; Bibliography and Index of Geology (1969-present) U. S. Geol. Surv., Open-File Serv. Cent., Br. Distrib., Denver, Colo., United States.
California/seismology/earthquakes/effects/1978/Pacific Coast/Western U.S./United States/data/Pitas Point Unit/Santa Barbara Channel/USGS/GEOREF.
- # 3074. Matsumoto GI. Manipulation of water flow by ctenophores (Phylum Ctenophora). Lang ML. Proceedings of the American Academy of Underwater Sciences, Coldwater diving for science symposium. ; 1987. 175-188.
Conference at Seattle, Washington.
water flow/locomotion/Ctenophora/ctenophores/Antarctica/Friday harbor/Washington/Southern California Bight/marine biology.
- # 3075. Greene HG, Wolf SC, Blom KG. The marine geology of the eastern Santa Barbara Channel, with particular emphasis on the ground water basins offshore from the Oxnard Plain, southern California. Open File Report U. S. Geological Survey. 104 p 1978
U. S. Geological Survey, Reston, VA Monographic; Serial; Report; Map B; Bibliography and Index of Geology (1969-present) U. S. Geol. Surv., Open-File Serv. Sect., Br. Distrib., Denver, Colo., United States.
Pacific Ocean/oceanography/marine geology/California/hydrogeology/maps/ground water/surveys/Pacific Coast/Western U.S./United States/Oxnard Plain/Santa Barbara Channel/Southern California/USGS/GEOREF.
- # 3076. Matsumoto GI. A new species of lobate ctenophore, *Leucothea pulchra* sp. nov., from the California Bight. J. Plank. Res. 1988;10(2):301-31 new species/Ctenophora/ctenophore/Leucothea pulchra/Southern California Bight/marine biology.
- # 3077. Vedder JG, Crouch JK, Arnal RE, Bukry D, Barron JA, Lee WF. Description of pre Quaternary samples, R/V Ellen B. Scripps, September 1976, Patton Ridge to Blake Knolls, southern California continental borderland. Open File Report U. S. Geological Survey. 19 p 1977

U. S. Geological Survey, Reston, VA Monographic; Serial; Report B; Bibliography and Index of Geology (1969-present) U. S. Geol. Surv., Open-File Serv. Sect., Br. Distrib., Denver, Colo., United States.

California/oceanography/sediments/clastic
sediments/petrology/1976/Blake Knolls/Pacific Coast/Western
U.S./United States/Cenozoic/continental margin/continental
shelf/Patton Ridge/R/V Ellen B. Scripps/USGS/GEOREF.

3078. Matsumoto GI. Phylum Ctenophora: an analysis of the swimming and feeding mechanics using in situ and laboratory measurements. Hydrobiologia 1989 swimming behavior/feeding behavior/Ctenophora/ctenophore/Southern California Bight/Antarctica/Friday Harbor/Washington/Gulf Stream/Arctic Ocean/marine biology.

3079. Kirkman SL, Ellsworth WL. Catalog of earthquakes in the Santa Barbara Channel area for the period January 1, 1972, to December 31, 1973. Open File Report U. S. Geological Survey. 22 p 1977

U. S. Geological Survey, Reston, VA Monographic; Serial; Report B; Bibliography and Index of Geology (1969-present).
California/seismology/earthquakes/catalogs/Pacific Coast/Western
U.S./United States/USGS/GEOREF.

3080. Matsumoto GI, Hamner WM. Modes of water manipulation by the lobate ctenophore *Leucothea* sp. Marine Biology 1988;97:551-558

Examination of the lobate ctenophore *Leucothea* sp. has revealed new patterns of swimming and water manipulation in addition to the typical ctenophore mode of slow swimming with ctene plate (comb) ciliary propulsion. We distinguish between slow ctene propulsion and rapid ctene propulsion; the latter is accomplished by an increased ciliary beat that produces a coupled vortex wake, resulting in jet propulsion. The large oral lobes both capture prey and provide undulatory muscular propulsive power. The auricles exhibit distinct phasic synchrony and aphasical or sculling motions that generate small vortices in the water which facilitate prey capture. Distinctive papillae covering the exterior of *Leucothea* sp. may be chemo- or mechano-sensory structures. The integration of all of these structures results in an organism that is more complex behaviorally than might be expected on the basis of its superficially simple and delicate body plan. Field work involved blue-water diving in the waters of the California Bight during June and July, 1985.

water manipulation/lobate ctenophore/*Leucothea*/locomotion/Santa Catalina Island/marine biology.

3081. Renaud PG. Wind forcing experiments in the California Current system. Master's Thesis, Naval Postgraduate School, Monterey, CA 1986;:88. AD-A176-818-3-XAB/8706/ocean-currents/ocean-models/wind/boundaries/coastal-regions/computations/equations/invariance/mathematical-models/mean/north-direction/oceans/seasons/simulation/stability/stratification/stresses/time/upwelling/jet-flow/vortices/ocean-bottom/water-flow/directional/shear-stresses Hickey/physical oceanography/MINERALS MANAGEMENT SERVICE.

3082. Map showing oil and gas fields, leased areas, and seeps in the Santa Barbara Channel region. Miscellaneous Investigations Series U. S. Geological Survey 1975
U. S. Geological Survey U. S. Geological Survey, Reston, VA

Monographic; Serial; Report; Map B; Bibliography and Index of Geology (1969-present). California/economic geology/petroleum/maps/Pacific Coast/Western U.S./United States/USGS/GEOREF.

3083. Reynolds S. Late Cenozoic sedimentation, stratigraphy, structure and tectonic history, San Nicolas and Tanner Basins, California continental borderland. Master's Thesis, Univ. of South. Calif., Los Angeles, CA 1984;:224. 3 text/chemical oceanography/introduction/MINERALS MANAGEMENT SERVICE.

3084. Reynolds S, Gorsline DS. Nicolas and Eel submarine fans, California continental borderland. Am. Assoc. Pet. Geol. Bull. 1987;71:452-463. text/chemical oceanography/introduction 3/MINERALS MANAGEMENT SERVICE.

3085. Reynolds S, Yasuda Y, Gorsline DS. Models of low sedimentation rate deep-sea fan deposition; two 'muddy' fans, California continental borderland. The Geological Society of America, 96th Annual Meeting Indianapolis, IN (USA), Oct. 31-Nov. 3, 1983 1983;15(6):67.

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86-71476/california/sedimentation/oceanography/sedimentation rates/deep-sea environment/continental borderland/models/san nicolas basin/submarinefans/sand/mud/eelfan/nicolas fan/clay/cores/lithofacies/pliocene/pleistocene/turbidity currents/slumping/silt/Hickey/physical oceanography/MINERALS MANAGEMENT SERVICE.

3086. Schumacher GM, Gerin M. Bathymetric map of Pacific Coast; Santa Catalina Island to Punta San Antonio, Mexico. Open File Report U. S. Geological Survey 1977 U. S. Geological Survey, Reston, VA Monographic; Serial; Report; Map B; Bibliography and Index of Geology (1969-present). 0196-1497.

Orange County/San Diego County/California/oceanography/continental shelf/Mexico/maps/Pacific Coast/Western U.S./United States/USGS /GEOREF.

3087. Mautz WJ. Observations on an oviposition site of the side blotched lizard, *Uta stansburiana*. J. Herpetol. 1982;16(3):331-332

Address: Dep. Comm. and Environ. Med., Coll. Med., Univ. California, Irvine, CA 92717.

In this note the author reports the discovery of three *U. stansburiana* clutches on San Clemente Island off the coast of Southern California on 27 July 1975. All three clutches were beneath a single 16 by 30 cm stone that was firmly embedded in soil to about four fifths of its smaller dimension. Two clutches each containing 3 eggs were 11 and 12 cm below the ground surface adjacent to the lower curvature of the stone, and the third with 4 eggs was directly beneath the stone.

oviposition/habitat preferences/side blotched lizard/*Uta stansburiana*/San Clemente Island/terrestrial biology/herpetology.

3088. Vedder JG, Beyer LA, Junger A, Moore GW, Roberts AE, Taylor JC, Wagner HC. Preliminary report on the geology of the continental borderland of Southern California. Miscellaneous Field Studies Map. 1974:p.34 U. S. Geol. Surv., United-States U. S. Geological Survey, Reston, VA Analytic; Serial; Report; Map B; Bibliography and Index of Geology (1969-present). California/oceanography/continental shelf/maps/Pacific Coast/Western U.S./United States/USGS/GEOREF.

3089. McAuliffe CD. The multiple gas-phase equilibration method and its application to environmental studies. 176th meeting of the American Chemical Society. Washington, DC: American Chemical Society; 1980. 193-218. Address: Chevron Oil Field Research Co., La Habra, CA 90631 Conference: 176th meeting of the American Chemical Society Miami Beach, Florida. Sep 13-14, 1978. Organic compounds/Hydrocarbons/Distribution/Pollutant detection/Oil pollution/Measuring methods/Chemical analysis/distribution coefficients/multiple gas-phase/equilibration method/Cook Inlet/Alaska Coast/Gulf of Mexico/California Coast/Santa Barbara Channel/Louisiana Coast/New Orleans/petroleum.

3090. Adams MV. Report on water injectivity test, lease OCS P 0241, Well No. B 49 1, Dos Cuadras Field, Santa Barbara Channel, off California. U. S. Geological Survey Circular. ; 1973. U. S. Geological Survey, Reston, VA Monographic; Serial; Report B; Bibliography and Index of Geology (1969-present). California/economic geology/petroleum/engineering geology/land subsidence/oil and gas fields/Pacific Coast/Western U.S./United States/USGS/GEOREF/GEOREF.

3091. McClay PL, Slosson JE. Photographic evidence in forensic engineering and geology. D.L. Hannan c. Engineering geology today and tomorrow. Program -Association of Engineering Geologists, National Meeting 26. ; 1983. 86. Address: Converse Consult., Anaheim, CA Conference: Association of Engineering Geologists 26th annual meeting; Engineering geology today and tomorrow. San Diego, CA, Oct. 2-7, 1983. slope stability/land use/legislation/photography/floods/debris/landslides/Hidden Springs/rupture/forensic geology Santa Catalina Island/floods/debris/landslides/Hidden Springs/rupture/forensic geology/engineering geology/environmental geology.

3092. Environmental impact statement (draft). 29 p. ; 1971. U. S. Geological Survey Monographic B; Bibliography and Index of Geology (1969-present). In connection with exploratory drilling operations on federal oil and gas leases issued under the Outer Continental Shelf Lands Act, Santa Barbara Channel area off the coast of California. Pacific Ocean/economic geology/petroleum/California/Gas/natural/environmental geology/pollution/mineral exploration/geological methods/Pacific Coast/Western U.S./United States/Gas, natural/USGS/GEOREF.

3093. McCulloch DS, Gardner JV, Eittreim SL, Masson DG. GLORIA survey of the morphology of the mid-California continental margin out to 200 n.mi. American Geophysical Union, 1984 Fall Meeting. Eos, Transactions, American Geophysical Union 65(45). ; 1984. 1083. Address: U. S. Geol. Surv., Menlo Park, CA, USA; Inst. Oceanogr. Sci., GBR. Conference: American Geophysical Union, 1984 Fall meeting. San Francisco, CA, United States, Dec. 3-7 1984. geophysical surveys/oceanography/acoustical surveys/continental margin/ocean floors/Monterey Fan/Delgada Fan/Murray fracture zone/Santa Barbara Channel/Santa Lucia Bank/Arguello Canyon/marine geology/oceanography.

3094. McDermott-Enrlich D, Young DR, Alexander GV, Jan TK, Hershelman GP. Chemical studies of offshore oil platforms in the Santa Barbara Channel. Siva-Lindstedt J. Energy/Environment '78: A symposium on energy development impacts: Proceedings. ; 1978.

133-144.

Address: Southern California Coastal Water Research Project, 1500 E. Imperial Hwy., El Segundo, CA 90245 Conference: Energy/environment '78: A symposium on energy development impacts. Los Angeles, CA. Aug. 22-24, 1978. Sediments collected in the vicinity of and directly below oil platforms Hazel and Hilda in the Santa Barbara Channel, California, were analyzed by AAS for hexane extractable materials, volatile solids, Cu, Zn, and petroleum hydrocarbon content. The levels of the first 4 items appeared normal in most samples; immediately below the platforms, values for all 4 were elevated. The petroleum hydrocarbon content of all samples was higher than values obtained in areas with no natural seeps. Tissues of 2 fish species (*Sebastes auriculatus* and *S. vexillaris*) and 2 invertebrates (*Cancer anthonyi* and *Mytilus californianus*) were analyzed by optical emission spectrography for trace metals (Ag, Cd, Cr, Cu, Fe, Mo, Ni, Pb, Si, V, and Zn) and petroleum hydrocarbon levels. No enhanced trace element levels were found in the animals collected from the platforms when compared with those from control sites. No detectable amounts of petroleum hydrocarbons were observed in any of the animal specimens analyzed.

Chemical analysis/Offshore operations/Sediments/Marine organisms/Trace elements/Petroleum/Hydrocarbons/Environmental impact/Fish/*Sebastes auriculatus*/*Sebastes vexillaris*/*Cancer anthonyi*/*Mytilus californianus*/Santa Barbara Channel/petroleum/pollution/water quality/chemistry/resource management.

3095. Hamilton RM, Yerkes RF, Brown RDJ, Burford RO, DeNoyer JM. Seismicity and associated effects, Santa Barbara region. Geology, petroleum development, and seismicity of the Santa Barbara channel region, California. U.-S.-Geological-Survey-Professional-Paper. 1969:p.47-68
U. S. Geological Survey, Reston, VA Analytic; Serial; Report B; Bibliography and Index of Geology (1969-present).
Recent earthquake history, epicentral locations, associated ground motion and failure, tsunamis, seismic effects on oil-field installations and operations.
California/seismology/seismicity/Pacific Ocean/effects/Pacific Coast/Western U.S./United States/oil and gas fields/Santa Barbara/seismic effects/USGS/GEOREF.

3096. McFarland WN, Prescott J. Standing crop, chlorophyll content and in situ metabolism of a giant kelp community in southern California. Publ. Inst. Mar. Sci. Univ. Tex. 1959;6:109-132
photosynthesis/chlorophyll/metabolism/*Macrocystis pyrifera*/giant kelp/California Channel Islands/marine biology/botany/phyecology.

3097. Robinson K, Porath H. Marine studies of San Pedro Bay, California. Part VI. Circulation investigations. Current measurements in the outer Los Angeles harbor. 1974; COM 74 11558 5/7400/ocean currents/los angeles harbor/water pollution/tides/flowmeters/wind meteorology/velocity measurement Hickey/physical oceanography/MINERALS MANAGEMENT SERVICE.

3098. McCulloh TH. Geologic characteristics of the Dos Cuadras offshore oil field. Geology, petroleum development, and seismicity of the Santa Barbara channel region, California. U.-S.-Geological-Survey-Professional-Paper. 1969:p.29-46 U. S. Geological Survey, Reston, VA Analytic; Serial; Report B; Bibliography and Index of Geology (1969-present).
Anticlinal accumulation in Pliocene sandstone-siltstone sequence,

reservoir characteristics, pressure conditions, well blowout, associated oil seepage, subsidence potential accompanying fluid withdrawal.

petroleum/Pacific Ocean/Dos Cuadras oil field/oil and gas fields/economic geology/structure/USGS/GEOREF.

3099. McKinney CR. Uranium series ages of Columbian mammoth enamel on Santa Rosa Island; implications for low sea stands and man's entry into North America. Geological Society of America, 93rd annual meeting. Abstracts with Programs - Geological Society of America 1980;12(7):481

Address: Fla. State Univ., Dep. Geol., Tallahassee, FL Conference: 93rd annual meeting of the Geological Society of America Atlanta, GA, Nov. 17-20, 1980. absolute

age/geochronology/dates/stratigraphy/Pleistocene/teeth/changes of level/paleontology/uranium/archaeology/Th

U/Quaternary/Cenozoic/fossilization/uranium-thorium-lead

dating/mammoth enamel Mammalia/Elephantoidea/Mammuthus

exilis/Mammuthus columbi/California Channel Islands/Santa Rosa

Island/geology/paleontology/stratigraphy/mammalogy/terrestrial biology.

3100. Yerkes RF, Wagner HC, Yenne KA. Petroleum development in the region of the Santa Barbara channel. Geology, petroleum development, and seismicity of the Santa Barbara channel region, California.

U.-S.-Geological-Survey-Professional-Paper. 1969:p. 13-27

U. S. Geological Survey, Reston, VA Analytic; Serial; Report B; Bibliography and Index of Geology (1969-present).

Descriptions of onshore and offshore oil and gas fields, Rincon anticlinal trend, Eocene-Pleistocene reservoir rocks, asphalt occurrences.

Pacific Ocean/economic geology/oil and gas

fields/California/bitumens/hydrocarbons/organic materials/Pacific Coast/Western U.S./United States/distribution/exploration/natural gas/Santa Barbara Channel/structure/USGS/GEOREF.

3101. McLean H, Howell DG. Miocene Blanca Fan, northern Channel Islands, California: small fans reflecting tectonism and volcanism. Geo-Marine Letters 1984;3(2-4):161-166

Address: U. S. Geol. Surv., Menlo Park, CA.

Blanca Fan is a submarine fan composed of Miocene volcanoclastic strata. Parts of the fan system are exposed on Santa Cruz and Santa Rosa Islands, and possibly correlative strata crop out on San Miguel and Santa Catalina Islands. The Blanca Fan and underlying breccia reflect regional transcurrent faulting in the California Continental Borderland and development of a system of rapidly subsiding basins and uplifted linear ridges during early and middle Miocene time. Erosion of uplifted crystalline basement rocks followed by silicic volcanism created linear sediment sources for the alluvial and submarine fans, respectively.

ocean floors/Blanca Formation/Vaqueros Formation/Blanca

Fan/Miocene/Neogene/Tertiary/bottom features/submarine fans/marine geology/transcurrent

faults/faults/volcanoclastics/conglomerate/clastic

rocks/turbidites/tectonic control of

sedimentation/sediments/deposition of clastics/external bedding

structures/Miocene Pacific Ocean/Santa Cruz Island/Santa Rosa

Island/San Miguel Island/Santa Catalina Island/Miocene/Blanca

Fan/marine geology/oceanography.

3102. Roedel PM. The jack mackerel, *Trachurus symmetricus*:

A review of the California fishery and of current biological knowledge. Calif. Fish Game 1953;39(1):45-68.

Jack mackerel/Trachurus symmetricus/fishery/fishing gear/distribution/age/weight/larvae/spawning/economics/fish/Cross /MINERALS MANAGEMENT SERVICE.

3103. Roedel PM. Report of the CalCOFI committee. Partial review of and proposed program for research toward utilization of the California current fishery resources. Calif. Coop. Oceanic Fish. Invest. Rep. 1968;12:5-9. fisheries/marine resources/california/zooplankton/Pieper/MINERALS MANAGEMENT SERVICE.

3104. Vedder JG, Wagner HC, Schoellhamer JE. Geologic framework of the Santa Barbara channel region. Geology, petroleum development, and seismicity of the Santa Barbara channel region, California. U.-S.-Geological-Survey-Professional-Paper. 1969:p.1-11 U. S. Geological Survey, Reston, VA Analytic; Serial; Report B; Bibliography and Index of Geology (1969-present). Cretaceous-Quaternary geologic history, sedimentary-volcanic rocks, structural development. Pacific Ocean/oceanography/marine geology/stratigraphy/Mesozoic/Cenozoic/California/Pacific Coast/Western U.S./United States/Cretaceous/Jurassic/Quaternary/Santa Barbara Channel/tectonics/Tertiary/Triassic/USGS/GEOREF.

3105. McNeilan TW, Bugno WT. Jackup rig performance in predominantly silty soils, offshore California. Proceedings - Offshore Technology Conference 17 1985;1:395-402 Address: McClelland Eng., San Francisco, CA, USA; Chevron U.S.A., USA Conference: 1985 offshore technology conference. Houston, TX, May 6-9, 1985. In uniform deposits of nonplastic, very silty fine sand or sandy silt, the observed spud can penetrations are small and can be predicted using conventional procedures for sand, assuming fully drained conditions. In contrast, where the subsurface materials are predominantly clayey silts of medium plasticity, the spud can penetrations are larger and can be predicted using conventional procedures for the undrained behavior of clay. For silt deposits that are neither very sandy nor very clayey, observed spud can penetrations suggest that these deposits are partially drained during spud can penetration. For silt deposits of intermediate permeability, the spud can penetrations may depend not only on spud can geometry, leg loads, detailed soil layering, and soil properties, but also on the rate at which the spud cans are loaded. Thus, because of partial drainage effects, computational procedures and experience based on undrained or drained behavior should be used with caution when a site is underlain by silt. foundations/silt/clastic sediments/soils/case studies/jackup rigs/offshore/sand/permeability/continental shelf/Santa Maria Basin/Santa Barbara Channel/Le Tourneau/engineering geology/environmental geology.

3106. Mendelsohn S. Project execution plan for OTEC (Ocean Thermal Energy Conversion) current study. : Naval Facilities Engineering Command, Washington, DC. Chesapeake Div. CHES/NAVFAC-FPO-7821; 1978. 13. ((Sponsored by the Department of Energy, Deep Oil Technology, Incorporated)). As part of the Ocean Thermal Energy Conversion (OTEC) project the contractor being sponsored by the Department of Energy, Deep Oil Technology, Incorporated the contractor is conducting a

verification test for the OTEC Cold Water Pipe during November and December 1978. The test is being conducted from the Deep Oil X-1 platform to: 1) test the analytical methods used to design the OTEC Cold Water Pipe; and 2) evaluate the performance of the Cold Water Pipe in the open sea. The work is being carried out off the Coast of California on the seaward side of Santa Catalina Island in about 1,000 feet of water. The Cold Water Pipe tests will consist of supporting an instrumented steel pipe five feet in diameter and up to 800 feet long from the Deep Oil X-1. The dynamic behavior of the pipe will be measured for various sea conditions, platform motions, pipe lengths, and pipe supporting means.

Ocean currents/Low temperature/Test and evaluation/Water/Water pipes/Dynamics/Ocean tides/Coastal regions/Instrumentation/Pipes/Oceans/Steel/Energy conversion/Heat/Data acquisition/Oceanographic data/Open water/Length/Planning/Motion/Platforms/Sea states/Ocean thermal energy conversion/seaward side of Santa Catalina Island/oceanography.

3107. Evenson RE. Suitability of irrigation water and changes in ground water quality in the Lompoc subarea of the Santa Ynez River basin, Santa Barbara County, California. U. S. Geological Survey Water Supply Paper. 1965:p.S1-S20 U. S. Geological Survey, Reston, VA Monographic; Serial; Report N; Bibliography of North American Geology (1785-1970).

Analyses of water samples collected since 1934 from some of the irrigation wells in the Lompoc subarea of the Santa Ynez River valley have shown a gradual deterioration in the chemical quality of the water. . . . The influence of recycled irrigation water is indicated by increased concentrations of chloride and sulfate in a ratio of 1:2. Inflow of high-chloride low-sulfate connate water is indicated by increased chloride concentration correlated with little or no change in sulfate concentration. Peak chloride concentrations in three local areas are probably the result of inflow of connate water. Furthermore, ground-water gradients in each of the local areas are favorable for inflow from the consolidated rocks.

Santa Barbara County/California/hydrogeology/ground water/surveys/Pacific Coast/Western U.S./United States/changes/composition/geochemical/ground water quality/Lompoc subarea/maps/quality/Santa Ynez basin/Santa Ynez River basin/Santa Ynez River valley/USGS/GEOREF.

3108. Menke AS. Maps and place-names of the California Channel Islands. Menke AS, D.R. Miller. Entomology of the California Channel Islands: Proceedings of the first symposium. Santa Barbara, CA: Santa Barbara Museum of Natural History; 1985. 171-178.

Address: Syst. Entomol. Lab., IIBIII, ARS, USDA, c/o U.S. Natl. Mus., MNH, Washington, DC 20560.

Scientific expeditions to the California Channel Islands are often fraught with various problems, one of which is the general lack of adequate maps. It seemed appropriate, therefore, to include definitive island maps with this proceedings publication because entomologists need to precisely indicate on their collection labels where insect material originated. This is because some insects are restricted to narrow habitats such as, for example, canyons where their host plants may still survive the ravages of feral animals, or to areas of moisture such as spring or water course, or to sand dunes.

maps/entomology/California/Channel Islands/geology/terrestrial biology/geography.

3109. Rowe GT. Respiration and chemical composition of Pleuroncodes planipes (Decapoda:Galatheididae) energetic significance in an upwelling system. Can. Fish. Res. Board J. 1975;32(9):1607-1612.

Baja/California Coast/Pleuroncodes/California current/chemical analysis/caloric content/upwelling/respiration rates/energy budget/ecosystems/crabs/P/planipes/Thompson/invertebrates/MINERALS MANAGEMENT SERVICE.

3110. Wilson HDJ. Ground water appraisal of Santa Ynez River basin, Santa Barbara County, California, 1945 52. U. S. Geological Survey Water Supply Paper. 119 p 1959
U. S. Geological Survey, Reston, VA Monographic; Serial; Report N; Bibliography of North American Geology (1785-1970).
Santa Barbara County/California/hydrogeology/ground water/surveys/aquifers/Pacific Coast/Western U.S./United States/cross sections/Geologic formations/geologic maps/maps/historical geology/Lists/Pliocene Recent/Quaternary/Santa Ynez River basin/sections/tables/USGS/GEOREF.

3111. Menke AS. Notes on Channel Island Sphecidae. Menke AS, Miller DR. Entomology of the California Channel Islands: proceedings of the first symposium. Santa Barbara, California, USA: Santa Barbara Museum of Natural History; 1985. 52-58.
Presented at: Symposium on Entomology of the California Channel Islands (at) Annual Meeting of the Entomological Society of America, San Diego, CA (USA), Dec 1981 Address: Syst. Entomol. Lab., IIBIII, Agric. Res. Serv., USDA, c/o U.S. Natl. Mus., Nat. Hist. Build., Washington, DC 20560.
Included here are differences between insular and mainland populations of some species, notes on synonymy, easp habitats, and biological observations. The description of a new subspecies of Bembix americana from San Clemente I. is included and key to the Channel Island subspecies of this wasp is appended. taxonomy/new subspecies/check lists/food organisms/habitat Sphecidae/Bembix americana/wasps/California Channel Islands/terrestrial biology/entomology.

3112. Upton JEI, Thomasson HGJ. Geology and water resources of the Santa Ynez River basin, Santa Barbara County, California. U. S. Geological Survey Water Supply Paper. 194 p 1951
U. S. Geological Survey, Reston, VA Monographic; Serial; Report N; Bibliography of North American Geology (1785-1970).
Santa Barbara County/California/hydrogeology/ground water/surveys/Pacific Coast/Western U.S./United States/Geologic formations/geologic history/geologic maps/maps/historical geology/Jurassic, Recent/Lists/physical geology/Santa Ynez River basin/sections/tables/USGS/GEOREF.

3113. Menke AS. Symposium introduction. Menke AS, Miller DR. Entomology of the California Channel Islands: Proceedings of the first symposium. Santa Barbara, California, USA: Santa Barbara Museum of Natural History; 1985. 1-2. Presented at: Symposium on Entomology of the California Channel Islands (at) Annual Meeting of the Entomological Society of America, San Diego, CA (USA), Dec 1981 Address: Syst. Entomol. Lab., IIBIII, Agric. Res. Serv., USDA, c/o U.S. Natl. Mus., MNH, Washington, DC 20560.
zoogeography/biogeography/Insecta/California Channel Islands/terrestrial biology/entomology.

3114. Reynolds S. A recent turbidity current event, Hueneme Fan, California: Reconstruction of flow properties. Sedimentology 1987;34(1):129-137. text/chemical

oceanography/eganhouse/venkatesan/3/introduction/MINERALS
MANAGEMENT SERVICE.

3115. Olmsted FH. Geologic reconnaissance of San Clemente Island, California. U. S. Geological Survey Bulletin. 1958:p.55-68 U. S. Geological Survey, Reston, VA Monographic; Serial; Report N; Bibliography of North American Geology (1785-1970). Los Angeles County/California/areal geology/maps/Pacific Coast/Western U.S./United States/geologic maps/historical geology/Miocene Recent/petrology/physical geology/physiographic geology/San Clemente Island/volcanic rocks/USGS/GEOREF.

3116. Menke AS, Miller DR(. Entomology of the California Channel Islands: Proceedings of the first symposium. Santa Barbara, California, USA: Santa Barbara Museum of Natural History; 1985. 184.

Presented at: Symposium on Entomology of the California Channel Islands (at) Annual Meeting of the Entomological Society of America, San Diego, CA (USA) Price: \$20.00. With eight maps in folder.

Seven papers were presented at the symposium. Six are printed here in revised and augmented form, and three additional papers on Channel Island insects are included in this volume because it seemed appropriate. One of these is an addendum and update of the bibliography published by Miller and Menke, and the others are on the bees of Anacapa I. and the beetles of Santa Barbara I. A fourth non-symposium paper included in this volume presents detailed maps of the 8 California Channel Islands. island biogeography/entomology/Insecta/California Channel Islands/terrestrial biology/entomology.

3117. Smith WST. Part 2; A geological sketch of San Clemente Island [California]. United States Geological Survey Annual Report. 1898;18(part 2):p.159 U. S. Geological Survey, Washington, DC Analytic; Serial; Report N; Bibliography of North American Geology (1785-1970).

Los Angeles County/California/areal geology/San Clemente Island/Pacific Coast/Western U.S./United States/geologic history/geologic maps/maps/igneous and volcanic rocks/petrology/terraces/Tertiary/USGS/GEOREF.

3118. Michel WC, Case JF. Effects of a water soluble petroleum fraction on the behavior of the hydroid coelenterate *Tubularia crocea*. Mar. Environ. Res. 1984;13(3):161-176 Address: DEPARTMENT OF BIOLOGICAL SCIENCES, MARINE SCIENCES INSTITUTE, UNIVERSITY California, SANTA BARBARA, CALIF. 93106. The water-soluble fraction (WSF) of Platform Holly, Monterey formation [Santa Barbara Channel, California, USA] crude oil has sublethal effects on the feeding behavior of *Tubularia crocea*, a hydroid coelenterate. Dilutions as low as 10% WSF (0.68 ppm benzene) reduced the frequency of contractions, spontaneous concerted oral flexions of the proximal tentacles. Exposure to undiluted WSF and its volatile subfraction caused significant hydranth shedding. Exposure to 100% WSF for 15 min or longer significantly reduced the number of *Artemia nauplii* ingested, in feeding tests. After a 24 h exposure to 100% WSF, ingestion rates remained depressed during a further 24 h without exposure. The threshold for feeding stimulation by proline increased one log unit after 24 h treatment with 100% WSF and spontaneous activity was reduced to all test stimuli, including filtered seawater (FSW). It is suggested that *Tubularia* is useful as a test organism for petroleum effects upon behavioral processes significant to survival in coelenterates. sublethal effects/feeding behavior/crude oil/benzene

proline/hydranth shedding/test organisms/Platform Holly
hydroid/Tubularia crocea/Santa Barbara Channel/marine
biology/petroleum.

3119. Kemnitzer LE. Geology of the San Nicolas and Santa
Barbara islands, Southern California [dissertation]. ; 1933.
California Institute of Technology, United-States; Master's
Monographic; Thesis B; Bibliography and Index of Geology (1969-
present).

unknown p.

California/areal geology/San Nicolas Island/Santa Barbara
Island/Pacific Coast/Western U.S./United States/Southern
California/GEOREF.

3120. Michel WC. The effects of oil pollution on hydroid
behavior and neurophysiology [dissertation]. Santa Barbara,
California, USA: University of California; 1985. 161.
The hydroids. Tubularia crocea and Myrionema hargitti are
sensitive organisms for assessing the effects of oil pollution.
The abilities of these hydroids to capture Artemia nauplii
were reduced after 1 h exposure to a water-soluble fraction (WSF)
of Monterey Formation crude oil (from Platform Holly, Santa
Barbara Channel; 100% WSF = 20 ppm total hydrocarbons). Algal
symbionts within Myrionema contribute photosynthetically-fixed
carbon to the host hydroid. No significant effects upon these
symbionts were noted after 1 or 3 h but significant reductions in
the mitotic index, photosynthesis and carbon translocation
rates were observed after a 24-48 h exposure to 100% WSF.
Myrionema hargitti was less responsive to mechanical stimuli
after a brief 100% WSF exposure. The responsiveness to a
feeding stimulant (proline) and concert frequency of 100% WSF-
treated Tubularia crocea were lower than controls. The cellular
basis for the behavioral abnormalities in Tubularia were
further examined with electrophysiological techniques.
Pulses of 100% WSF evoked rapid increases in the firing
frequency of epithelial conducting systems associated with a
vigorous tentacle closure response. Significant increases in
epithelial activity were also recorded at 1% WSF and the increased
firing frequency did not persist beyond the duration of the
exposure. Ten min exposures to 0.1% WSF resulted in
significant increases in epithelial activity. 100% WSF also
increased epithelial pulse activity but decreased the
amplitude of the pulses. During post-treatment in FSW the
epithelial activity and amplitude approached pre-treatment levels.
Bioaccumulation of (³H)-toluene (20 ppm) from 100% WSF reached
a maximum within 1 min but declined over the next hour. Higher
concentrations of (³H)-toluene evoked increased hydranth shedding
within 1 h but these hydranths never accumulated as much
(³H)-toluene as hydranths exposed to lower
concentrations. Fluctuations in the content of sodium and calcium
occurred within 1-5 min after exposure to 100% WSF. It
appears that hydrocarbon bioaccumulation alters membrane
permeability properties, upsetting the equilibrium of ions
critical for electrical activity. These changes to Tubularia
epithelial membranes alter properties of the epithelial
conducting systems coordinating the rhythmic behavioral activity.
zooxanthellae/oil pollution/feeding biology/Tubularia
crocea/Myrionema hargitti/zooxanthellae/marine biology.

3121. Bailey EH. Mineralogy, petrology, and geology of Santa
Catalina Island, California [dissertation]. ; 1941.
Stanford University, United-States; Doctoral Monographic; Thesis
B; Bibliography and Index of Geology (1969-present).

unknown p.

California/areal geology/Santa Catalina Island/Pacific Coast/Western U.S./United States/GEOREF.

3122. Miles AK. Turf assemblage of a *Macrocystis* kelp forest: experiments on competition and herbivory (illumination) [dissertation]. Corvallis, Oregon: Oregon State University; 1986. 152.

Early and later successional stages of the assemblage of turf algae and sessile animals of a *Macrocystis* kelp forest were studied off San Nicolas Island, California from 1980 through 1981, and 1983 through 1984. Kelps were manipulated to determine if differences in illumination could account for dominance by turf algae or sessile animals. Caging and algal-removal experiments were conducted to determine if the effects of herbivory and competition could account for the low or variable recruitment and abundance of foliose turf algae. Plots were covered for different time intervals up to 1 year to determine if survival of overgrowth could explain the prevalence of competitively subordinate crustose coralline algae. Increased cover and recruitment of turf algae and decreased cover and low recruitment of sessile animals were correlated with the removal of canopy. In the presence of canopy, existing cover of crustose algae and sessile animals changed little over time; sessile animals recruited at significantly higher levels than algae on cleared plots. *Patiria* (a common invertebrate grazer) removed certain ephemeral algae and appeared to slow recruitment by other algae, but had little effect on mature turf algae. These effects appeared dependent on a high density of *Patiria*. Algal recruitment on caged and open, near-bare plots was negligible, but sessile animals recruited heavily to these plots. These results were correlated with low illumination caused by a dense and persistent surface canopy of *Macrocystis*. Established foliose red algae increased significantly in caged plots compared to open plots implying effects due to herbivory. No changes in cover were associated with turf algal-algal competition on these plots; a major decline in cover of all arborescent turf algae was correlated with low illumination. On covered plots, crustose coralline algae alternately survived, died, and recruited at different sampling points, resulting in only a slight change in abundance after 12 months of coverage. Other sessile organisms also survived while covered, but declined substantially compared to crustose coralline algae. Patterns of distribution and abundance of turf algae and sessile animals were correlated with the *Macrocystis* canopy, as it affects illumination at the substrate. No pervasive effects were attributed to grazing by large invertebrates. Herbivory, probably by fishes, was a plausible explanation for the low abundance of foliose red algae. The ability of crustose coralline algae to survive and recruit under conditions of overgrowth was shown to be a contributing factor for the prevalence of these algae.

herbivory/competition/succession/illumination/giant kelp/brown algae/crustose coralline algae/*Patiria*/foliose red algae/marine biology/botany.

3123. Rindsberg AK. Distribution and preservation of biogenic sedimentary structures in the deep sea. [dissertation] ; 1986.

Colorado School of Mines, United-States; Doctoral Monographic; Thesis B; Bibliography and Index of Geology (1969-present).

unknown p.

sedimentary structures/biogenic structures/patterns/Pacific

Ocean/sedimentary petrology/assemblages/Atlantic Ocean/benthonic taxa/bioturbation/burrows/cores/Deep Sea Drilling Project/deep sea environment/depth/distribution/echinoderms/ecology/Eocene/Paleogene/Tertiary/faunal studies/Holocene/Quaternary/interpretation/lebensspuren/North American Pacific/organic carbon/organic materials/preservation/San Clemente Basin/worms /GEOREF.

3124. Miller DJ, Collier RS. Shark attacks in California and Oregon, USA 1926-1979. Calif. Fish Game 1981;67(2):76-104
Address: MARINE RESOURCES BRANCH, CALIF. DEP. FISH GAME, 2201 GARDEN RD., MONTEREY, CALIF. 93940.
mammal population/human/kelp beds/attack pattern/victim activity/location time/seasonality/water visibility/shark attacks/sharks/white shark/Carcharodon carcharias/Point Conception/San Miguel Island northward/Ano Nuevo Island/Bodega Bay/marine biology/ichthyology.

3125. Hollander DJ. Origin of secondary carbonates, diagenesis of organic matter, and source bed evaluation, Tertiary basinal units, La Honda Basin, Santa Cruz Mountains, California. [dissertation] ; 1984.
University of California, Santa Cruz, United-States; Master's Monographic; Thesis B; Bibliography and Index of Geology (1969-present).
unknown p.
California/stratigraphy/Tertiary/diagenesis/materials/organic materials/alteration/Pacific Coast/Western U.S./United States/carbonates/Coast Ranges/La Honda Basin/Santa Cruz Mountains/secondary minerals/GEOREF.

3126. Schacher GE, Davidson KL, Leonard CA, Spiel DE, Fairall CW. Comparison of overwater stability classification schemes with measured wind direction variability: Offshore transport and diffusion in the Los Angeles Bight. NPS-61-82-002. Prep. for U.S. Dep. Interior, Minerals Management Service, Pacific OCS Region, Los Angeles, CA. Prep. by Naval Postgraduate School, Monterey, CA. 1982::58.
MINERALS MANAGEMENT SERVICE.

3127. Miller DR. Notes on Channel Island mealybugs. Menke AS, Miller DR. Entomology of the California Channel Islands: proceedings of the first symposium. Santa Barbara, California, USA: Santa Barbara Museum of Natural History; 1985. 59.

Presented at: Symposium on Entomology of the California Channel Islands (at) Annual Meeting of the Entomological Society of America, San Diego, CA (USA), Dec 1981 Address: Syst. Entomol. Lab., IIBIII, Agric. Res. Serv., USDA, BARC-West, Beltsville, MD 20705.

This section is written to draw attention to changes in the names of certain mealybugs discussed in previous papers on the pseudococcids of the California Channel Islands.
taxonomy/mealybugs/pseudococcids/Pseudococcidae/California Channel Islands/terrestrial biology/entomology.

3128. Schaefer MB. Some aspects of the biological oceanography of the California Current with particular reference to the vicinity of Point Arguello. Univ. of Calif. Institute of Marine Resources. Ref. No. 65-26 1965::25. Hardy phytoplankton/MINERALS MANAGEMENT SERVICE.

3129. McGlasson RH. Foraminiferal biofacies around Santa

Catalina Island [dissertation]. ; 1957.

University of Southern California, United-States; Master's Monographic; Thesis B; Bibliography and Index of Geology (1969-present).

California/stratigraphy/biostratigraphy/foraminifers/biofacies/Pacific Coast/Western U.S./United States/microfossils/marine sediments/Santa Catalina Island/Southern California/GEOREF.

3130. Miller DR. Symposium conclusions and summation. Menke AS, Miller DR. Entomology of the California Channel Islands: proceedings of the first symposium. Santa Barbara, California, USA: Santa Barbara Museum of Natural History; 1985. 113-117. Presented at: Symposium on Entomology of the California Channel Islands (at) Annual Meeting of the Entomological Society of America, San Diego, CA (USA), Dec 1981. zoogeography/Insecta/California Channel Islands/terrestrial biology/entomology.

3131. Brabb EE. Geology of the Big Basin area, Santa Cruz Mountains, California [dissertation]. ; 1960. Stanford University, United-States; Doctoral Monographic; Thesis B; Bibliography and Index of Geology (1969-present). unknown p. California/areal geology/Santa Cruz Mountains/Big Basin/Pacific Coast/Western U.S./United States/GEOREF.

3132. Miller JM. Diploid *Claytonia perfoliata* from Southern Mexico. Madrono 1978;25(1):57-58
ADDRESS: DEP. BOT. PLANT PATHOL., OREG. STATE UNIV., CORVALLIS, OREG. 97331. coniferous forests/morphology/Coniferopsida/Portulacaceae/*Claytonia perfoliata* Willd. ssp. *perfoliata*/*Claytonia rubra*/(T. Howell) Tidestrom southern Mexico/coastal California/California Channel Islands/terrestrial biology/botany.

3133. Schmitt WR,e. Institute of Marine Resources, University of California; biennial report for the two years ending 30 June 1974. Inst. Mar. Resour. Report No.: IMR 74-15 1974;:50. California/associations/general/University of California/Institute of Marine Resources/current research/report/programs/publications/activities/1973-1974/United States/Hickey/physical oceanography/MINERALS MANAGEMENT SERVICE.

3134. Resig JM. Ecology of foraminifera of Santa Cruz Basin, California [dissertation]. ; 1956. University of Southern California, United-States; Master's Monographic; Thesis B; Bibliography and Index of Geology (1969-present). unknown p. California/paleontology/foraminifers/ecology/habitat/Pacific Coast/Western U.S./United States/foraminifera/microfossils/Protista/Santa Cruz Basin/GEOREF.

3135. Miller KA. Studies in the genus *Rhodymenia* (*Rhodymeniales*, *Rhodophyta*) on the Pacific coast of North America (California) [dissertation]. Berkeley, California, USA: University of California; 1987. 158. The distribution, ecology and phenology of four species of *Rhodymenia* (*R. californica*, *R. pacifica*, *R. callophyllidoides*, and *R. arborescens*) are described, with attention to their sympatric occurrence in the California Channel Islands. Seasonal and latitudinal patterns in reproduction define different centers of distribution for the four species; while *R. californica* and *R. pacifica* are similar,

the other two species are distinctly different. The ontogeny, anatomy, organography and architecture of the four species emphasizes the similarity between *R. californica* and *R. pacifica*, whose thalli comprise a cluster of primary and lateral blades with modified plagiotropic blades (stolons). *R. callophyllidoides* is sessile, and partially or wholly procumbent. *R. arborescens* is distinctly stipitate, with a sympodial axis. In all four species, morphological differentiation is independent of anatomical construction. Morphological variation in the lamina of *R. californica* was studied by two methods: a morphometric analysis of field-collected plants and the growth of clones in culture under defined conditions. Morphological variation is superimposed on a basic developmental program, whose expression is affected by the periodicity, extent and rate of growth, which in turn is influenced by environmental factors. sympatric species/Rhodymeniales/Rhodophyta/Rhodymenia californica/Rhodymenia pacifica/Rhodymenia callophyllidoides/Rhodymenia arborescens/California Channel Islands/terrestrial biology/botany.

3136. Schrader H, Baumgartner T. Decadal variation of upwelling in the central Gulf of California. Coastal Upwelling, Its Sediment Record. Part B, Sedimentary Records of Ancient Coastal Upwelling 1983;:247-276. egeanhouse/geochemistry/chemical oceanography/Gulf of California/Mexico/geochronology/sediments/varves/circulation/lithofacies/Pacific Ocean/upwelling/Guaymas Basin/planar bedding structures/bathymetry/Carmen Basin/Farallon Basin/Pescadero Basin/San Pedro Martir Basin/California Current/lamination/MINERALS MANAGEMENT SERVICE.

3137. Stegall MJ. A sedimentary analysis of the Dakota Sandstone of the Las Vegas Basin, San Miguel County, New Mexico. [dissertation] ; 1957. Mississippi State University, United-States; Master's Monographic; Thesis B; Bibliography and Index of Geology (1969-present). unknown p. San Miguel County New Mexico/Dakota Formation/New Mexico/sedimentary petrology/sedimentation/sedimentary rocks/clastic rocks/sandstone/Las Vegas Basin/Southwestern U.S./United States/GEOREF.

3138. Hill DJ. Geology of the Jurassic basement rocks, Santa Cruz Island, California [dissertation]. ; 1976. University of California, Santa Barbara, United-States; Master's Monographic; Thesis B; Bibliography and Index of Geology (1969-present). unknown p. California/stratigraphy/Jurassic/basement/Pacific Coast/Western U.S./United States/Santa Cruz Island/GEOREF.

3139. Higgins RE. A chemical study of Cenozoic volcanism in the Los Angeles Basin and Santa Cruz Island, and the Mojave Desert. [dissertation] ; 1973. University of California, Santa Barbara, United-States; Doctoral Monographic; Thesis B; Bibliography and Index of Geology (1969-present). unknown p. California/volcanology/volcanism/Cenozoic/Pacific Coast/Western U.S./United States/Los Angeles Basin/Mojave Desert/Santa Cruz Island/GEOREF.

3140. Miller PL. Late cretaceous coccolith bio stratigraphy of San Miguel Island, California, USA. Micropaleontology (N.Y.) 1983;29(2):182-201 Address: CHEVRON U.S.A. INC., BOX 8100, CONCORD, CALIF. 94524. Coccoliths recovered from the northwest

coast of San Miguel Island (latitude 34.degree. N) provide definitive biostratigraphic criteria for subdivision of the Upper Cretaceous strata and for regional correlation with Upper Cretaceous rocks of the southern California mainland and offshore areas. Seven coccolith species zones are recognized [Quadrum gartneri, Eiffellithus eximius, Marthasterites furcatus, Micula staurophora, Broinsonia parca, Q. trifidum, Arkhangelskiella cymbiformis] from the stratigraphic distribution of 38 spp. and suggest an early Turonian to middle Maestrichtian age. More than 500 m of stratigraphic section along the northwest coast previously mapped as Paleogene are Upper Cretaceous. Part of the Upper Cretaceous sequence of San Miguel Island can be correlated with the Jalama, Chatsworth and Ladd formations and the Point Loma Formation of the southern California mainland.

Cretaceous/biostratigraphy/stratigraphic correlation/Coccoliths/Quadrum gargneri/Eiffellithus eximius/Marthasterites furcatus/Micula staurophora/Broinsonia parca/Quadrum trifidum/Arkhangelskiella cymbiformis/San Miguel Island/paleontology/geology/biostratigraphy.

3141. Science Applications I. Intertidal study of the Southern California Bight, 1976/1977. Volume III. Principal investigators' reports, report sections 1.1.8-1.1.13. Final report. 1978;:635.

crude oil/ecology/marine biology/oil pollution/Southern California Bight/Eganhouse/chemical oceanography/continental shelves/hydrocarbons/intertidal zone/invertebrates/metals/trace elements/environmental impacts/acidity/distribution property/San Nicolas Island/concentration composition/atomic spectroscopy/neutron activation analysis/aquatic animals/california/algae/spermatophytes/Bray/Murray/MINERALS MANAGEMENT SERVICE.

3142. Rand WW. The geology of Santa Cruz Island, California [dissertation]. ; 1934.

University of California, Berkeley, United-States; Doctoral Monographic; Thesis B; Bibliography and Index of Geology (1969-present).

unknown p.

Santa Barbara County California/California/areal geology/Santa Cruz Island/Pacific Coast/Western U.S./United States/GEOREF.

3143. Miller S, Miller PM. Beetles of Santa Barbara Island, California, USA (Coleoptera). Menke AS, D.R. Miller. Entomology of the California Channel Islands: Proceedings of the 1st symposium. Santa Barbara, California: Santa Barbara Museum of Natural History; 1985. 121-136.

Presented: SAN DIEGO, CALIF., USA, DEC. 1981. Address: MUSEUM COMPARATIVE ZOOL., HARVARD UNIV., CAMBRIDGE, MASS. 02138.

colonization/niche/geographical distribution/check lists/beetles/Coleoptera/Santa Barbara Island/terrestrial biology/entomology.

3144. Science Applications I. Southern California baseline study and analysis (1975/1976). Volume III (principal investigator work element reports). Report sections 1.1, 1.2; book 2 of 10. Final report. 1978;:189.

crude oil/ecology/marine biology/water pollution/Southern California Bight/Eganhouse/chemical oceanography/continental shelves/hydrocarbons/natural gas/intertidal zone/environmental impacts/tables data/benthos/sampling/invertebrates/sediments/collecting methods/calcium carbonates/abundance/distribution

property/California/chemical
oceanography/anthropogenic/eganhouse/anderson/MINERALS MANAGEMENT
SERVICE.

3145. Smith WST. The geology of Santa Catalina Island
(Calif.) [dissertation]. ; 1897.
University of California, Berkeley, United-States; Doctoral
Monographic; Thesis B; Bibliography and Index of Geology (1969-
present).
unknown p.
Los Angeles County/California/areal geology/Santa Catalina
Island/Pacific Coast/Western U.S./United States/GEOREF.

3146. Science Applications I. Intertidal study of the
Southern California Bight, 1977/78, (third year). Volume IV,
report 1, appendices A-E. Final report. 1979;:921.
Schroeter/invertebrates/INTER/HARD/SOFT/PB-80-1433779/reish/MINER
ALS MANAGEMENT SERVICE.

3147. Miller SE. Butterflies of the California Channel
Islands, USA. J Res. Lepid. 1984;23(4):282-296
Address: MUSEUM COMPARATIVE ZOOLOGY, HARVARD UNIV., CAMBRIDGE, MA
02138. The butterflies (Lepidoptera: Papilionoidea and
Hesperioidea) of the 8 California Channel Islands are listed, with
indication of residency status. Generally, the island faunas are
depauperate aggregations of mainland species. The short geologic
duration of isolation and high vagility of most of the species have
limited endemism. A species/area relationship exists, but turnover
in species composition over time (MacArthur-Wilson equilibrium) is
difficult to document with available data.
residency/status/isolation/endenism/species
composition/turnover/island
biogeography/Lepidoptera/Papilionoidea/Hesperioidea/California
Channel Islands/terrestrial biology/entomology.

3148. Science Applications I. Southern California baseline
study and analysis (1975/1976). Volume III (principal investigator
work element reports). Report section 2.1 (chapters 7-12); book 4
of 10. Final report. 1979;:523. crude-oil/ecology/marine
biology/water pollution/Southern California
Bight/Eganhouse/chemical oceanography/continental
shelves/hydrocarbons/natural gas/intertidal zone/environmental
impacts/tables data/abundance/seasonal
variations/benthos/invertebrates/distribution property/ocean
tides/ocean
temperature/fishes/Phaeophyta/sediments/California/algae and
spermatophytes/Bray/Murray/rocky intertidal/kelp/chemical
oceanography/MINERALS MANAGEMENT SERVICE.

3149. Science Applications I. Intertidal study of the
Southern California Bight, 1977/1978 (third year). Volume II,
report 1, sections 8-15. Final report. 1980;:395.
Schroeter/invertebrates/INTER/HARD/SOFT/PB-80-143720/eganhouse/ch
emical oceanography/reish/MINERALS MANAGEMENT SERVICE.

3150. Wrath WF. Marine sedimentation around Catalina and San
Clemente islands [dissertation]. ; 1936.
University of Illinois, Chicago, United-States; Master's
Monographic; Thesis B; Bibliography and Index of Geology (1969-
present).
unknown p.
California/oceanography/sedimentation/environment/marine
environment/Pacific Coast/Western U.S./United States/Catalina

Island/North American Pacific/Pacific Ocean/San Clemente
Island/GEOREF.

3151. Science Applications I. Southern California outer continental shelf environmental baseline study, 1976/1977 (second year) benthic program. Data reports, volume IV, series 2, reports 18-24. 1980;:647.
crude oil/marine biology/ecology/water pollution/Southern California Bight/Thompson/Invertebrates
surveys/taxonomy/annelida/mollusca/arthropoda/echinodermata/populations/abundance/seasonal variations/sites/distribution property/Eganhouse/chemical oceanography/Peiper/zooplankton/MINERALS MANAGEMENT SERVICE.

3152. Miller SE. Earwigs of the California Channel Islands, with notes on other species in California (Dermaptera). *Psyche* (Camb., Mass.) 1984;91(1-2):47-50 Address: Mus. Comp. Zool., Harvard Univ., Cambridge, MA 02138. Although the earwigs of the California Channel Islands were included in Langston and Powell (1975) and Langston and Miller (1977), newly accumulated records extend their distributions significantly. Some of these new records are due to increased collecting activity by interested entomologists, but most probably represent range expansion by the earwigs, aided by increased human activity on the islands. The two species involved, *Euborellia annulipes* (Lucas) (Carcinophoridae) and *Forficula auricularia* Linnaeus (Forficulidae), are both considered to be introduced to California (Langston and Powell 1977). range extension/geographical distribution/animal distribution/earwigs/Dermaptera/*Euborellia annulipes*/*Forficula auricularia*/Carcinophoridae/Forficulidae/California Channel Islands/terrestrial biology/entomology.

3153. Gardner DA. Hydrogeologic investigation of the Montecito ground water basin, Santa Barbara County. [dissertation] ; 1974.
University of California, Los Angeles, United-States; Master's Monographic; Thesis B; Bibliography and Index of Geology (1969-present). unknown p.
Santa Barbara County California/California/hydrogeology/ground water/surveys/Pacific Coast/Western U.S./United States/Montecito Basin/GEOREF.

3154. Miller SE. Entomological bibliography of the California Islands supplement. Menke AS, Miller DR. Entomology of the California Channel Islands: Proceedings of the first symposium. Santa Barbara, CA, USA: Santa Barbara Museum of Natural History; 1985. 137-169.
Since publication of the bibliography by Miller and Menke (1981) a number of additional insect references have been found that should have been included, and other papers have subsequently been published. These are documented here following the same format used in the original bibliography. Papers not included in this list that are cited in cross references are listed in Miller and Menke (1981). Additionally, the author included corrections to some of the citations in the original bibliography. A combined index to the original bibliography and this supplement will be found at the end of this paper. Literature search for this supplement was concluded in January 1984.
bibliographies/entomology/Arthropoda/California Channel Islands/terrestrial biology.

3155. Harman RA. Distribution of foraminifera within the

Santa Barbara Basin [dissertation]. ; 1962.
University of Southern California, United-States; Master's
Monographic; Thesis B; Bibliography and Index of Geology (1969-
present).
unknown p.
California/paleontology/foraminifera/Pacific
Ocean/distribution/Holocene/Pacific Coast/Western U.S./United
States/microfossils/Protista/Quaternary/Santa Barbara Basin/GEOREF.

3156. Miller SE. The California Channel Islands--Past,
present, and future: An entomological perspective. Menke AS, Miller
DR. Entomology of the California Channel Islands: Proceedings of
the first symposium. Santa Barbara Museum, California, USA: Santa
Barbara Museum of Natural History; 1985. 3-28. Presented at:
Symposium on Entomology of the California Channel Islands (at)
Annual Meeting of the Entomological Society of America, San Diego,
CA (USA), Dec 1981 Address: Mus. Comp. Zool., Harvard Univ.,
Cambridge, MA 02138. The California Channel islands are a group of
8 islands located off of the coast of southern California. These
islands lie in a geologically complex region known as the
California Continental Borderland, which extends northwest to
Point Arguello, southeast to Cedros Island and west to the
Patton Escarpment and Cedros Deep. In this introductory paper,
the author presents an overview of island geology, climate,
human impact, and give a synopsis of the flora and fauna,
emphasizing insects. General information for each island is
presented, and an appendix lists the known endemic terrestrial
arthropod species. human impact/flora/fauna/check lists/island
geology/climate/anthropogenic effects/Insecta/California Channel
Islands/terrestrial biology/entomology.

3157. Parks WS. Petrology of the Morrison Formation in the
Las Vegas Basin, San Miguel County, New Mexico. [dissertation] ;
1957.
Mississippi State University, United-States; Master's Monographic;
Thesis B; Bibliography and Index of Geology (1969-present).
unknown p.
San Miguel County New Mexico/Morrison Formation/New
Mexico/stratigraphy/Jurassic/sedimentary
rocks/lithostratigraphy/Las Vegas Basin/Southwestern U.S./United
States/GEOREF.

3158. Miller SE, Collins PW. Ticks (Acari: Argasidae and
Ixodidae) from the California Channel Islands. The Pan-Pacific
Entomologist 1982;58(2):96-104 taxonomy/biogeography
Acari/Argasidae/Ixodidae/Ticks/California Channel
Islands/terrestrial biology/entomology.

3159. Uchupi E. Submarine geology of the Santa Rosa Cortes
Ridge [dissertation]. ; 1954.
University of Southern California, United-States; Master's
Monographic; Thesis B; Bibliography and Index of Geology (1969-
present).
unknown p.
Pacific Ocean/oceanography/marine geology/California/Pacific
Coast/Western U.S./United States/North Pacific/Santa Rosa Cortes
Ridge/GEOREF.

3160. Seibert DLR. Breeding in an oceanic population of
Pleuroncodes planipes (Crustacea, Galatheididae). Pac. Sci.
1971;25(3):426-428. 71-07794
71-6A-03130/crabs/breeding/pleuroncodes/california
current/p/planipes/zooplankton/Pieper/Thompson/invertebrates/MINE

RALS MANAGEMENT SERVICE.

3161. Seidel W. Midwater school fish survey off the southeast coast of the U.S., using standard high frequency vertical sounder. U.S. Bureau of Commercial Fisheries Acoustical Workshop Proceedings, Seattle WA, Nov. 25-27, 1968 1969;:31. fish schools/acoustic surveys/california current target concentrations/sonar evaluation study/zooplankton/Pieper/MINERALS MANAGEMENT SERVICE.

3162. Lee TC. Marine geophysics in the continental borderland off Southern California [dissertation]. ; 1973. University of Southern California, United-States; Doctoral Monographic; Thesis B; Bibliography and Index of Geology (1969-present).
unknown p.
California/geophysical surveys/surveys/Pacific Ocean/Pacific Coast/Western U.S./United States/continental borderland/marine methods/Southern California/GEOREF.

3163. Miller SE, Menke AS. Entomological bibliography of the California islands. Santa Barbara, California, USA: Santa Barbara Museum of Natural History; 1981. 78.
In: Santa Barbara Mus. Nat. Hist. Occ. Pap. \$5.
This bibliography includes references to insects, arachnids and myriopods of the California islands. Annotations list taxa and islands from which they are recorded, order and family when these are not obvious from the title, and references to related papers. The authors have included references on the Channel Islands (San Miguel, Santa Rosa, Santa Cruz, Anacapa, Santa Barbara, Santa Catalina, San Clemente and San Nicolas); Los Coronados Islands (politically part of Mexico); and the islands in the San Francisco Bay Region (the Farallons, Angel Island, for example). They have excluded islands off the coast of Lower California. In cases of taxa originally described from the islands, they have included only papers which contribute to knowledge of the island populations (e. g., not checklist entries or papers dealing with the species in part of its range other than these islands).
bibliographies/entomology Arthropoda/insects/arachnids/myriopods
California Channel Islands/San Miguel Island/Santa Rosa Island/Santa Cruz Island/Anacapa Island/Santa Barbara Island/Santa Catalina Island/San Clemente Island/San Nicolas Island/Los Coronados Islands/San Francisco Bay Region/Farallons Islands/Angel Island/terrestrial biology.

3164. Pilger RHJ. Structure of Santa Cruz Catalina Ridge and adjacent areas, Southern California continental borderland from reflection and magnetic profiling; implications for late Cenozoic tectonics of Southern California. [dissertation] ; 1976. University of Southern California, United-States; Doctoral Monographic; Thesis B; Bibliography and Index of Geology (1969-present).
unknown p.
California/structural geology/tectonics/geophysical surveys/surveys/Pacific Coast/Western U.S./United States/Cenozoic/continental borderland/magnetic surveys/reflection/Santa Cruz Mountains/GEOREF.

3165. Minnich RA. Grazing, fire, and the management of vegetation on Santa Catalina Island, California. USDA Forest Service general technical report PSW -United States, Pacific Southwest Forest and Range Experiment Station 1982;58:444-449

fire management/natural resources/soil erosion/reclamation/Santa Catalina Island/environmental biology/terrestrial biology/resource management.

3166. Sette OE. A perspective of a multi-species fishery. California Current System- Their Fluctuating Magnitude, Distribution, and Susceptibility to Use for the Benefit of the State of California. Symposium held at Lake Arrowhead, CA (USA), Dec. 11-12 1967. Calif. Coop. Oceanic Fish. Invest. Rep. 1969;13:81-87. resource management/resource development/zooplankton/Pieper/california current/fisheries/problems/solutions/multi-species fishery/MINERALS MANAGEMENT SERVICE.

3167. Madden DH. Geology of the Jurassic basement rocks, Santa Cruz Island, California [dissertation]. ; 1976. University of California, Santa Barbara, United-States; Master's Monographic; Thesis B; Bibliography and Index of Geology (1969-present). Ventura County California/California/stratigraphy/Jurassic/basement/Pacific Coast/Western U.S./United States/Santa Cruz Island/GEOREF.

3168. Montagna PA, Bauer JE, Toal J, Hardin D, Spies RB. Temporal variability and the relationship between benthic meiofaunal and microbial populations of a natural coastal petroleum seep. Journal of Marine Research JMMRAO 1987;45(3):761-789 Previous studies of the Isla Vista petroleum seep in the Santa Barbara Channel found much higher abundances of macrofauna and concentrations of adenosine phosphate (ATP) in sediments near petroleum seepage compared to those from nonseep areas. To further assess the possible effect of petroleum on organisms at the base of benthic food webs, population abundances of meiobenthos and their suspected microbial food (bacteria and diatoms) were measured biweekly at three stations with differing petroleum exposure. Determinations of suspended particulate matter and the abundance and gut contents of juvenile fishes were also made at seep and nonseep stations. Nematodes and bacteria had higher abundances in areas of active petroleum seepage than in areas of moderate seepage (within 20 m) or no seepage (1.4 km away). Bacterial productivity (based on frequency of dividing cells) was 340% greater in sediments from areas of active seepage compared to those from a nonseep station. Sediments within the seep, but away from active seepage, had rates of bacterial productivity 15. Petroleum seeps/Oil pollution/Water pollution/Benthic fauna/Population density/Population exposure/Aquatic animals/Benthos/Fauna/benthic food webs/meiofauna/meiobenthos/population dynamics/oil seepages/temporal variations/biomass/abundance/density/sediment/gut analysis/ATP/oil/Nematodes/Bacteria/Copepods/diatoms/fish/Santa Barbara Channel/Isla Vista/petroleum seep/petroleum/pollution/marine biology.

3169. Shaltiel N, Simoneit BRT, Ruth E. Aromatic hydrocarbons in sediments from the Continental Rise and Bight of southern California. Annu. Rep. to U.S. Dep. Energy, Contract No. EY-76-3-03-0034 1979;:19. text/chemical oceanography/MINERALS MANAGEMENT SERVICE.

3170. Kraemer SMC. Quaternary morphology, acoustic characteristics, and fan growth of the Conception Fan, Santa Barbara Basin, California continental borderland. [dissertation] ; 1986. California State University, Northridge, United-States; Master's

Monographic; Thesis; Map B; Bibliography and Index of Geology (1969-present). 205 p.202 Refs.
California/oceanography/continental slope/Pacific Ocean/geophysical surveys/seismic surveys/Alegria Canyon/Pacific Coast/Western U.S./United States/channels/Cojo Canyon/Conception Fan/continental borderland/Gaviota Canyons/Quaternary/Sacate Canyon/Santa Barbara Basin/seismic profiles/submarine canyons/submarine fans/turbidite/GEOREF.

3171. Shanks AL, Trent JD. Marine snow: Microscale nutrient patches. *Limnol. Oceanogr.* 1979;24(5):850-854.
Marine snow/Nutrients/ammonia/Nitrites/Nitrates/Phosphates/Seawater analysis/California Coast/Monterey Bay/nutrient micropatches/Southern California Bight/San Onofre/Power Plant/anthropogenic/anderson/particulate matter/carbon/nitrogen/zooplankton/proteins/carbohydrates/lipids/santa barbara channel/gulf of california/chemical analysis/macrosopic aggregates/neritic waters/enrichment sites/Eganhouse/geochemistry/ chemical oceanography/algae/spermatophytes/Bray/Murray/MINERALS MANAGEMENT SERVICE.

3172. Scholl DW. Geology and surrounding Recent marine sediments of Anacapa Island [dissertation]. ; 1959.
University of Southern California, United-States; Master's Monographic; Thesis B; Bibliography and Index of Geology (1969-present).
unknown p.
California/areal geology/Anacapa Island/oceanography/sediments/Pacific Coast/Western U.S./United States/marine sediments/sedimentary petrology/GEOREF.

3173. Erickson JW. Paleoslope and petrographic analysis of the South Point Formation, Santa Rosa Island, California. [dissertation] ; 1972. University of California, Santa Barbara, United-States; Master's Monographic; Thesis B; Bibliography and Index of Geology (1969-present). unknown p.
South Point Formation/California/sedimentary petrology/sedimentary rocks/petrology/petrography/Pacific Coast/Western U.S./United States/Santa Rosa Island/Southern California/GEOREF.

3174. Morley L, Heuermann P. Model-based multiple suppression - Application to seismic prospecting in Santa Barbara Channel. *AAPG Bulletin - American Association of Petroleum Geologists* 1988;72:390
Address: ENTROP GEOPHYS INC/CUPERTINO//CA/00000; PHILLIPS PETR CO/DENVER//CO Note: Meeting Abstract.
seismology/geology.

3175. Shepard FP, Marshall NF. Storm-generated current in La Jolla submarine canyon, California. *Univ. of Calif., Scripps Inst. Oceanogr., Contrib.* 1973;43(2):1395-1400.
California/ocean floors/Pacific Ocean /submarine canyons/LaJollaCanyon/east/UnitedStates/canyons/current s/storms/Hicke y/physical oceanography/MINERALS MANAGEMENT SERVICE.

3176. Doerner DP. Lower Tertiary biostratigraphy of Santa Cruz Island [dissertation]. ; 1968.
University of California, Santa Barbara, United-States; Master's Monographic; Thesis B; Bibliography and Index of Geology (1969-present). unknown p.
Santa Barbara County
California/California/stratigraphy/Tertiary/biostratigraphy/Pacific

Coast/Western U.S./United States/Santa Cruz Island/GEOREF.

3177. Shiller AM. Particulate geochemistry in an area of coastal upwelling: The Santa Barbara Basin. Coastal Upwelling, Its Sediment Records. Part A. Responses of the Sedimentary Regime to Present Coastal Upwelling 1983;:289-301.

eganhouse/geochemistry/chemical oceanography/Pacific Ocean/sediments/circulation/Santa Barbara Basin/upwelling/particulate/materials/seasonal variations/dissolved materials/bathymetry/California Current/grain size/Pacific Ocean/Hood/ecosystem/marine sediments/geochemistry/USA/sea water/Hickey/physical oceanography/MINERALS MANAGEMENT SERVICE.

3178. Avila FA. Middle Tertiary stratigraphy of Santa Rosa Island, California [dissertation]. ; 1968.

University of California, Santa Barbara, United-States; Master's Monographic; Thesis B; Bibliography and Index of Geology (1969-present). unknown p.

Santa Barbara County/California/stratigraphy/Tertiary/Pacific Coast/Western U.S./United States/middle Tertiary/Santa Rosa Island/GEOREF.

3179. Morse DE, Kayne M, Tidyman M, et al. Capacity for biosynthesis of prostaglandin-related compounds: Distribution and properties of the rate-limiting enzyme in hydrocorals, gorgonians, and other coelenterates of the Caribbean and Pacific. Biological Bulletin 1978;154(3):440-452

Address: Univ. of California, Dept. of Biological Sciences, Santa Barbara, CA 93106.

A convenient and reliable assay is described for prostaglandin-endoperoxide (PGE_P) synthetase, the rate-limiting enzyme determining the total capacity for biosynthesis of prostaglandin-related compounds (PGRCs). Results of such assays, performed with numerous fresh specimens under both field and laboratory conditions, newly identify several marine coelenterate species as potentially important resources of PGRCs for research and possible development. *Allopora porphyra* is a species especially rich in PGE_P. Similar properties were found for the PGE_P synthetases in extracts of *Plexaura homomalla*, *Millepora* spp., *Sertularia turgida*, and *Hydractinia milleri*. Properties of the typical marine coelenterate PGE_P synthetase, and the reaction which this enzyme catalyzes, have been further characterized.

Enzymes/Biosynthesis/Fatty acids/prostaglandin-related compounds/prostaglandin-endoperoxide synthetase Cnidaria/Anthozoa/Corals/*Allopora porphyra*/*Plexaura homomalla*/Hydrozoa/*Millepora* spp./*Sertularia turgida*/*Hydractinia milleri*/Caribbean Sea/Pacific Ocean Northeast/Santa Barbara Channel/marine biology.

3180. Shokes RF, Mankiewicz PJ. Natural and anthropogenic fluxes of chemicals into the Southern California Bight as related to the potential impacts of offshore drilling. Rep. to Bureau of Land Management, Rep. 24.0, Benthic Year 2 1979;II:96.

text/chemical oceanography/MINERALS MANAGEMENT SERVICE.

3181. Ten BMRB. Radioisotope mobility across the sediment water interface in the deep sea [dissertation]. ; 1987.

Columbia University, United-States; Doctoral Monographic; Thesis B; Bibliography and Index of Geology (1969-present) Univ. Microfilms, Ann Arbor, MI, United States.

472 p.
Pacific Ocean/geochemistry/isotopes/sediments/marine sediments/aerobic environment/antimony/Ba 133/barium/Be

7/beryllium/cesium/cobalt/Cs 134/deep sea
environment/diffusion/Equatorial Pacific/experimental studies/Hg
203/kinetics/manganese/mercury/migration of elements/mixing/Mn
54/Na 22/radioactive isotopes/rates/San Clemente Basin/Sb
125/sediment water interface/sodium/tracers/zinc/Zn 65/GEOREF.

3182. Morse DE, Kayne M, Tidyman M, Anderson S. Capacity for biosynthesis of prostaglandin-related compounds: distribution and properties of the rate-limiting enzyme in hydorcorals, gorgonians, and other coelenterates of the Carribean and Pacific. Biological Bulletin 1978;154(3):440-452 A convenient and reliable assay is described of PGEP synthetase, the rate-limiting enzyme determining the total capacity for biosynthesis of prostaglandin-related compounds. Results of such assays, performed with fresh specimens under both field and laboratory conditions, newly identiry several marine coelenterate species as potentially important resources of PGRCs for research and possible development. Properties of the typical marine coelenterate PGEP synthetase, and the reaction which this enzyme catalyzes, have been further characterized. prostaglandins/enzymes Cnadarina/hydrocorals/gorgonians/Santa Barbara Channel/Bonaire/Netherlands/Antilles/marine biology.

3183. Bryant BA. Geology of the Sierra Santa Rosa Basin, Baja California, Mexico [dissertation]. ; 1986. San Diego State University, United-States; Master's Monographic; Thesis B; Bibliography and Index of Geology (1969-present). 75 p. Mexico/areal geology/Sierra Santa Rosa Basin/faults/displacements/active faults/alluvial fans/Baja California/conjugate shear/polyphase processes/Tertiary/volcanism /GEOREF.

3184. Silver MW. The habitat of *Salpa fusiformis* in the California Current as defined by indicator assemblages. Limnol. Oceanogr. 1975;20:230-237. Pieper/Dawson/Zooplankton/Text/MINERALS MANAGEMENT SERVICE.

3185. Moser HGea. Description of early stages of white seabass, *Atractoscion nobilis*, with notes on distribution. California Cooperative Oceanic Fisheries Investigations Reports 1983;24:182-193 Address: NMFS, Southwest Fish. Cent., La Jolla, CA 92038. Larvae occurred from Santa Rosa Island, California, to Santa Maria Bay, Baja California. Most of the larvae occurred from May-August, with a peak in July. larvae/distribution/biogeography/reproductive biology/white seabass/*Atractoscion nobilis*/Santa Rosa Island/Santa Maria Bay/Baja California/marine biology/ichthyology.

3186. Silver MW, Bruland KW. Differential feeding and fecal pellet composition of salps and pteropods, and the possible origin of the deep water flora and olive green 'cells'. Mar. Biol. 1981;62(4):263-273. 1201034112-01034/212-00326/diets/fecal pellets/epipelagic zone/Pieper/zooplankton/phytoplankton/biogeochemical cycle/calcite dissolution/silicon cycle/*Salpa fusiformis*/*Pegea socia*/*Corolla spectabilis*/flora/Thaliaceae/Pteropoda/California Current/MINERALS MANAGEMENT SERVICE.

3187. Simoneit-Bernd RT, Mazurek MA. Organic geochemistry of sediments from the southern California borderland, DSDP/IPOD Leg 63. Annu. Rep. to U.S. Dep. of Energy, Contract No. EY-73-3-03-0034 1981;;24. text/chemical oceanography/MINERALS MANAGEMENT SERVICE.

3188. Simoneit-Bernd RT, Mazurek MA, Kalil Jr. EK. Organic geochemistry of Holocene sediments from Tanner Basin, Southern California Bight. Annu. Rep. to U.S. Dep. of Energy, Contract No. EY-76-3-03-0034 1979B;:12. text/chemical oceanography/MINERALS MANAGEMENT SERVICE.

3189. Mahood RO. Petrology, sedimentology, and diagenesis of volcanoclastics and sandstones from Leg 63 of the Deep Sea Drilling Project, Baja California and Southern California continental borderland. [dissertation] ; 1986. Oregon State University, United-States; Master's Monographic; Thesis B; Bibliography and Index of Geology (1969-present).

188 p.88 Refs.

Pacific Ocean/oceanography/continental margin/Mexico/sedimentary rocks/clastic rocks/sandstone/sediments/clastic sediments/volcanoclastics/diagenesis/environment/marine environment/Baja California/Deep Sea Drilling Project/Leg 63/IPOD/mineral composition/petrology/sedimentation/Tertiary /GEOREF.

3190. Simoneit-Bernd RT, Kaplan IR. Triterpenoids as molecular indicators of paleoseepage in Recent sediments of the Southern California Bight [USA]. Mar. Environ. Res. 1980;3:113-128. petroleum/pollution/sediment/California Bight/arom/hydrocarbon pollution/marine sediment/triterpenoid/hydrocarbon pollution/marine sediment/paleoseepage/sediment/California Bight/Eganhouse/chemical oceanography/Spies/episodic/oil seeps/text/seepage/paleoseepage/MINERALS MANAGEMENT SERVICE.

3191. Moser M, Anderson S. An intrauterine leech infection: Branchellion lobata Moore, 1952 (Piscicolidae) in the Pacific angel shark (*Squatina californica*) from California. Canadian Journal of Zoology 1977;55:759-760 The leeches were discovered on the ventral surface of two embryo Pacific angel sharks from off Santa Barbara, CA in October 1976. These leeches were also found around the cloaca and in the spiracle valves of the pregnant female. This is the first known report of an intrauterine leech infection. leech infection/Hirudinea/Piscicolidae/Branchellion lobata/leech/*Squatina californica*/Pacific angel shark/Santa Barbara Channel/marine biology/parasitology.

3192. Simpson JJ. Large-scale thermal anomalies in the California current during the 1982-1983 El Nino. Geophys. Res. Lett. 1983;10(10):937-940. 1505074115-05074/215-01550/temperature anomalies/El Nino/thermal structure/physical oceanography/INE/California Current/ISE/California Current/ocean-atmosphere system/Hickey/physical oceanography/MINERALS MANAGEMENT SERVICE.

3193. Simpson JJ. An offshore eddy in the California current system; Part III, chemical structure. Prog. Oceanogr. 1984;13(1):71-93. Pacific Ocean/California/seawater/oceanography/composition/ocean circulation/salinity/United States/offshore/eddies/density/vorticity/observations/mechanism/spatial variation/Hickey/physical oceanography/MINERALS MANAGEMENT SERVICE.

3194. Simpson JJ, Dickey TD, Koblinsky CJ. An offshore eddy in the California Current system--I. Interior dynamics. Prog. Oceanogr. 1984;13:5-49. physical oceanography/MINERALS MANAGEMENT SERVICE.

3195. Meyer GL. Pliocene Quaternary geology of eastern Santa Cruz Island, California [dissertation]. ; 1967. University of California, Santa Barbara, United-States; Master's Monographic; Thesis B; Bibliography and Index of Geology (1969-present). unknown p. California/areal geology/Santa Cruz Island/Pacific Coast/Western U.S./United States/Cenozoic/Pliocene/Neogene/Tertiary/Quaternary /GEOREF.

3196. Simpson JJ, Koblinsky CJ, Haury LR, Dickey TD. An offshore eddy in the California current system. Prog. Oceanogr. 1984;13(1):111. Pacific Ocean/California/oceanography/ocean circulation/United States/Hickey/physical oceanography/MINERALS MANAGEMENT SERVICE.

3197. Mousselli AH, Pospishil C. Construction of offshore California's Point gas pipeline in Santa Barbara Channel. Oil Gas J. 1984;82(19):106-108 Address: Applied Offshore Technol. Inc., Houston, TX, USA. The Pitas Point gas pipeline, a 12-in. submarine gas pipeline, connects Texaco's Platform Habitat, in OCS Tract P-0234 (Pitas Point Unit) of the Santa Barbara Channel, to shore about 1,000 ft. West of Chevron's pier at Carpinteria, Calif. This article discusses the pipeline construction, which was completed in December 1983. The pipeline project has several noteworthy features, including installation of a subsea crossing ramp over a foreign pipe bundle, pipe string tow and pull along the centerline of a subsea ramp, installation of a temporary pipe launchway structure to facilitate the pipe pull from the top of a 40-ft bluff, and the pipe shore approach in a casing bored through the bluff. oil industry/gas industry/pipeline construction/Santa Barbara Channel/Pitas Point/Carpinteria/petroleum.

3198. Simpson JJ, Koblinsky CJ, Lynn RJ, Pelaez J, Haury LR, Wiesenhahn D. On the transition zone between coastal and oceanic flow regimes in the California current system. EOS, Trans., Am. Geophys. Union 1986;67(44):1053. physical oceanography/MINERALS MANAGEMENT SERVICE.

3199. Simpson JJ, Koblinsky CJ, Pelaez J, Haury LR, D. Wiesenhahn. Temperature-plant pigment-optical relations in a recurrent offshore mesoscale eddy near Point Conception, California. J. Geophys. Res. 1986;91:12,919-12,936. physical oceanography/MINERALS MANAGEMENT SERVICE.

3200. Aldrich JK. Gravity of the Santa Barbara Channel Islands, California [dissertation]. : University of California, Santa Barbara, United-States; 1969. University of California, Santa Barbara, United-States; Master's Monographic; Thesis B; Bibliography and Index of Geology (1969-present). California/geophysical surveys/gravity surveys/Pacific Coast/Western U.S./United States/Channel Islands/Santa Barbara Channel/GEOREF.

3201. Mousselli AH, Yates MB. Hondo pipeline construction completed. Oil Gas J. 1983;81(49):87-92 Address: Appl. Offshore Technol. Inc., Houston, TX, USA. Construction of the Hondo sour gas pipeline has been successfully completed. The offshore pipeline is 6.9 miles long and connects Exxon's Hondo "A" platform in the Santa Barbara Channel to an onshore gas processing plant in Las Flores Canyon, west of Santa Barbara, Calif. This article discusses construction of the

submarine pipeline performed in 1982 and 1983. This installation demonstrates a number of unique and innovative features, including modifications to an existing J-tube, originally designed for a reverse pull riser installation, to allow a direct J-tube pull, and making of subsea pipeline connections in up to 805 ft of water. pipeline construction/pipe laying/offshore engineering/pipelines/gas production/Santa Barbara Channel/Las Flores Canyon/Santa Barbara/petroleum.

3202. Moyle WR, Martin P, Downing K, Elliot AL, Maltby DE. Southern California alluvial basins regional aquifer-systems analysis: A bibliography. : USGS Open-File Report 85-695; 1986. 120.

Address: Geological Survey, San Diego, CA. Water Resources Div. A bibliography for the Southern California Alluvial Basins Regional Aquifer-Systems Analysis includes references for about 3,500 publications related to the geohydrology of the 75,000 sq-mi region, which encompasses all of southern California except the Central Valley, the Channel Islands and the Pacific Ocean floor off southern California, and parts of adjacent states and Mexico. The report indexes the publications in six geographic categories and induces a list of sources of publications. Because of the large number of references in the bibliography, a system was developed for computer storage and retrieval. References can be retrieved by geographic location, author, or geohydrologic discipline and subject. The computer system allows for updating and addition of references. (USGS).

Aquifer systems/Bibliographies/California/Geohydrology/Geology/Geophysics /Hydrology/Gro undwater/Groundwater basins/Publications/Water resources/Alluvial basins/Regional Aquifer systems Analysis/Water Cycle/Groundwater/southern California/Channel Islands/Pacific Ocean floor/Mexico/geology/geohydrology.

3203. Severin KP. Functional morphology of benthic foraminifera [dissertation]. ; 1987. University of California, Davis, United-States; Doctoral Monographic; Thesis B; Bibliography and Index of Geology (1969-present) Univ. Microfilms, Ann Arbor, MI, United States. 234 p.

foraminifera/Fusulinidae/Cenozoic/Alveolinella quoyi/anaerobic environment/assemblages/benthonic taxa/calcalcification/calcium carbonate/microfossils/Protista/functional morphology/Fusulinina/Gulf of Mexico/North American Atlantic/North Atlantic/Atlantic Ocean/habitat/Holocene/Quaternary/morphology/Pacific Ocean/Paleocene/Paleogene/Tertiary/paleoecology/Papua New Guinea/Australasia/Port Moresby/reconstruction/Santa Barbara Basin/sediments/taphonomy/taxonomy/tests /GEOREF.

3204. Muhs DR. Quaternary soil development on San Clemente Island, California. Am. Quat. Assoc., Natl. Conf., Abstr. 1978;5:225 Address: Univ. Colo., Dep. Geogr., Boulder, Colo. Conference: Fifth biennial meeting of the American Quaternary Association. Edmonton, Alta., Canada. Sept. 2-4, 1978. soils/surveys/genesis/Quaternary/Cenozoic/sediments/sedimentary petrology/Haploxeralfs/Palexeralfs/Rhodoxeralfs/Xerorthents/parent materials/San Clemente Island/surficial geology/quaternary geology.

3205. Smith DL, Normark WR. Deformation and patterns of sedimentation, south San Clemente Basin, California borderland. Mar. Geol. 1976;22(3):175-188. eganhouse/geochemistry/chemical oceanography/Pacific

Ocean/sedimentation/continental shelf/seismic surveys/San Clemente Basin/San Diego trough/borderland/tectonics/turbidity/MINERALS MANAGEMENT SERVICE.

3206. Nelson CO. Radiolarian biostratigraphic and paleoceanographic studies of Monterey like rocks of the Humboldt Basin, Northern California. [dissertation] ; 1987. Rice University, United-States; Doctoral Monographic; Thesis B; Bibliography and Index of Geology (1969-present) Univ. Microfilms, Ann Arbor, MI, United States. 175 p.

Monterey Formation/California/stratigraphy/Miocene/radiolarians/biostratigraphy/Pacific Coast/Western U.S./United States/California Current/deep sea environment/El Nino/Humboldt Basin/middle Miocene/Neogene/Tertiary/Northern California/ocean circulation/organic carbon/organic materials/paleo oceanography/microfossils/shallow water environment/GEOREF.

3207. Smith KL,J, Rowe G, Clifford CH. Sediment oxygen demand in an outwelling and upwelling area. Tethys 1974;6(1-2):223-230.

eganhouse/geochemistry/chemical oceanography/sediments/New York Bight/California current/benthonic pollution/nutrients/organic/carbon/oxygen/Holocene/MINERALS MANAGEMENT SERVICE.

3208. Muhs DR. A soil chronosequence on Quaternary marine terraces, San Clemente Island, California. R.W. Simonson, D.H. Yaalon. Aridic soils. Geoderma 28(3-4). ; 1982. 257-283.

Address: Univ. Wis., Dep. Geogr., Madison, WI Conference: International conference on Aridic soils. Kiryat Anavim, Israel, March 29-April 4, 1981. soils/surveys/properties/marine terraces/arid environment/Quaternary/Cenozoic/parent materials/time factor/Alfisols/Vertisols/Mollisols/relative age/pedogenesis/morphology/geochemistry/X-ray data/soil profiles/paleopedology/carbon dating/uranium-thorium-lead dating/biochemistry/geochronological methods/geochronological results/chronosequence/marine terraces/Los Angeles County/San Clemente Island/surficial geology/soils.

3209. Smith PE. Seasonal and geographic characteristics of fishery resources California current region - IV. Pacific mackerel. Commer. Fish. Rev. 1970;32(10):47-49.

mackerels/scomber/zoogeography/california coast/pacific ocean/pacific mackerel/japonicus/zooplankton/Pieper/Mammal/Bonnell/MINERALS MANAGEMENT SERVICE.

3210. Smith PE. Seasonal and geographic characteristics of fishery resources: California current region - VII. Pacific sardine. Commer. Fish. Rev. 1971;33(10):7-11.

sardines/sardinops/fisheries resources/california current/Pieper/seasonal characteristics/s/caeruleus/pacific sardines/zooplankton/MINERALS MANAGEMENT SERVICE.

3211. Steritz JW. The southern termination of the Hosgri fault zone, offshore south central California. [dissertation] ; 1986.

University of California, Santa Barbara, United-States; Master's Monographic; Thesis B; Bibliography and Index of Geology (1969-present). 78 p.40 Refs. California/oceanography/continental shelf/geophysical

surveys/seismic surveys/faults/displacements/active faults/boundary/Pacific Coast/Western U.S./United States/Cenozoic/Hosgri fault zone/Point Conception/Purisima Point/reverse faults/right slip faults/rotation/Santa Barbara Channel/Southern California/structural provinces/Transverse Ranges/GEOREF.

3212. Smith PE. Seasonal and geographic characteristics of fishery resources: California current region -- VIII. Zooplankton. Commer. Fish. Rev. 1972;34(5-6):33-40. zooplankton/annual cycles/biomass/temperature variations/california current/plankton/volume variations/Pieper/MINERALS MANAGEMENT SERVICE.

3213. Smith PE. Energy transformations in the pelagic community as related to studies on fish survival and fisheries management. Pacific Science Association: Thirteenth Pacific Science Congress, Record of Proceedings 1975;1:49-50. california current/anchovies/energy budget/standing stock/plankton/pelagic organisms/fisheries management/energy transfer/zooplankton/Pieper/MINERALS MANAGEMENT SERVICE.

3214. Smith PE. Precision of sonar mapping for pelagic fish assessment in the California Current area. NOAA-NMFS-SWFC Admin. Rep. No. LJ-75-60 1975;;16. MINERALS MANAGEMENT SERVICE.

3215. Smith PE. Precision sonar mapping for pelagic fish assessment in the California Current. J. Cons. Cons. Int. Explor. Mer. 1978B;38:33-40. TEXT/CROSS/ALLEN/FISH/MINERALS MANAGEMENT SERVICE.

3216. Smith PE, Eppley RW. Primary production and the anchovy population in the Southern California Bight: Comparison of time-series. Limnol. Oceanogr. 1982;27(1):1-17. Northern anchovy/Engraulis mordax/larvae/ichthyoplankton/spawning/fish/anthropogenic/TEXT Hardy/phytoplankton/inputs/MINERALS MANAGEMENT SERVICE.

3217. Smith AL. Correlation of Monterey Formation organic geochemistry to lithology, Santa Maria Santa Barbara basins, California. [dissertation] ; 1985. University of Wyoming, United States; Master's Monographic; Thesis B; Bibliography and Index of Geology (1969-present). 261 p.101 Refs. Monterey Formation/California/stratigraphy/Miocene/organic materials/distribution/sedimentary rocks/composition/Pacific Coast/Western U.S./United States/correlation/Neogene/Tertiary/Santa Barbara Basin/Santa Maria Basin/Southern California/GEOREF.

3218. Muhs DR. Quaternary sea-level events on northern San Clemente Island, California. Quaternary Research (New York) 1983;20(3):322-341 Address: Univ. Wis., Dep. Geogr., Madison, WI. Stratigraphic, radiometric, amino acid, and pedologic dating techniques have allowed the development of a chronology of sea-level changes for about the last 500,000 yr. A uranium-series date on coral of about 127,000 yr for the 2nd terrace serves as a calibration point for amino acid age estimates of four other mapped terraces. Two of these terraces have age estimates of about 80,000-105,000 yr, another has an age estimate of about 127,000 yr, and the 5th terrace on the west side of the island is estimated to be about 415,000-575,000 yr old. These dates correlate reasonably well with marine terraces dated elsewhere and with stages of the oxygen-isotope record that are thought to represent

high stands of the sea. Weakly cemented calcareous dune sands (eolianites) on northern San Clemente Island appear to represent low stands of the sea, since calcareous shelf sands were the most likely source. A radiocarbon date of about 22,000 yr suggests that the youngest eolianite was deposited during the last glacial maximum. An older eolianite is estimated to be about 140,000-195,000 yr old based on stratigraphic relations and degree of soil development. The suggested ages for the eolianites also correlate well with oxygen-isotope estimates of low sea levels.--Modified journal abstract.

geomorphology/sedimentary rocks/absolute age/stratigraphy/coastal features/clastic rocks/dates/Quaternary/terraces/eolianite/corals/changes of level/Cenozoic/amino acids/organic materials/alluvial fans/relative dating/oxygen/isotopes/O-18/O-16/correlation/racemization/soils/score features/sea level changes/marine terraces/paleogeomorphology/coastal geomorphology/pedology/radiometry/amino acid dating/eolianite/Anthozoa/Coelenterata/Cnidaria/northern San Clemente Island/surficial geology/quaternary geology.

3219. Smith RC, Dustan P, Au D, Baker KS, Dunlap EA. Distribution of cetaceans and sea surface chlorophyll concentrations in the California Current. Mar. Biol. 1986;91(3):385-402.

Hardy/phytoplankton/Euphausia pacifica/Calanus pacificus/Nematoscelis difficilis/Chlorophylls/ecological distribution/cetacea/California current/mammal/Bonnell Dailey
TEXT/MINERALS MANAGEMENT SERVICE.

3220. Berelson WM. Studies of water column mixing and benthic exchange of nutrients, carbon and radon in the Southern California Borderland. [dissertation] ; 1985. University of Southern California, United-States; Doctoral Monographic; Thesis B; Bibliography and Index of Geology (1969-present) Doheny Libr., Micrographics Dep., Los Angeles, CA, United States.

unknown p.
California/oceanography/continental shelf/sea water/geochemistry/element exchange/carbon/radon/nitrogen/silicon/sedimentation/sedimentation rates/benthos/biogenic effects/Pacific Coast/Western U.S./United States/mineralization/mixing/nutrients/pH/pore water/noble gases/recycling processes/San Nicolas Basin/San Pedro Basin/sediment water interface/Southern California/GEOREF.

3221. Muhs DR, Kyser TK. Stable isotope compositions of fossil mollusks from Southern California; evidence for a cool last interglacial ocean. Geology (Boulder) 1987;15(2):119-122

Address: U. S. Geol. Surv., Denver, CO, USA; Univ. Sask., CAN.
isotopes/oxygen/carbon/paleoecology/paleoclimatology/stratigraphy/Pleistocene/changes of level/O-18/O-16/C-13/C-12/biochemistry/paleotemperature/paleo-oceanography/interglacial environment/marine terraces/stable isotopes/Quaternary/upper Pleistocene/geochemistry/mollusks/Mollusca/bivalves/Bivalvia/Los Angeles County/San Diego County/Pacific Coast/Southern California/California Channel Islands/Los Angeles Basin/surficial geology/quaternary geology/marine geology/oceanography/paleoecology/paleoclimatology/paleontology.

3222. Weaver E. Miocene stratigraphy, silica diagenesis and paleomagnetism of Santa Rosa Island. [dissertation] ; 1985.

University of California, Santa Barbara, United-States; Master's Monographic; Thesis B; Bibliography and Index of Geology (1969-present). 144 p.50 Refs.

Rincon Formation/Monterey Formation/Beechers Bay Formation/San Miguel Volcanics/San Onofre Breccia/California/stratigraphy/Miocene/paleomagnetism/diagenesis /processes/silicification/folds/style/en echelon folds/Pacific Coast/Western U.S./United States/Carrington Basin/Garanon fault system/Neogene/Tertiary/rotation/Santa Cruz Fault/Santa Rosa Island/Santa Rosa Island Fault/Southern California/GEOREF.

3223. Smith SV. Calcium carbonate budget of the southern California continental borderland. J. Sediment Petrol. 1971;41(3):798-808. egeanhouse/geochemistry/chemical oceanography/calcium carbonate/continental shelves/sedimentation/limestone/sources/carbonates/algae/spermatophytes/Bray/aquatic animals/deep water/chemical reaction/rock/MINERALS MANAGEMENT SERVICE.

3224. Muhs DR. A soil chronosequence on Quaternary marine terraces, San Clemente Island, California. Geoderma 1982;28(3-4):257-283
Address: Dept Geog, Univ of Wisconsin, Madison, Wisc.
Ages of the geomorphic surfaces were determined by radiocarbon, uranium-series and amino acid racemization techniques and range from 3000 to 1M yr. Soils on surfaces less than 200 000 yr old are Alfisols or Mollisols which exhibit mainly prismatic structure in the B horizon. Soils over 200 000 yr old are Vertisols or Alfisols. Solum thickness increases linearly with age of geomorphic surface. Clay, soluble salts, Al"SUB d", smectite/mica ratios in the clay fraction and quartz/plagioclase ratios in the silt fraction, when expressed as profile summations, show increases with age of geomorphic surface.
Quaternary/marine terraces/arid zones/soil chronosequence/San Clemente Island/terrestrial geology.

3225. Magee ME. Advanced magnetic modeling techniques applied to the Southern California continental borderland. [dissertation] ; 1985. University of California, Santa Barbara, United-States; Master's Monographic; Thesis B; Bibliography and Index of Geology (1969-present). 177 p.88 Refs.
California/geophysical surveys/magnetic surveys/oceanography/continental slope/ocean floors/anomalies/Pacific Coast/Western U.S./United States/distribution/Fourier analysis/fracture zones/modeling methods/Rodriguez Seamount/San Clemente Fault/San Clemente Island/San Juan Seamount/Southern California/GEOREF.

3226. Muhs DR. Airborne dust fall on the California Channel Islands, U.S.A (Mojave Desert). Journal of Arid Environments 1983;6(3):223-238 Address: Univ. of Wisconsin, Madison, Wisconsin 53706.
A thin, light-colored, silt-rich deposit covers soils of various ages on the islands. The widespread distribution of this layer and data on its particle size distribution, particle morphology and mineralogy suggest that it is of aeolian origin. Examination of Landsat imagery indicates that the main source for aeolian dust is the western Mojave Desert when easterly Santa Ana winds prevail several times each year.
aeolian dust/Santa Ana winds/soil classification/soil genesis/California Channel Islands/Mojave Desert/geography/geology.

3227. Raftery PJ. Marine geology and geologic evolution of

the northern Channel Islands Platform west of San Miguel Island. [dissertation] ; 1984. California State University, Northridge, United-States; Master's Monographic; Thesis B; Bibliography and Index of Geology (1969-present). 118 p.115 Refs.

Monterey Formation/Sisquoc Formation/Pico Formation/California/oceanography/continental shelf/stratigraphy/Cenozoic/geophysical surveys/seismic surveys/faults/displacements/strike slip faults/anticlines/folds/boundary/Pacific Coast/Western U.S./United States/Channel Islands Platform/Ferrelo fault zone/Peninsular Ranges/Santa Rosa Fault/Southern California/subduction/Transverse Ranges/unconformities/GEOREF.

3228. Muhs DR. Amino acid age estimates of marine terraces and sea levels on San Nicolas Island, California. Geology 1985;13(1):58-61 Address: Dep. Geogr., Univ. Wisconsin, Madison, WI 53706, USA. Fourteen marine terraces rising to an elevation of 274 m have been mapped on San Nicolas Island, California. The lowest terrace is similar to 105,000 yr old, on the basis of amino acid ratios in fossil mollusks slightly lower than those from the similar to 120,000 yr old, uranium-series dated second terrace. The age estimate and present elevation of the lowest terrace, along with an assumption of constant uplift rate, indicate a paleo-sea-level estimate of -10 to -12 m at about 105,000 B.P., supporting the general Barbados model of sea-level history. The fourth and fifth terraces probably represent separate high sea level stands during the same interglacial complex greater than or equal to 400,000 B.P. The eight and tenth terraces have amino acid ratios near equilibrium and imply ages of greater than or equal to 600,000 yr. Collectively, the data suggest long-term average Quaternary uplift rates of 0.2-0.3 m/1000 yr.

amino acids/age determination/submarine terraces/sea level/fossils/Quaternary/marine terraces/geomorphology/geochronology/shore features racemization/changes of level/pleistocene/marine terraces/shells/islands/amino acids/organic materials/Cenozoic/Quaternary uplifts/isolation/age determination/Mollusca/molluscs/San Nicolas Island/surficial geology/Quaternary geology.

3229. Wigley CR. A radiolarian analysis of the Monterey Formation; paleoceanographic reconstructions of the Neogene California Current system. [dissertation] ; 1985. Rice University, United-States; Doctoral Monographic; Thesis B; Bibliography and Index of Geology (1969-present) Univ. Microfilms. 480 p.

Monterey Formation/California/oceanography/continental shelf/paleogeography/Neogene/radiolarians/paleoecology/stratigraphy/assemblages /Pacific Coast/Western U.S./United States/California Current/Central California/distribution/Tertiary/ocean circulation/paleo oceanography/paleocirculation/microfossils/reconstruction /GEOREF.

3230. Muhs DR, Kennedy GL. An evaluation of uranium-series dating of fossil echinoids from southern California Pleistocene marine terraces. Marine Geology 1985;69(1-2):187-193 Address: U.S. Geol. Surv., Box 25046, MS 242, Federal Cent., Denver, CO 80225. Fossil sea urchins (*Strongylocentrotus*) from Pleistocene marine terraces on the southern California Channel Islands have been dated by the uranium-series method in order to test the suitability of echinoids for dating marine terraces. Results indicate that urchin plates and spines do not behave as closed systems with respect to both uranium and thorium. Calculated

ages based on these data do not agree with uranium-series ages (120 000 and 127 000 yr) obtained previously from corals from the same localities.

fossils/Pleistocene /marine terraces/animal fossils/absolute age/shore features/uranium disequilibrium/biostratigraphy/geochronology/topographic features/Strongylocentrotus/sea urchins/California Channel Islands/Los Angeles County/Ventura County/San Clemente Island/San Nicols Island/paleontology/surficial geology/quaternary geology/geochronology/geomorphology/biostratigraphy.

3231. Teng LSY. Seismic stratigraphic study of the California continental borderland basins; structure, stratigraphy, and sedimentation. [dissertation] ; 1985. University of Southern California, United-States; Doctoral Monographic; Thesis B; Bibliography and Index of Geology (1969-present) Doheny Libr., Micrographics Dep., Los Angeles, CA, United States.

unknown p. California/stratigraphy/Mesozoic/Tertiary/sedimentation/environment/shelf environment/oceanography/continental margin/geophysical surveys/seismic surveys/Pacific Coast/Western U.S./United States/Catalina Basin/compression tectonics/North American Plate/Pacific Plate/Patton Basin/San Nicolas Basin/San Pedro Basin/Santa Barbara Basin/Santa Cruz Basin/sedimentary basins/Southern California/Tanner Basin/GEOREF.

3232. Muhs DR, Szabo GJ. Uranium-series age of the Eel Point terrace San Clemente Island, California. Geology 1982;10(1):23-26 Address: Dept. of Geography, Univ. of Wisconsin, Madison, Wisconsin 53706. Uranium-series analysis of the coral *Allopora californica* Verrill from the 2nd, 32m Eel Point terrace on San Clemente Island, California, has yielded an age of 127 000 yr. The Eel Point terrace is thus correlative with numerous terrace localities on the southern California mainland, with coral reefs on Barbados and New Guinea and with substage 5e of the marine oxygen-isotope record. A tectonic uplift rate of about 0.20m/1000 yr has been calculated assuming a sea level slightly higher than the present one at the time of terrace formation. terraces/absolute age/geomorphology/geochronology/applications/shore features/structural geology/pleistocene/changes of level/terraces/neotectonics/uranium disequilibrium/uplifts/Quaternary/Cenozoic/upper Pleistocene/calibration/dates/plated tectonics/rates coral/*Allopora californica* Eel Point terrace/San Clemente Island/Los Angeles County/terrestrial geology/surficial geology/Quaternary geology.

3233. Muhs DR. Quaternary stratigraphy and soil development, San Clemente Island, California [dissertation]. Boulder, Colorado, USA: University of Colorado; 1980. 255. Marine terraces are the most prominent geomorphic surfaces on San Clemente Island. Eight well developed terraces and two less distinct terraces have been mapped on the northern end of the island. The 1st, 2nd and 5th terraces have fossil mollusks which can be used for relative age assignments when amino acid ratios are compared. The 2nd terrace also has hydrocoralline material which has been dated using U-series techniques at 127 ka. This date, the amino acid ratios and an assumed rate of isoleucine epimerization derived from deep-sea foraminifera studies can be used to assign absolute ages to the 1st and 5th terraces; these are 60-107 ka and 345-475 ka, respectively. These terraces thus correlate with high sea level stands in the

oxygen isotope record and with terraces near San Diego and on Barbados and New Guinea. The dates and estimates of sea level derived from other areas yield uplift rates on San Clemente Island of 0.19 to 0.26 m/1,000 yr, similar to other locations in southern California with strike-slip tectonics. Radiocarbon dating of fossil land snails in a paleosol underlying a cemented calcareous dune deposit suggests major dune deposition shortly after ca. 21,000 yr BP. Well-developed soils on dunes farther inland suggest major dune formation much earlier. All dunes probably developed during sea level minima, when calcareous shelf sands were freshly exposed. Evidence from filed observations, dust traps and mineralogy suggest that all soils on San Clemente Island have been influenced by airborne dustfall to one degree or another. Satellite imagery and field observations indicate that dust is blown offshore from the Mojave Desert during Santa Ana wind conditions. The combination of eolian additions and sea spray influx results in rapid soil profile development. Typic Natrixeralfs can develop on andesitic alluvial fan deposits in less than 3,000 yr; these soils are also found on surfaces with ages of 60-107 ka and 127 ka, but are beginning to show vertic characteristics. On surfaces about 200 ka or older, Typic Chromoxererts are dominant. These observations suggest that Natrixeralfs develop into Chromoxererts after sufficient smectite clay has accumulated. The dominant minerals in the clay fraction of both the Natrixeralfs and the Chromoxererts are smectite and mica. Mica is apparently of eolian origin and smectite accumulates by weathering of plagioclase and pyroxenes derived from the andesitic parent material and alteration of mica under neutral to alkaline conditions. Decreasing internal drainage in Vertisols over time creates conditions especially favorable for the formation of trioctahedral smectite, and with time and deeper in the profiles, mica peaks on X-ray diffractograms become progressively broader and smectite peaks become progressively sharper. Soils on gently sloping andesite bedrock exhibit differences related to slope position. Crest and shoulder soils are Lithic Haploxeralfs; the toeslope soil is a proto-Pelloxerert with higher clay content. The dominant processes appear to be controlled by movement of material downslope by overland flow and movement of basic cations in solution downslope by throughflow. These data suggest that the steady condition exhibited by Vertisols on marine terraces ranging in age from about 200 ka to greater than 1,000 ka may cease if uplift of the island block continues, which would result in downcutting, stream integration and better drainage of the marine terraces.

quaternary stratigraphy/soil development/marine terraces/dune deposition/soils/geochronology/clay mineralogy/geomorphology/sedimentation/racemization/areal studies/shore features/surveys/wind transport/shells/Cenozoic/biostratigraphy/C-14/absolute age/Paleosols Mollusca/molluscs/Foraminifera/foraminiferans/San Clemente Island/physical geography/surficial geology/quaternary geology.

3234. Soutar A. Planktonic foraminifera- field experiment on production rate. Science 1967;156(3781):1495-1497.

planktonic foraminifera/globigerina/zooplankton/Pieper/globigerinoides/globobulimina/production rate/california current/MINERALS MANAGEMENT SERVICE.

3235. Keller BR. Structural discontinuity within the Southern California continental margin; seismic and gravity models

of the western Transverse Ranges. [dissertation] ; 1984.
University of California, Santa Barbara, United-States; Doctoral
Monographic; Thesis B; Bibliography and Index of Geology (1969-
present) Univ. Microfilms. 108 p.
California/tectonophysics/crust/geophysical
surveys/surveys/isostasy/anomalies/observations/Pacific
Coast/Western U.S./United States/Channel Islands/Coast
Ranges/continental crust/continental margin/East Pacific Rise/East
Santa Cruz Basin Fault/gravity surveys/Mohorovicic
discontinuity/Neogene/Tertiary/P waves/body waves/elastic
waves/Santa Barbara Channel/Santa Ynez Range/seismic
surveys/Southern California/teleseismic signals/Transverse
Ranges/velocity structure/GEOREF.

3236. Mulroy TW, Rundel PW, Bowler PA. The vascular flora of
Punta Banda, Baja California Norte, Mexico. Madrono
1979;26(2):69-90
Address: 804 Anacapa St., Santa Barbara, CA 93101.
An annotated checklist of the species on Punta Banda is given,
with a description of the vegetation, physical environment,
and a brief discussion of floristic and biogeographic
considerations. Species richness is roughly comparable with
that on the California Channel Islands. The treeless, shrubby
vegetation, characteristic of coastal areas in northwestern Baja
California, is marked by the conspicuous presence of succulent
species (Agave shawii, Dudleya brittonii, 6 genera of cacti),
particularly in steep or rocky areas and on slopes with a
southerly exposure. Typical chaparral-coastal sage scrub taxa make
up about half of the native flora with another 15% of the species
endemic to the coastal sage scrub-chaparral transition zone
centered in northwestern Baja California. About 11% of the native
flora are desert taxa and about 17% are widespread Pacific
Coast taxa. Two species (Dudleya campanulata and Astragalus
sanctorum) are endemic to the peninsula and 4 species
(Eriogonum grande, D. anomala, Hemizonia greeneana ssp.
peninsularis, and Ribes viburnifolium) represent limited mainland
occurrences of otherwise insular taxa. species
richness/phytogeography/vegetation/community composition
endemic/check lists/flora/biogeography/chaparral-coastal
sage/scrub/Agave/shawii/Dudleya brittonii/Dudleya
campanulata/Astragalus sanctorum/Eriogonum grande/Dudleya
anomala/Hemizonia greeneana peninsularis/Ribes/viburnifolium/Punta
Banda/Baja California Norte/Mexico/California Channel
Islands/terrestrial biology/botany.

3237. Southern California Coastal Water Research Project.
The ecology of the Southern California Bight: Implications for
water quality management. Chapt. 7., coastal fish populations.
South. Calif. Coastal Water Res. Proj. Rep. T.R. 104 1973;:193-203.
NPS/Fishes/vertebrates/zoology/Schroeter Dixon
Anderson/anthropogenic
inputs/benthic/invertebrates/TEXT/phytoplankton/waste/discharge/s
ediment/metals /chlorinated/hydrocarbons/disease/stress/coliform
concentration/benthic community/microbiology/hickey/physical
oceanography/fish/cross allen/MINERALS MANAGEMENT SERVICE.

3238. Boehm MCF. Biostratigraphy, lithostratigraphy, and
paleoenvironments of the Miocene Pliocene San Felipe marine
sequence, Baja California Norte, Mexico. [dissertation] ; 1982.
Stanford University, United-States; Master's Monographic; Thesis;
Map B; Bibliography and Index of Geology (1969-present).
326 p.366 Refs.
Mexico/stratigraphy/Neogene/sedimentary

rocks/lithostratigraphy/paleogeography/algal flora/diatom
flora/paleoecology/Miocene/new names/microfossils/Baja California
Norte/Canon las Cuevitas Mudstone Member/geologic maps/maps/Llano
el Moreno Formation/Tertiary/paleoenvironment/Salada Formation/San
Felipe Diatomite Member/San Felipe marine sequence/sedimentary
basins/Sierra San Felipe Sierra Santa Rosa Basin/structure contour
maps/volcanic rocks/GEOREF.

3239. Murray KG, Winnett-Murray K, Eppley ZA, Hunt GL,,
Schwartz DB. Breeding biology of the Xantus' murrelet. Condor
1983;85(1):12-21 Address: Dep. Zool., Univ. Florida, Gainesville,
FL 32611, USA. Xantus' Murrelets (*Synthliboramphus* (*Endomychura*)
hypoleucus) were studied on Santa Barbara Island, California from
1975-1979. Clutch initiation occurred from March to June and
usually peaked in April. The two-egg clutch was 45% of the female's
weight. Eggs were laid eight days apart. Both sexes shared duties
during a 34-day incubation period partners relieved one another
every three or four days. Eggs were typically left unattended in
the interval between laying of successive eggs, immediately after
clutch completion, and sporadically during incubation. Breeders
and non-breeders of both sexes followed similar patterns of weight
change, reflecting similar patterns of colony attendance: murrelets
lost weight after the egg-laying period., then gradually gained
weight through the rest of the breeding season. The downy young
left the nest only two nights after hatching, unfed and weighing
less than 30 g. Chicks and their parents apparently moved well
offshore their first night at sea. Even though most murrelets on
Santa Barbara nested in concealed rock crevices, irregular nest
attendance patterns left eggs vulnerable to predation, resulting in
the loss of 44% of the eggs laid. Predation by deer mice
(*Peromyscus maniculatus*) is currently the greatest risk to the
breeding of these murrelets on Santa Barbara Island.
breeding/predation/clutch/incubation/reproductive
biology/reproductive behavior/chicks *Synthliboramphus*
hypoleucus/Xantus' Murrelets/*Peromyscus maniculatus*/deer mice Santa
Barbara Island terrestrial biology/ornithology.

3240. Bogaert BM. An aftershock study of the Santa Barbara
earthquake of August 13, 1978 [dissertation]. ; 1984.
University of California, Santa Barbara, United-States; Master's
Monographic; Thesis B; Bibliography and Index of Geology (1969-
present). 55 p.22 Refs.
Santa Barbara
County/California/seismology/earthquakes/aftershocks/faults/displ
acements/reverse faults/arrays/Pacific Coast/Western U.S./United
States/continental shelf/decollement/focal
mechanism/mechanics/Santa Barbara Channel/Santa Barbara earthquake,
1978/Southern California/Transverse Ranges/GEOREF.

3241. Murray SN, Littler MM. Patterns of algal succession in
a perturbed marine intertidal community. Journal of Phycology
1978;14(4):506-512 Address: California State Univ., Fullerton.
Dept. of Biological Science Note: California Water Resources
Center Project UCAL-WRC-W-491. OWRT A-054-CAL(8). Patterns of
algal succession for a sewage-polluted and an unpolluted habitat
near Wilson Cove, San Clemente Island, California, were studied
from December 1974 to June 1977. Resident populations were analyzed
for 56 fully denuded and 34 undisturbed control quadrats
during 11 assessment periods. The denuded quadrats in the
perturbed (polluted) habitat showed recovery within 1.0 mo as
determined by cover, percent similarity and species diversity
comparisons with control plots. The short recovery times of
the algal populations dominating the perturbed habitat

indicate that these species maintain relatively constant overall abundances due to their potential for rapid recruitment and growth. Denuded quadrats in an unpolluted habitat did not show recovery even after 30.0 mo. These quadrats were dominated during the first 1.3 mo by algae characteristic of the perturbed area, including filamentous Ectocarpaceae, colonial diatoms and bluegreen algae. The similarity between the species occupying the sterilized plots during the first few months and those that provide the majority of cover in the perturbed area supports the hypothesis that the dominant algae of the upper and mid-intertidal regions of this habitat consist largely of early successional or opportunistic species with high capacities for growth and reproduction. Additionally, these experiments suggest that algal populations described for other perturbed epilithic systems also represent resilient subclimax associations. (Snyder-Calif., Davis).

Aquatic algae/Biological communities/Environmental effects/Intertidal areas/Water pollution/Water pollution effects/Succession/Sewage/Marine algae/Marine microorganisms/Microenvironment/littoral zones/colonization/marine pollution/denudation/recovery time/opportunistic species/growth/reproduction/filamentous/Ectocarpaceae/colonial diatoms/bluegreen algae/San Clemente Island/Wilson Cove/marine biology/botany/phycology/pollution/water quality/resource management.

3242. Webb KW. Depositional subenvironments of Santa Rosa Island, Florida [dissertation]. ; 1985. University of Alabama, United-States; Master's Monographic; Thesis B; Bibliography and Index of Geology (1969-present). 105 p.

Santa Rosa County/sedimentation/environment/nearshore environment/Florida/stratigraphy/Holocene/sedimentary structures/environmental analysis/economic geology/petroleum/burrows/concretions/secondary structures/cross bedding/planar bedding structures/dunes/Southeastern U.S./Eastern U.S./United States/Gulf Coastal Plain/North America/Quaternary/lagoonal environment/northwestern Florida/paludal environment/possibilities/Santa Rosa Island/sedimentary petrology/stratification/GEOREF.

3243. Nagano C, Miller SE, Hogue CL. Castaways of California; the origin of animal life of the Channel Islands. Terra (Los Angeles) 1983;21(4):23-26 paleontology/faunal studies/paleontology/faunal studies/life origin/diversity Vertebrata/Invertebrata/invertebrates/vertebrates/California Channel Islands/invertebrate paleontology.

3244. Sorensen SS. Petrology of basement rocks of the California continental borderland and the Los Angeles Basin. [dissertation] ; 1984. University of California, Los Angeles, United-States; Doctoral Monographic; Thesis B; Bibliography and Index of Geology (1969-present) Univ. Microfilms,. 447 p. Catalina Schist/Santa Cruz Island Schist/Willows Plutonic Complex/Santa Monica Formation/California/petrology/metamorphic rocks/schists/mineral assemblages/inclusions/xenoliths/basalts/metamorphism/migration of elements/processes/amphibolite facies/aureoles/volcanic rocks/basement/Pacific Coast/Western U.S./United States/California continental borderland/continental margin/greenschist facies/Los Angeles Basin/melange/overprinting/Santa Monica Mountains/Southern California/zoning /GEOREF.

3245. Nagano CD. Population status of the tiger beetles of the genus *Cicindela* (Coleoptera: Cicindelidae) inhabiting the marine shoreline of southern California. *Atala* 1980;8(2):33-42
Address: Entomol. Sect., Nat. Hist. Mus. Los Angeles Cty., 900 Exposition Blvd., Los Angeles, CA 90007, USA.

Information about the population status of the tiger beetles (*Cicindela*) inhabiting the seashore of southern California gathered during field work in 1979 is given. The area of study extends from the San Luis Obispo/Santa Barbara County line south along the marine shoreline to the Mexican border. The Channel Islands are included. Seven species are recorded as definitely living along the sea coast one is a doubtful inhabitant and two species are eliminated as possible seashore tiger beetles. Ecological notes, habitat and behavioral data are included.
habitat/ecology/behavior/biogeography/distribution/population status/Coleoptera/Cicindelidae/*Cicindela*/tiger beetles/San Luis Obispo/Santa Barbara County/Mexican border/California Channel Islands/terrestrial biology/entomology.

3246. Spies R. Benthic-pelagic coupling in sewage affected marine ecosystems. *Mar. Environ. Res.* 1984;13(3):195-230.
sewage outfalls/chlorinated hydrocarbons/organic matter/Hood/ecosystem/benthic environment/pelagicenvironment/environmental monitoring/sewage/marine ecology/trophic structure/bioaccumulation/food webs/benthos/INE/Southern California Bight/ecosystem impact/outfalls/hickey/physical oceanography/Pieper/zooplankton/trophic step magnification/cesium potassium ratio/polychaete crustacea/abundance/distribution/*Microstomus pacificus*/Algae spermatophytes/Bray/Murray/sewage/marine ecosystems/Eganhouse/chemical oceanography/*sicyonia ingentis* distribution/PCB/DDE/anderson/anthropogenic/Thompson/invertebrates/MINERALS MANAGEMENT SERVICE.

3247. Olson DJ. Surface and subsurface geology of the Santa Barbara Goleta metropolitan area, Santa Barbara County, California. [dissertation]; 1983. Oregon State University, United-States; Master's Monographic; Thesis B; Bibliography and Index of Geology (1969-present).

unknown p.
Santa Barbara County/Santa Barbara Formation/Pico Formation/Vaqueros Formation/California/areal geology/faults/displacements/reverse faults/seismology/earthquakes/focal mechanism/aftershocks/Pacific Coast/Western U.S./United States/Coal Oil Point fault/Elwood oil field/Goleta/Goleta Basin/La Goleta gas field/More Ranch Fault/Oligocene/Paleogene/Tertiary/Pleistocene/Quaternary/Santa Barbara/Santa Barbara earthquake, 1978/Santa Barbara Montecito Basin/scarps/Southern California/terraces/unconformities /GEOREF.

3248. Nagano CD. Distributional notes on the tiger beetles of the California Channel Islands (Coleoptera: Cicindelidae). Menke AS, Miller DR. *Entomology of the California Channel Islands*. Santa Barbara, California, USA: Santa Barbara Museum of Natural History; 1985. 105-112.

Presented at: Symposium on Entomology of the California Channel Islands (at) Annual Meeting of the Entomological Society of America, San Diego, CA (USA), Dec 1981 Address: Nat. Hist. Mus. Los Angeles Cty., 900 Exposition Blvd., Los Angeles, CA 90007.
Tiger beetles are widespread and often abundant predatory insects in littoral habitats. *Cicindela* is the only one of the four North American genera in the family Cicindelidae inhabiting the sea

coast and Channel Islands of southern California. The first island record of *Cicindela* was made by Fall (1897) in a treatment of the Coleoptera of the Channel Islands. Freitag (1965) listed a species from Santa Cruz Island in his revision of the Nearctic members of the *Cicindela maritima* complex. However, a comprehensive survey for island tiger beetles has only been completed recently (Nagano, 1982) in which seven of the islands are reported to harbor five species of *Cicindela*. The present paper is a review and update of Nagano (1982) with new records and discussions. geographical distribution/check lists/predatory insects/Coleoptera/Cicindelidae/tiger beetles/*Cicindela*/California Channel Islands/Santa Cruz Island/terrestrial biology/entomology.

3249. Natenstedt CJ. Sedimentology and paleogeographic implications of the Eocene South Point and Cozy Dell formations, Santa Rosa Island, southern California [dissertation]. San Diego, CA: San Diego State University; 1983. 216.
paleogeography/sedimentary rocks/sedimentation/stratigraphy ocene/provenance/environment/protoliths/nearshore environment/South Point Formation/Cozy Dell fluvial environment/submarine fans Formation/Poway Rhyolites/sedimentary petrology/lithofacies Paleogene/Tertiary/continental margin/source rocks San Diego/California Channel Islands/San Diego/Santa Rosa Island/Santa Cruz Island/San Miguel Island/geology/sedimentary petrology.

3250. Corbett EJ. Seismicity and crustal structure studies of Southern California; tectonic implications from improved earthquake locations. [dissertation] ; 1984.
California Institute of Technology, United-States; Doctoral Monographic; Thesis B; Bibliography and Index of Geology (1969-present) Univ. Microfilms. 247 p.
California/tectonophysics/crust/seismology/earthquakes/seismicity /folds/mechanisms/decollement/faults/systems/block structures/aftershocks/Pacific Coast/Western U.S./United States/Catalina Island/explosions/focal mechanism/Mojave Desert/neotectonics/San Bernardino Mountains/Santa Barbara earthquake/Santa Barbara Island earthquake/Santa Cruz Catalina Fault/Santa Monica Basin/scarps/Southern California/Transverse Ranges/velocity structure/GEOREF.

3251. Squire JL, J. Surface currents as determined by drift card releases over the continental shelf California; 1977-78 floods. *Geo-Mar. Letters* 1981;1(1):23-28.
California/sedimentation/physical oceanography/transport/ocean circulation/suspended materials/United States/California Current/floods/Davidson Current/Landsat/continental shelf/nepheloid layer/provenance/upwelling/MINERALS MANAGEMENT SERVICE.

3252. National Maritime Research Center-Kings Point NCA, Operations Research Facility. Santa Barbara Channel Risk Management Program. Simulation research rept. : CAORF-24-8015-01; 1981. 370. ((Sponsored by National Oceanic and Atmospheric Administration, Washington, DC. Office of Coastal Zone Management.)). Note: Prepared in cooperation with California Coastal Commission, San Francisco. Sponsored in part by National Oceanic and Atmospheric Administration, Washington, DC. Office of Coastal Zone Management. The Santa Barbara Channel Risk Management Program was carried out to determine means to minimize risks to facilities and to the environment resulting from oil and gas recovery and traffic in the Santa Barbara Channel. The basic approach to risk management relative to offshore development and vessel traffic is the identification of placement recommendations for temporary or permanent methodology, summary of data, results and conclusions are

presented in this report.

Offshore structures/Tanker ships/Hazards/Risk/Collision avoidance/Water traffic/Marine terminals/Traffic surveys/Navigational aids/Computerized simulation/Risk analysis/Santa Barbara Channel/Mechanical engineering/ Industrial engineering/Civil engineering/Marine Engineering/petroleum.

3253. Roush JM. Marine geology of the western extension of the Transverse Ranges; Point Conception to Point Arguello. [dissertation] ; 1983. California State University, Northridge, United-States; Master's Monographic; Thesis B; Bibliography and Index of Geology (1969-present). 151 p.100 Refs. Santa Barbara County/Monterey Formation/Vaqueros Sandstone/California/oceanography/marine geology/continental shelf/stratigraphy/Cenozoic/geophysical surveys/seismic surveys/faults/displacements/active faults/bathymetric maps/maps/boundary/Pacific Coast/Western U.S./United States/Coast Ranges Province/geologic maps/Neogene/Tertiary/Paleogene/physiographic provinces/Point Arguello/Point Conception/Santa Barbara Basin/Santa Maria Basin/Santa Ynez Mountains/site location maps/Southern California/Transverse Ranges Province/GEOREF.

3254. National Ocean Survey RM. United States Coast Pilot 7. Pacific Coast: California, Oregon, Washington, and Hawaii. Fourteenth Edition - June 1978. : NOAA-78070502; 1978. 459. Note: Supersedes PB-271 311. Navigational aids/Coasts/Waterways (Transportation)/Navigation/Regulations/Water traffic/Marine meteorology/Weather communication/Climate/Anchorages/Seaports/Tables(Data)/Harbors/Rivers/Coast pilots/Intercoastal waterways/Pacific Coast (United States)/San Diego/Point Arguello/California Channel Islands/Santa Barbara Channel Islands/San Francisco Bay/Point St. George, California/Chetco River/Columbia River/Oregon/Washington/Strait of Juan de Fuca/Straits of Juan de Fuca/ Georgia, Washington/Puget Sound/Hawaii/Navigation/Communications Detection/Meteorology/Transportation/atmospheric sciences/military.

3255. Ticken EJ. Geology of the inner basin margin; Dana Point to San Onofre, California [dissertation]. ; 1983. California State University, Northridge, United-States; Master's Monographic; Thesis B; Bibliography and Index of Geology (1969-present). 85 p.96 Refs. Orange County/San Onofre Breccia/Catalina Schist/California/oceanography/maps/geophysical surveys/acoustical surveys/stratigraphy/changes of level/sedimentation/processes/marine sedimentation/basement/bathymetric maps/Pacific Coast/Western U.S./United States/continental margin/Dana Point/geologic maps/isopach maps/Peninsular Range Province/Quaternary/rates/San Mateo Point/San Onofre/Southern California/Southern California continental borderland/terraces/transgression/uplifts/GEOREF.

3256. National Ocean Survey WD(. United States Coast Pilot 7 - Pacific Coast: California, Oregon, Washington, and Hawaii. : NOAA-NOS-CP-7,18 ed; 1982. 496. navigational aids/coasts/West Coast/California Channel Islands/navigation.

3257. Natenstedt CJ. Sedimentology and paleogeographic implications of the Eocene South Point and Cozy Dell formations,

Santa Rosa Island, southern California. [dissertation] ; 1983.
San Diego State University, United-States; Master's Monographic;
Thesis B; Bibliography and Index of Geology (1969-present).
216 p.122 Refs.

South Point Formation/Cozy Dell Formation/Poway
Rhyolites/California/stratigraphy/Eocene/paleogeography/sedimentary
rocks/provenance/protoliths/sedimentation/environment/nearshore
environment/Pacific Coast/Western U.S./United States/Channel
Islands/continental margin/Paleogene/Tertiary/fluvial
environment/lithofacies/San Diego/San Miguel Island/Santa Cruz
Island/Santa Rosa Island/sedimentary petrology/source
rocks/Southern California/submarine fans/GEOREF.

3258. National Ocean Survey RM. United States Coast Pilot 7.
Pacific Coast: California, Oregon, Washington, and Hawaii. :
NOAA-79080906; 1979. 465. The National Ocean Survey Coast Pilots
are a series of nine nautical books that cover a wide variety of
information important to navigators of U.S. coastal and
intracoastal waters, and the waters of the Great Lakes. Most of
this book information cannot be shown graphically on the standard
nautical charts and is not readily available elsewhere. Coast Pilot
subjects include navigation regulation, outstanding landmarks,
channel and anchorage peculiarities, dangers, weather, ice,
freshets, routes, pilotage, and port facilities. This volume of
Coast Pilot 7 has information on the following areas: California,
Oregon, and Washington; San Diego to Point Arguello, California;
Channel Islands, California; Point Arguello to San Francisco Bay,
California; San Francisco Bay, California; San Francisco Bay to
Point St. George, California, Chetco River to Columbia River,
Oregon; Columbia River, Oregon and Washington; Columbia River to
Strait of Juan de Fuca, Washington; Straits of Juan de Fuca and
Georgia, Washington; Puget Sound, Washington; and Hawaii.
Navigational aids/Coasts/Waterways
(Transportation)/Navigation/Ice/Regulations/Water traffic/Marine
meteorology/Weather
communication/Climate/Anchorages/Seaports/Tables(Data)/Harbors/Ri
vers/Coasts pilots/Intercoastal waterways/California/California
Channel Islands/Oregon/Washington (State)/Hawaii/San Francisco
Bay/Puget Sound/Pacific Coast Navigation/Communications
Detection/Meteorology/atmospheric science/military.

3259. Minck KM. Facies analysis and depositional setting of
the middle member of the Miocene Blanca Formation, Santa Cruz
Island, California. [dissertation] ; 1982.
University of California, Santa Barbara, United-States; Master's
Monographic; Thesis B; Bibliography and Index of Geology (1969-
present). 209 p.76 Refs.
Blanca Formation/Catalina Schist/San Onofre
Breccia/California/stratigraphy/Miocene/sedimentary
rocks/lithofacies/environmental
analysis/sedimentation/environment/deltaic
environment/ichnofossils/occurrence/burrows/Pacific Coast/Western
U.S./United States/Catalina Schist terrain/clastic
rocks/conglomerate/continental
shelf/Neogene/Tertiary/provenance/pyroclastics/volcanic
rocks/sandstone/Santa Cruz Island/sedimentary petrology/Southern
California/tuff/turbidity currents/GEOREF.

3260. National Ocean Survey RM. United States Coast Pilot 7,
Pacific Coast: California, Oregon, Washington, and Hawaii
(Sixteenth Edition). : NOAA-80082501; 1980. 479.
The National Ocean Survey Coast Pilots are a series of nine
nautical books that cover a wide variety of information important

to navigators of U.S. coastal and intracoastal waters, and the water of the Great Lakes. Most of this book information cannot be shown graphically on the standard nautical charts and it not readily available elsewhere. Coast Pilot subjects included navigation regulation, outstanding landmarks, channel and anchorage peculiarities, dangers, weather, ice, freshets, routes, pilotage, and port facilities. This volume of Coast Pilot 7, cancels the Fifteenth (June 1979) edition. It includes information on: San Diego to point Arguello, California, Channel Islands, California; Point Arguello to San Francisco Bay, California; San Francisco Bay, California; San Francisco Bay to Point St. George, California; Chetco River to Columbia River, Oregon; Columbia River Oregon; and Washington; Columbia River to Strait of Juan de Fuca, Washington; Straits of Juan de Fuca and Georgia, Washington; Puget Sound, Washington; and Hawaii.

Navigation aids/Surface navigation/San Diego to point Arguello/California Channel Islands/California/Point Arguello/San Francisco Bay/Point St. George, California/Chetco River/Columbia River/Oregon/Strait of Juan de Fuca/Washington/Puget Sound/Hawaii/Navigation/Communications Detection/Transportation/military.

3261. Crandall GJ. A marine seismic refraction study of the Santa Barbara Channel. 132 p.43 Refs. 1982
University of California, Santa Barbara, United-States; Master's Monographic; Thesis B; Bibliography and Index of Geology (1969-present). Coast Range Ophiolite/California/geophysical surveys/seismic surveys/structural geology/tectonics/basement/Pacific Coast/Western U.S./United States/California Borderland/Cenozoic/continental margin/continental shelf/evolution/Mesozoic/oceanic crust/crust/Santa Barbara Channel/Southern California/thickness/traveltime /GEOREF.

3262. National Ocean Survey RM. United States Coast Pilot 7. Pacific Coast: California, Oregon, Washington, and Hawaii. : NOAA-81062613; 1981. 487. Coast Pilot subjects include navigation regulation, outstanding landmarks, channel and anchorage peculiarities, dangers, weather, ice, freshets, routes, pilotage, and port facilities. This volume of Coast Pilot 7 gives information on San Diego to Point Arguello, California; Channel Islands, California; Point Arguello to San Francisco Bay, California; San Francisco Bay, California; San Francisco Bay to Point St. George, California; Chetco River to Columbia River, Oregon; Columbia River, Oregon and Washington; Columbia River to Strait of Juan de fuca, Washington; Straits of Juan de Fuca and Georgia, Washington; Puget Sound, Washington; and Hawaii.
Navigational aids/Weather/Ice/Warning systems/Port facilities/Anchorage/Regulations/Pacific Coast/California Channel Islands/Navigation/Transportation.

3263. Stephens JS,J. Assessing the subtidal fish communities in the Southern California Bight. Coastal Ocean Pollut. Assess. News 1985;3:38-39. fish/MINERALS MANAGEMENT SERVICE.

3264. Remsen WEJ. Geology of the San Nicolas Bank, southern California continental borderland [dissertation]. ; 1982. California State University, Northridge, United-States; Master's Monographic; Thesis B; Bibliography and Index of Geology (1969-present). 135 p.69 Refs.
Vaqueros Formation/Rincon Formation/Monterey Formation/California/geophysical surveys/seismic surveys/stratigraphy/Cenozoic/oceanography/marine geology/areal

studies/Pacific Coast/Western U.S./United States/clay mineralogy/claystone/clastic rocks/continental margin/cyclic processes/faults/Luisian/middle Miocene/Miocene/Neogene/Tertiary/marine sedimentation/ocean floors/Relizian/San Nicolas Bank/San Nicolas Island/Saucesian/lower Miocene/sedimentary basins/sedimentation/siltstone/Southern California/tectonic controls/unconformities/GEOREF.

3265. National Ocean Survey WD. United States coast pilot 7. Pacific coast: California, Oregon, Washington, and Hawaii. Seventeenth edition. Washington, D.C.: NOAA/NOS; 1981. 484. The National Ocean Survey Coast Pilots are a series of nine nautical books that cover a wide variety of information important to navigators of U.S. coastal and intracoastal waters, and the waters of the Great Lakes. Most of this book information cannot be shown graphically on the standard nautical charts and is not readily available elsewhere. Coast Pilot subjects include navigation regulation, outstanding landmarks, channel and anchorage peculiarities, dangers, weather, ice, freshets, routes, pilotage, and port facilities. This volume of Coast Pilot 7, cancels the Sixteenth (June 1980) Edition, and gives information on: San Diego to Point Arguello, California Channel Islands, California Point Arguello to San Francisco Bay, California San Francisco Bay, California San Francisco Bay to Point St. George, California Chetco River to Columbia River, Oregon Columbia River, Oregon and Washington Columbia River to Strait of Juan de Fuca, Washington Straits of Juan de Fuca and Georgia, Washington Puget Sound, Washington and Hawaii. navigational aids/California Channel Islands/geology/navigation/geography.

3266. Morrison LR. Surface sediment and seismic reflection profiling, outer Newport submarine canyon, southern California continental borderland. [dissertation] ; 1982. California State University, Northridge, United-States; Master's Monographic; Thesis B; Bibliography and Index of Geology (1969-present). 150 p.105 Refs. Orange County/California/oceanography/sediments/geochemistry/trace elements/carbon/sedimentation/transport/marine transport/clay mineralogy/areal studies/Bolsa Chica/Pacific Coast/Western U.S./United States/composition/continental margin/geophysical surveys/grain size/heavy metals/Holocene/Quaternary/marine sediments/Newport submarine canyon/Pleistocene/provenance/regression analysis/statistical analysis/San Diego Trough/San Pedro Shelf/Santa Ana River/seismic surveys/Southern California/textures/trace metals/GEOREF.

3267. National Oceanic and Atmospheric Administration WD, (USA). National Ocean Survey. United States coast pilot 7. Pacific Coast: California, Oregon, Washington, and Hawaii. Fourteenth edition. ; 1978. 465. Report ID = USCP-7. This volume of Coast Pilot 7, Pacific Coast, California, Oregon, Washington, and Hawaii, cancels the Thirteenth (June 1977) Edition. Descriptive information supplements the navigational information shown on nautical charts for the following sections: San Diego to Point Arguello, California Channel Islands, California Point Arguello to San Francisco Bay, California San Francisco Bay, California San Francisco Bay to Point St. George, California Chetco River to Columbia River, Oregon Columbia River, Oregon and Washington Columbia River to Strait of Juan de Fuca, Washington Straits of Juan de Fuca and Georgia, Washington Puget Sound, Washington and Hawaii.

navigational charts/West Coast/Pacific Coast/California/Oregon/Washington/Hawaii/(see summary for more)/aviation/maps/navigation.

3268. Kies RP. Paleogene sedimentology, lithostratigraphic correlations and paleogeography, San Miguel Island, Santa Cruz Island, and San Diego, California. [dissertation] ; 1982. San Diego State University, United-States; Master's Monographic; Thesis B; Bibliography and Index of Geology (1969-present). 577 p.170 Refs.

San Diego County/Mount Soledad Conglomerate/California/stratigraphy/Paleogene/Mexico/sedimentary rocks/clastic rocks/provenance/paleogeography/sedimentation/environment/deltaic environment/faults/orientation/strike faults/Pacific Coast/Western U.S./United States/composition/conglomerate/East Santa Cruz Basin Fault/lithofacies/Malibu Coast Fault System/metavolcanic rocks/Mount Soledad Fault/Northern Channel Islands/northern Mexico/Tertiary/San Diego/San Miguel Island/Santa Ana Mountains/Santa Cruz Island/Southern California/Valle de Las Palmas/GEOREF.

3269. National Oceanic and Atmospheric Administration WD, Office of Coastal Zone Management. Final environmental impact statement on the proposed Channel Islands Marine Sanctuary. ; 1980. 508.

The National Oceanic and Atmospheric Administration proposes the designation of the waters surrounding the four northern Channel Islands and Santa Barbara Island as a marine sanctuary. The proposed sanctuary would extend six nautical miles seaward from the mean high tide line. If these waters are designated as a marine sanctuary, the following activities would be subject to the proposed regulations described in this document: oil and gas operations, discharging or depositing any substance, alteration of or construction on the seabed, navigation and operation within one nautical mile of the Islands of vessels not engaged in fishing. All regulations shall only be applied consistent with international law. Environmental impact statements- final/Construction/Regulations/Economic impact/Navigation/Law enforcement/Natural gas/Crude oil/Marine sanctuary/Fishes/Birds/Mammals/Cetacea/Aquatic plants/Invertebrates/Shellfish/northern California Channel Islands/Santa Barbara Island/Environmental Impact Statement/.

3270. Matherne AM. Paleoceanography of the Gulf of California; a 350 year diatom record [dissertation]. ; 1982. Oregon State University, United-States; Master's Monographic; Thesis B; Bibliography and Index of Geology (1969-present). 111 p.91 Refs.

Gulf of California/stratigraphy/Holocene/algal flora/diatom flora/sedimentation/sedimentation rates/marine environment/oceanography/ocean circulation/paleoclimatology/microfossils/assemblages/California Current/diatoms/algae/Equatorial Current/factor analysis/statistical analysis/geochronology/Guaymas Basin/North American Pacific/Pacific Ocean/Quaternary/methods/Neoglacial/paleo oceanography/paleoecology/varves/planar bedding structures/sedimentary structures/GEOREF.

3271. National Park Service WD. Proceedings of the Conference on Scientific Research in the National Parks (2nd) Held at San Francisco, California on November 26-30, 1979. Volume 7: Ecosystem Studies/Interdisciplinary Approach, Resource Management

and Planning, Information Technology. : NPS/ST-80/02-7; 1980. 478.
Note: See also Volume 6, PB81-100075 and Volume 8, PB81-100091.
Sponsored in part by American Inst. of Biological Sciences,
Arlington, VA.

Volume 7 contains 37 papers distributed among three sections. The Ecosystem Studies/Interdisciplinary Approach section contains eight papers concerned with ecologic studies in Olympic National Park. Topics include, valley floor ecosystems, fluvial processes, forest vegetation and aquatic ecosystem interactions. Several papers deal with habitat requirements of fish populations, invertebrate communities, and elk. Another paper discusses forest structure, composition, and reproduction. Within the Resource Management and Planning section several papers deal with single species management problems, bighorn sheep, and coyotes in Joshua Tree National Monument, wolves of Isle Royale National Park, and white-tailed deer in Pictured Rocks National Lakeshore. Another group of papers discusses resource management plans for Channel Islands National Monument Voyageurs and Glacier Bay National Parks, and Indiana Dunes National lakeshore. Procedures and techniques used in the development of resource management plans are discussed in several papers.

Ecology/National parks/Vegetation/Forest
trees/Invertebrates/Fishes/Deer/Mammals/Sheep/Management/resource
management/terrestrial biology/environmental biology.

3272. Donegan DP. Modern and ancient marine rhythmites from the Sea of Cortez and California continental borderland; a sedimentological study. [dissertation] ; 1982.
Oregon State University, United-States; Master's Monographic; Thesis B; Bibliography and Index of Geology (1969-present).
122 p.30 Refs.

Monterey Formation/Gulf of California/sedimentary
petrology/sedimentary structures/planar bedding
structures/varves/sedimentation/cyclic
processes/paleoenvironment/paleoclimatology/Cenozoic/sediments/ma
rine
sediments/composition/Protista/Silicoflagellata/California/diatom
s/algae/algal flora/microfossils/assemblages/Pacific Coast/Western
U.S./United States/continental margin/continental slope/North
American Pacific/Pacific
Ocean/Miocene/Neogene/Tertiary/paleoecology/Santa Barbara Basin/Sea
of Cortez/Southern California/trace metals/GEOREF.

3273. National Park Service WD. Proceedings of the Conference on Scientific Research in the National Parks (2nd) Held at San Francisco, California on November 26-30, 1979. Volume 12: Terrestrial Biology: Zoology. : NPS/ST-80/02-12; 1980. 411.
note: See also Volume 11, PB81-100125.; Sponsored in part by American Inst. of Biological Sciences, Arlington, VA.
Volume 12, Terrestrial Biology: Zoology, contains 26 papers, divided into four sections. The Animal Ecology section covers water levels and alligator nesting in Everglades national Park; Fowler toad population ecology and structure in Indiana Dunes National Lakeshore; oxygen relations and winter-kill at high elevations of *Rana muscosa*; and a chemical record of plants and insects in the bat ecosystem in caves near Carlsbad, New Mexico. Several aspects of avian ecology are discussed in the Avian Studies section. Topics include impacts of fire and fox predation upon breeding bird populations; woodpecker numerical response effects on mountain pine beetles; community relationships; distribution of birds; and management of seabird resources in the Channel Islands National Monument. seabirds/California Channel Islands/terrestrial biology/environmental biology/resource management.

3274. Stewart BS, Yochem PK. Pinniped entanglement in synthetic materials in the Southern California Bight, 1986-1988. Rep. No. 88-210. NOAA/NMFS NWAFC-F/NWC; Sea World Res. Inst.-Hubbs Marine Res. Center, San Diego, CA 1988; MINERALS MANAGEMENT SERVICE.

3275. Naval Facilities Engineering Command WDCD. San Nicolas Island barge landing site survey. : CHES/NAVFAC-FPO-1-79(3); 1978. 93.

note: Original contains color plates: All DTIC and NTIS reproductions will be in black and white. Includes envelope with 2 charts. Microfiche copies only. A bathymetric survey of the YFU, barge landing site area on San Nicolas Island, California, has shown that a narrow channel of sufficient width and clear of bottom obstacles exists into the beach to permit safe operation of the vessel under wind and sea conditions which are tolerable during cargo transfers. Obstacles on both sides of the channel have been identified and charted. The geology suggests that the clear channel has no hidden rocky features which may become exposed as the beach sand is removed by storm seas. Probing at the beach area confirms this hypothesis. A recommendation is made to install a new set of approach markers to the beach to identify a dog leg track close to the center of the newly charted channel. A secondary recommendation is to pursue bathymetric surveys of adjacent beach sites in order to find a wider approach channel to the beach, if such exists.

bathymetry/Barges/Landing/Sites/ocean
bottom/Approach/Channels/Surveys/Beaches/Barriers/Cargo/Channels/Sea states/Hypotheses/Safety/Channels
(Waterways)/Oceans/Storms/Sides/California Channel Islands/San Nicolas Island/marine engineering/mechanical engineering/industrial engineering/civil engineering.

3276. Stewart GL. Micro-zooplankton in the euphotic zone at five locations across the California Current. J. Fish. Res. Board Can. 1967;24(10):2053-2068. euphotic zones/standing stock/Pieper/zooplankton/california current/food chain/microorganisms/MINERALS MANAGEMENT SERVICE.

3277. Grossman EL. Stable isotopes in live benthic foraminifera from the southern California borderland. [dissertation] ; 1982.

University of Southern California, United-States; Doctoral Monographic; Thesis B; Bibliography and Index of Geology (1969-present) Univ. Microfilms. unknown p.
California/geochemistry/isotopes/carbon/C 13/C 12/oxygen/O 18/O 16/paleoecology/indicators/stable isotopes/foraminifers/benthonic taxa/ecology/marine environment/Pacific Coast/Western U.S./United States/continental borderland/microfossils/living taxa/Southern California/GEOREF.

3278. Naval Oceanography Command Detachment. Summary of meteorological observations, surface (SMOS), San Nicolas Island, California. Reference report 1973-1982. : Naval Oceanography Command Detachment, Asheville, NC.; 1983. 361. Updates AD-A060 999.

This data report consists of a six part statistical summary of surface weather observations. The six parts are: Part A - Weather Conditions/Atmospheric Phenomena, Part B - Precipitation/Snowfall/Snow Depth, Part C - Surface Winds, Part D - Ceiling versus Visibility/Sky Cover, Part E - Psychrometric Summaries, Part F - Station Pressure/Sea Level Pressure.
Climatology/surface

wind/temperature/precipitation/ceiling/visibility/relative humidity/station pressure/extreme temperatures/sea level pressure/daily temperature/weather conditions/monthly climatology/coastal region/snow depth/cloud cover/San Nicolas Island/meteorology/atmospheric sciences.

3279. Keenan EM. Amino acid racemization dating; theoretical considerations and practical applications. [dissertation] ; 1982. University of Delaware, United-States; Doctoral Monographic; Thesis B; Bibliography and Index of Geology (1969-present) Univ. Microfilms. 369 p.
geochronology/racemization/theoretical studies/organic materials/amino acids/alteration/geochemistry/processes/pyrolysis/Baja California Sur/California/Pacific Coast/Western U.S./United States/experimental studies/foraminifers/microfossils/hydrolysis/Mexico/mollusks/San Miguel Island/shells/temperature/terraces/Wyoming /GEOREF.

3280. Naval Weather Service Detachment Asheville NC. Summary of Meteorological Observations, Surface (SMOS), San Nicolas Island, California. : Naval Weather Service Detachment Asheville NC; 1978. 327.

This data report consists of a six part statistical summary of surface weather observations. The six parts are: Part A - Weather Conditions/Atmospheric Phenomena, Part B - Precipitation/Snowfall/Snow Depth, Part C - Surface Winds, Part D - Ceiling versus Visibility/Sky Cover, Part E - Psychrometric Summaries, Part F - Station Pressure/Sea Level Pressure.
Meteorological data/Meteorological charts/Temperature/Humidity/Precipitation/Clouds/Wind/Barometric pressure/Visibility Psychrometric tables/Weather observations/Atmospheric temperature/Snowfall/Cloud cover/Ceilings/Meteorology/San Nicolas Islands/Atmospheric Sciences/Meteorology.

3281. Bartling WA. Sedimentology of Upper Cretaceous strata, San Miguel Island, California, and its relation to the tectonics of the southern California borderland. [dissertation] ; 1981. San Diego State University, United-States; Master's Monographic; Thesis B; Bibliography and Index of Geology (1969-present). unknown p.
San Diego County/California/sedimentary petrology/sedimentation/environment/submarine environment/paleogeography/Cretaceous/structural geology/tectonics/Pacific Coast/Western U.S./United States/continental shelf/San Miguel Island/sedimentary basins/sedimentary rocks/submarine fans/tectonic controls/Upper Cretaceous/GEOREF.

3282. Nelson BV, Vance RR. Diel foraging patterns of the sea urchin *Centrostephanus coronatus* as a predator avoidance strategy. Marine Biology 1979;51:251-258
circadian rhythms/diel rhythms/foraging patterns/foraging behavior/predator avoidance/*Centrostephanus coronatus*/sea urchin/Santa Catalina Island/sea urchin/marine biology/ecology.

3283. Shiller AM. The geochemistry of particulate major elements in the Santa Barbara Basin and observations on the calcium carbonate carbon dioxide system in the ocean. [dissertation] ; 1982. University of California, San Diego, United-States; Doctoral Monographic; Thesis B; Bibliography and Index of Geology (1969-

present) Univ. Microfilms. 214 p.
California/geochemistry/sea water/major
elements/alkalinity/calcium/calcium carbonate/Pacific Coast/Western
U.S./United States/carbon/carbon dioxide/North American
Pacific/Pacific Ocean/particulate materials/Santa Barbara
Basin/GEOREF.

3284. Nelson BV. The adaptive significance of aggregation
and hermaphroditism in the sessile gastropod *Serpulorbis*
squamigerus [dissertation]. Los Angeles, California: University of
California; 1982.

The sessile snail *Serpulorbis squamigerus* occurs most
commonly in aggregations of 2 to thousands of individuals, although
solitary individuals can also be found. This presents the
opportunity to investigate the adaptive value of aggregation to
individuals. Snails found in aggregations have the same mortality
rate as solitary snails, probably because they are not preferred
prey of their major predators. Animals in aggregations forage more
efficiently than solitary individuals. And most significant is the
fact that aggregated females have a far greater fecundity than
solitary females. This is because aggregated females have greater
access to the water-borne spermatophores than do the solitary
females Both protandrous and protogynous sex changes occur,
but protandry is more common. Some animals changed sex more than
once. Sex ratios of animals living in aggregations were usually
close to 1:1, while the sex ratios of solitary individuals in the
same area were often skewed. Manipulations of sex ratio in
aggregations demonstrated that sex change is facultative.
aggregation/hermaphroditism/predation/population/biology/mortalit
y/fecundity/re production/dispersion patterns/protandry
protogyny/feeding biology/spatial patterns/*Serpulorbis*
squamigerus/scaled worm/snail/Santa Catalina Island/marine
biology/malacology/ecology.

3285. Ng CA. Ancient Arctic ice does not contain large
excesses of natural lead; II, Chronological variations in lead and
barium concentrations and lead isotopic compositions in sediments
of four southern California off shore basins. [dissertation] ;
1982.

California Institute of Technology, United-States; Doctoral
Monographic; Thesis B; Bibliography and Index of Geology (1969-
present) Univ. Microfilms. 113 p.
Greenland/geochemistry/lead/Antarctica/abundance/ice/barium/marine
sediments/sediments/California/environmental
geology/pollution/Pacific Ocean/air/Polar regions/arctic
environment/Arctic region/atmosphere/Pacific Coast/Western
U.S./United States/ice sheets/industrial waste/isotopes/marginal
basins/marine environment/North American Pacific/pollutants/San
Nicolas Basin/San Pedro Basin/Santa Barbara Basin/Santa Monica
Basin/Southern California/toxic materials/GEOREF.

3286. Nelson BV. Adaptive value of aggregation in a sessile
gastropod *Serpulorbis squamigerus*. Am. Zool. 1980;20(4):746
CONFERENCE PAPER: ANNUAL MEETING OF THE AMERICAN SOCIETY OF
ZOOLOGISTS, AMERICAN MICROSCOPICAL SOCIETY, AMERICAN SOCIETY OF
LIMNOLOGY AND OCEANOGRAPHY, ANIMAL BEHAVIOR SOCIETY, CANADIAN
SOCIETY OF ZOOLOGISTS, ECOLOGICAL SOCIETY OF AMERICA, SOCIETY OF
SYSTEMATIC ZOOLOGY, AND THE WESTERN SOCIETY OF NATURALISTS,
SEATTLE, WASH., USA, DEC. 27-30, 1980.
predation/reproductive output/feeding
efficiency/mortality/Mollusca/molluscs/Gastropoda/*Serpulorbis*
squamigerus/Santa Catalina Island/marine biology/ecology.

3287. Gray LD. Geology of Mesozoic basement rocks in the Santa Maria Basin, Santa Barbara and San Luis Obispo counties, California. [dissertation] ; 1980. San Diego State University, United-States; Master's Monographic; Thesis B; Bibliography and Index of Geology (1969-present).

unknown p.

Santa Barbara County/San Louis Obispo County/Franciscan Formation/California/areal geology/Santa Maria Basin/tectonophysics/plate tectonics/paleogeography/Tertiary/basement/Pacific Coast/Western U.S./United States/environment/marine environment/plate boundaries/sedimentation/spreading centers/subduction/submarine fans/trenches/Upper Cretaceous/Cretaceous /GEOREF.

3288. Nicholson N, Hosmer H, Bird K, Hart L, Sandlin W, Shoemaker C, Sloan C. The biology of *Sargassum muticum* (Yendo) Fensholt at Santa Catalina Island, California. Proc. Int. Seaweed Symp. 1981;8:416-424

Address: Santa Catalina Mar. Biol. Lab., Univ. California, Los Angeles, CA 90007, USA Conference: 8. Int. Seaweed Symposium Bangor (UK) 18 Aug 1974. The purpose of this investigation was to determine the spring distribution and abundance of *S. muticum* at Fourth of July Cove, Santa Catalina Island. It was also hoped that this study would offer insights into the recent rapid spread of this Japanese species into new habitats. Reproductive behavior of *S. muticum* was of particular interest in this regard, as was its ability to endure adverse conditions as a small perennial. The association of this species with selected native California algae was also examined, because a possibility exists that the invading seaweed may compete with them for space. Finally, the extensive underwater "forests" of *S. muticum* are potential habitats for the invertebrates on which fish feed.

population dynamics/geographical distribution/Phaeophyta/*Sargassum muticum*/Santa Catalina Island/Fourth of July Cove/marine biology/botany/phycology.

3289. Sumida BY, Moser HG. Food and feeding of bocaccio (*Sebastes paucispinis*) and comparison with pacific hake (*Merluccius productus*) larvae in the California Current. Calif. Coop. Oceanic Fish. Invest. Rep. 1984;25:112-118. *Sebastes paucispinis*/bocaccio/feeding/ichthyoplankton/larvae/early life history/behavior/*Merluccius productus*/Pacific hake/fish/Cross./MINERALS MANAGEMENT SERVICE.

3290. Mankiewicz C. Biogeochemistry of Recent marine sediments; effects of the epibenthic holothurian *Parastichopus parvimensis*. [dissertation] ; 1980. University of California, Los Angeles, United-States; Master's Monographic; Thesis B; Bibliography and Index of Geology (1969-present). unknown p. California/oceanography/sediments/geochemistry/organic materials/Echinodermata/biochemistry/alteration/paleontology/Pacific Coast/Western U.S./United States/continental shelf/experimental studies/fatty acids/Holocene/Quaternary/Holothuroidea/Echinozoa/hydrocarbons/living taxa/marine sediments/metabolism/petroleum/Santa Catalina Island/GEOREF.

3291. Nielsen C. Morphology and reproduction of *Hippodiplosia insculpta* and *Fenestrulina malusii* (Bryozoa: Cheilostomata). *Ophelia* 1981;20(1):91-126 Address: MARINE BIOL. LAB., DK-3000 HELSINGOR, DENMARK. Osburn's (1952) *H. insculpta* and *F. malusii* were studied at Santa Catalina Island, California [USA]. In *H. insculpta* the protruded

lophophores form a continuous incurrent area, and the growing edges are the only excurrent areas. The hydrodynamics of this pattern apparently sets a maximum to the size of the colonies. Female zooids can be recognized already at the growing edge; later on they induce their distal neighbor to form an ovicell. Whereas the 1st oocyte develops the maternal polypide degenerates and a small, non-feeding polypide develops. These non-feeding zooids develop a series of eggs, the nutrients of which must be supplied by the neighboring zooids. This is made possible through a pattern of zooids in which more than 99% of the female zooids have 4 or more male neighbors. Larvae which were prevented from settling for 12 h or more were not able to settle or the metamorphosis/ancestrula formation was unsuccessful. The ancestrula is composite with 3 buds which cover the primary zooid except its basal side and orifice. In *F. malusii* almost all zooids produce eggs and the individual polypides are feeding during several cycles of oocyte development and embryogenesis. When 2 colonies meet and fuse, a maternal zooid from one colony may induce a zooid from the other colony to form an ovicell. In both species the ovicell consists of an uncalcified, ectooecium and a calcified entoecium which are outgrowths from the frontal wall of the zooid distal to the maternal zooid. The development in the ovicell lasts 11-12 days and the next egg enters the ovicell shortly after the liberation of the larva. feeding/development/calcification/lophophore/larva/metamorphosis/ancestrula/sexual reproduction/life history/colonial characteristics/colony fusion/morphology Bryozoa/Cheilostomata/Hippodiplosia insculpta/Fenestrulina malusii/Santa Catalina Island/marine biology.

3292. Summerhayes CP. Oceanographic controls on organic matter in Miocene Monterey Formation, offshore California. Am. Assoc. Pet. Geol. Bull. 1981;65(5):999. eganhouse/geochemistry/chemical oceanography/sedimentation/organic materials/stratigraphy/clastic rocks/glaciation/Neogene shale/Monterey Formation/Miocene/Tertiary/Deep Sea Drilling Project/DSDP/anoxic environment/Pliocene/Cenozoic/borderland/phosphate/rocks/MINERALS MANAGEMENT SERVICE.

3293. Thornton SE. Holocene stratigraphy and sedimentary processes in Santa Barbara Basin; influence of tectonics, ocean circulation, climate and mass movement. [dissertation] ; 1981. University of Southern California, United-States; Doctoral Monographic; Thesis B; Bibliography and Index of Geology (1969-present) Univ. Microfilms. unknown p. Pacific Ocean/oceanography/sedimentation/California/stratigraphy/Holocene /sediments/clastic sediments/turbidite/transport/turbidity currents/Pacific Coast/Western U.S./United States/climate effects/Quaternary/marine environment/marine sedimentation/marine sediments/mass movements/normal faults/faults/North American Pacific/ocean circulation/Santa Barbara Basin/slope stability/GEOREF.

3294. Nieri DS. Coastal navigation vs. energy resource recovery: The Santa Barbara Channel study. Navigation 1981;27(4):272-279 Address: Ship Analytics, Centerport, NY. A Simulation study was performed at the National Maritime Research Center's shiphandling simulator to determine the effects of oil production and exploration structures on the navigation of large vessels using the routing scheme in the Santa Barbara Channel. As part of a risk management program being completed on behalf of the

California Coastal Commission, data was collected on the responses of ship masters navigating a computer-modelled vessel through the Santa Barbara Channel in the presence of a variety of platform and drillship siting configurations. The results of the study will be incorporated in the risk management program to help in establishing guidelines for siting of exploratory drilling and oil production facilities near the shipping lanes. Navigation/Channel navigation/Ship routing/Computer simulation/offshore structures/Site selection/risk management/Santa Barbara Channel/petroleum/navigation.

3295. Dunbar RB. Sedimentation and the history of upwelling and climate in high fertility areas of the northeastern Pacific Ocean. [dissertation] ; 1981. University of California, San Diego, United-States; Doctoral Monographic; Thesis B; Bibliography and Index of Geology (1969-present) Univ. Microfilms. unknown p. Pacific Ocean/oceanography/ocean circulation/California/sedimentation/processes/bioclastic sedimentation/paleoclimatology/Holocene/paleoecology/foraminifers /biostratigraphy/isotopes/ratios/stable isotopes/carbon/C 13/C 12/oxygen/O 18/O 16/sediments/environmental analysis/marine environment/biochemical sedimentation/Pacific Coast/Western U.S./United States/carbonate sediments/Costa Rica/Central America/deglaciation/microfossils/Gulf of Papagayo/Quaternary/marine sedimentation/marine sediments/North American Pacific/paleo oceanography/Panama Basin/planktonic taxa/Santa Barbara Basin/upwelling /GEOREF.

3296. NOAA BC(NGDC. Four additional exploratory oil and gas wells. : Data Announce. NGDC Well Log Data. 86-MGG-08; 1986. 4. Note: Report 86-MGG-08. Well logs and auxiliary information for 4 privately drilled test wells are now available for purchase from the National Geophysical Data Center. These data were generated by private companies that drilled exploratory oil and gas wells in areas for which the proprietary terms of the leases have terminated. These wells are in addition to 86 previously advertised wells released to NGDC by the Minerals Management Service, U.S. Department of Interior, for public dissemination. A summary of the types of well logs and auxiliary information now available for these wells is given. oil exploration/gas exploration/offshore operations/oil wells/continental shelves/well/logging/Santa Barbara Channel/petroleum/geology.

3297. Swartz RC, Cole FA, Schults DW, Deben WA. Ecological changes in the Southern California Bight near a large sewage outfall: Benthic conditions in 1980 and 1983. Mar. Ecol. Prog. Ser. 1986;31:1-13. PB87-170775-XAB/8707/outfall sewers/sewage disposal/ecology/benthos/water pollution/anderson/anthropogenic/toxicity/sediments/worms/biomass /crustacea/recovery/storms/Palos Verdes Shelf/California/zooplankton/Pieper/thompson/invertebrates/Eganho use/chemical oceanography/Reish text/anthropogenic inputs/MINERALS MANAGEMENT SERVICE.

3298. Walsh TJ. Texture, mineralogy and wave energy relations in intertidal sediments in a closed system, San Miguel Island, California. [dissertation] ; 1979. University of California, Los Angeles, United-States; Master's Monographic; Thesis B; Bibliography and Index of Geology (1969-present). unknown p. California/oceanography/sediments/textures/grain

size/carbon/abundance/Pacific Coast/Western U.S./United States/distribution/intertidal environment/marine transport/mineral composition/San Miguel Island/sorting/Torrance Beach/waves/Westward Beach/GEOREF.

3299. Swartz RC, Schults DW, Ditsworth GR, Deben WA, Cole FA. Sediment toxicity contamination and macrobenthic communities near a large sewage outfall. American Society for Testing and Materials Special Technical Publ. 865. Symposium on Validation and Predictability of Laboratory Methods for Assessing the Fate and Effects of Contaminants in Aquatic Ecosystems; Grand Forks, ND (USA), Aug. 8, 1983. 1985;:152-175.

Tharyx

sp/Rhepoxynius/abronius/Capitella/capitata/Parvulucina/Tenuisculpta/Mediomastus/californiensis/Amphiodia/urtica/organic enrichment/anaerobic sediment/bioassay/community impact/water pollution/Southern California Bight/Thompson/invertebrates/Anderson/anthropogenic/MINERALS MANAGEMENT SERVICE.

3300. Noonkester VR. Aerosol size spectra in a convective marine layer with stratus: results of airborne measurements near San Nicolas Island, California. Journal of Applied Meteorology 1981;20(9):1076-1080
Data show that the aerosol spectra shape changed systematically as a function of the liquid water content w , calculated from $n(r)$, as w increased with elevation into the stratus layer. Clouds formed when w approached 0.05 g m^{-3} and a mode formed in $n(r)$ near the region 3 to 4 microns. The horizontal variability of w was large, particularly in the middle of the convective layer.
aerosol/spectra/San Nicolas Island/meteorology/atmospheric science.

3301. Norris K, McFarland W. A new harbor porpoise of the genus Phocoena from the Gulf of California. J. Mammal. 1958;39(1):22-39
Contains Southern California records for Phocoena.
new species/distribution/Phocoena/Gulf of California/Southern California/marine biology/mammalogy.

3302. Norris KS. Facts and tales about killer whales. Pacific Discovery 1958;?:24-27
behavior whales/cetaceans/Cetacea/Santa Barbara Channel/marine biology/mammalogy.

3303. Seapy RR, Littler MM. Assessments of the distribution, abundance, and community structure of rocky intertidal organisms at Cave Canyon, Santa Barbara Island. The distribution, abundance, and community structure of rocky intertidal and tidepool biotas in the Southern California Bight. Southern California Baseline Study, Year Three. Chapter 1.15 1979;II.
text/benthic invertebrates/8/MINERALS MANAGEMENT SERVICE.

3304. Doose PR. The bacterial production of methane in marine sediments [dissertation]. ; 1980.
University of California, Los Angeles, United-States; Doctoral Monographic; Thesis B; Bibliography and Index of Geology (1969-present) Univ. Microfilms. 262 p.
California/geochemistry/diagenesis/Pacific Ocean/materials/organic materials/hydrocarbons/methane/sediments/marine sediments/processes/diffusion/isotopes/carbon/C 13/C 12/advection/bacteria/biodegradation/biogenic materials/stable isotopes/Pacific Coast/Western U.S./United States/experimental studies/living culture/North American Pacific/reactions/Santa

Barbara Basin/GEOREF.

3305. Norris KS. The big one got away. Pacific Discovery 1958;?:3-9 Santa Barbara Channel/marine biology.

3306. Patterson R. Tectonic geomorphology and neotectonics of the Santa Cruz Island faults, Santa Barbara County, California. [dissertation] ; 1979. University of California, Santa Barbara, United-States; Master's Monographic; Thesis B; Bibliography and Index of Geology (1969-present). unknown p. Santa Barbara County/California/structural geology/neotectonics/geomorphology/landform evolution/tectonic controls/Pacific Coast/Western U.S./United States/faults/Santa Cruz Island/GEOREF.

3307. Norris KS. The fluctuations of temperature in the ecology of the percoid fish *Girella nigricans*. Ecological Monographs 1963;33:34-62 temperature/ecology/percoid fishes/*Girella nigricans*/Santa Barbara Channel/marine biology/ichthyology.

3308. Savrda CE, Bottjer DJ, Gorsline DS. Development of a comprehensive oxygen-deficient marine biofacies model: Evidence from Santa Monica, San Pedro and Santa Barbara basins, California continental borderland. Am. Assoc. Pet. Geol. Bull. 1984;68(9):1179-1192. eganhouse/geochemistry/chemical oceanography/pacific ocean/introduction/echinoderms/dysaerobic/environment/santa monica basin/san pedro basin/santa barbara basin/sedimentation/petrology/biofacies/low oxygen/environment/faunal studies/assemblages/biogenic structures/continental borderland/anaerobic environment/oxygen/paleo/oceanography/geology/geologic/features/t ext/MINERALS MANAGEMENT SERVICE.

3309. Schacher GE, Davidson KL, Leonard CA, Spiel DE, Fairall CW. Offshore transport and diffusion in the Los Angeles Bight. NPS Data Summary. Vol. II. NPS-61-81-025. Prep. for U.S. Dep. Interior, Minerals Management Service, Pacific OCS Region, Los Angeles, CA. Prep. by Naval Postgraduate School, Monterey, CA. 1981;:109. marine atmosphere/offshore boundary layer/pollution/north pacific ocean/california/tracer/studies/meteorological data/eganhouse/chemical oceanography/MINERALS MANAGEMENT SERVICE.

3310. Schwalbach JR, Gorsline DS. Holocene sediment budgets for the basins of the California continental borderland. J. Sediment. Petrol. 1985;55:829-842. chemical oceanography/introduction/MINERALS MANAGEMENT SERVICE.

3311. Cotton ML. Seasonality in benthic foraminiferal populations of the Southern California borderland. [dissertation] ; 1979. University of Southern California, United-States; Master's Monographic; Thesis B; Bibliography and Index of Geology (1969-present). unknown p. California/paleontology/foraminifera/distribution/seasonal variations/benthic taxa/Pacific Coast/Western U.S./United States/continental borderland/continental shelf/ecology/faunal studies/microfossils/Protista/Holocene/Quaternary/San Diego Trough/San Pedro Basin/Santa Barbara Basin/Santa Monica Basin/GEOREF.

3312. Norris KS, Prescott JH. Observations on Pacific cetaceans of Californian and Mexican waters. Univ. Calif. Publ. Zool. 1961;63(4):291-402
behavior/distribution/cetaceans/Cetacea/California/Mexico/marine biology/mammalogy.

3313. Andersen RL. Geology of the Playa San Felipe Quadrangle, Baja California, Mexico [dissertation]. : University of California, San Diego, United-States; 1973. unknown p.
Master's Monographic; Thesis; Map B; Bibliography and Index of Geology (1969-present).
Mexico/stratigraphy/Paleozoic/Mesozoic/structural geology/tectonics/Cenozoic/paleogeography/geomorphology/landform description/terrestrial environment/absolute age/alluvium/clastic sediments/andesite/andesites/volcanic rocks/Baja California/beach ridges/dates/deformation/dunes/fanglomerate/clastic rocks/faults/folds/Gulf of California/North American Pacific/Pacific Ocean/intrusions/K/Ar/lakes/lava/maps/marine environment/Middle Cretaceous/Cretaceous/Peninsular Range Batholith/Playa San Felipe Quadrangle/provenance/Sierra Juarez/Sierra San Felipe Basin/Sierra Santa Rosa Basin/GEOREF.

3314. North WJ, Zimmerman RC. Influences of macronutrients and water temperatures on summertime survival of *Macrocystis canopies*. *Hydrobiologia* 1984;116-117(0):419-424
Address: California INSTITUTE TECHNOLOGY, PASADENA, CALIF. 91125
11TH INTERNATIONAL SEAWEED SYMPOSIUM, QINGDAO, CHINA, JUNE 19-25, 1983. nutrients/macronutrients/water temperature/giant kelp/*Macrocystis pyrifera*/Santa Catalina Island/marine biology/botany/phycology.

3315. Smith PE. Distributional atlas of zooplankton volume in the California Current region, 1951 through 1966. Calif. Coop. Oceanic. Fish. Invest. Atlas No. 13 1971;:144.
Pieper/Dawson/Zooplankton/Text/MINERALS MANAGEMENT SERVICE.

3316. Liu KK. Geochemistry of inorganic nitrogen compounds in two marine environments; the Santa Barbara Basin and the ocean off Peru. [dissertation] ; 1979.
University of California, Los Angeles, United-States; Doctoral Monographic; Thesis B; Bibliography and Index of Geology (1969-present) Univ. Microfilms. 378 p.
Pacific Ocean/geochemistry/nitrogen/California/sea water/Peru/cycles/isotopes/N 15/N 14/ecology/observations/marine environment/Pacific Coast/Western U.S./United States/East Pacific/inorganic materials/nitrification/nutrients/South America/ratios/Santa Barbara Basin/GEOREF.

3317. Noshkin VE, Brunk JL, Jokela TA, Wong KM. 238 Pu Concentrations in the Marine Environment at San Clemente Island. *Health Phys.* 1981;40(5):643-659 Address: Environ. Sci. Div., Lawrence Livermore Lab., Univ. California, Livermore, CA 94550.
The concentration of plutonium and other radionuclides measured in samples of surface sediments, seawater and brown algae collected from the region offshore from North Light Harbor Pier at San Clemente Island, CA, are presented and discussed. Between 1967 and May 1978, different forms of nuclear fuels used in operational or proposed SNAP (Systems for Nuclear Auxillary Power) devices were tested at this site to evaluate the effects of seawater on the heat sources. The 238 Pu associated with this sediment is slowly redissolving and is in a form that can be taken up by marine algae. Except for a 0.025-km² region around

the pier, the total plutonium ($^{238}\text{Pu} + ^{239+240}\text{Pu}$) in the surface 3.0-cm layer of sediment is within the range of total fallout plutonium reported in Atlantic and Pacific surface deposits from overlying water depths less than 100 m. More ^{238}Pu was released during testing than the amounts accountable in the local surface sediments. Some of this ^{238}Pu has undoubtedly migrated outside the region sampled, and dilution of the ^{238}Pu with fallout levels in the environment has effectively obscured its detection elsewhere. Subsurface sediment deposits in the region may have inventories of excess ^{238}Pu . Analysis of ^{238}Pu concentrations in core samples is still in progress.

plutonium/pollution monitoring/sea water/sediments/bioaccumulation/radionuclides/radioisotopes/surface waters/sediments/pollutant analysis/nuclear fuels/soil pollution/water pollution/environmental toxicity/fallout/Phaeophyta/San Clemente Island/North Light Harbor Pier/marine biology/pollution/environmental biology/resource management.

3318. Lee TC. Heat flow and other geophysical studies in the southern California borderland. [dissertation] ; 1973. University of Southern California, United-States; Doctoral Monographic; Thesis B; Bibliography and Index of Geology (1969-present).

unknown p.
California/geophysical surveys/heat flow/anomalies/Pacific Coast/Western U.S./United States/continental borderland/measurement/plate tectonics/Southern California/thermal conductivity/GEOREF.

3319. Nyhart JD(, Uchikura DE. Oil industry/commercial fishing industry joint committee negotiations from oil industry representative's perspective. Coastal zone and continental shelf conflict resolution: Improving ocean use and resource dispute management. Cambridge, MA (USA): MIT, Sea Grant College Program; 1985. 107-110.

Address: Chevron U.S.A., Inc., Ventura, CA 93006, USA; Massachusetts Inst. of Technology, Cambridge (USA). Sea Grant Coll. Conference: Coastal zone and continental shelf conflict resolution: Improving Ocean use and resource dispute management. MIT, Cambridge, MA (USA). 13-15 Nov 1984.

The following is an oil industry representative's perspective on the efforts of the Central Coast (California) commercial fishing industry and the offshore oil and gas industry to address the inherent conflicts resulting from co-use of the marine environment. The Santa Barbara Channel/Santa Maria Basin, offshore California is well known for its substantial oil and gas resources. Major discoveries in the federal Outer Continental Shelf (OCS) have been announced within the last three years. Knowing this, the local commercial fishing industry envisioned an intensification of previous conflicts. They also feared being excluded from fishing grounds due to the presence of offshore oil and gas facilities. oil industry/gas industry/commercial fishing/disputes/outer continental shelf/Santa Barbara Channel/Santa Maria Basin/petroleum/fisheries/resource management.

3320. Booth JS. Early diagenesis in southern California continental borderland sediments [dissertation]. ; 1973. University of Southern California, United-States; Doctoral Monographic; Thesis B; Bibliography and Index of Geology (1969-present).

unknown p.

California/sedimentary petrology/sediments/pore water/diagenesis/processes/early diagenesis/Pacific Coast/Western U.S./United States/continental borderland/continental margin/deposition/San Nicolas Basin/Santa Catalina Basin/Santa Cruz Basin/Southern California/GEOREF.

3321. Oftedal OT, Iverson SJ, Boness DJ. Milk and energy intakes of suckling California sea lion *Zalophus californianus* pups in relation to sex, growth and predicted maintenance requirements. *Physiol. Zool.* 1987;60(5):560-575 Address: DEP. ZOOLOGICAL RES., NATL. ZOOLOGICAL PARK, SMITHSONIAN INSTITUTION, WASHINGTON, D.C. 20008. Isotope dilution was used to measure milk intake of 43 California sea lion pups on San Nicolas Island, California, from 1982 to 1984. Deuterium concentration was monitored in serial blood samples collected at about 5-day intervals for 3 wk after isotope administration. Estimated milk intakes differed significantly between male (723 \pm 31.0 g \cdot day⁻¹) and female (609 \pm 24.0 g \cdot day⁻¹) pups but did not increase from the first to second month postpartum. On a metabolic size basis (weight^{0.83}), gross energy intakes did not differ between male and female pups but did differ between years, apparently as a consequence of the 1983 El Niño. The mean energy intakes (kcal \cdot day⁻¹) of sea lion pups in the first (361 \cdot W^{0.83}) and second (308 \cdot W^{0.83}) months were high relative to terrestrial species. Regression of energy intake on growth rate predicted that maintenance energy requirements (kcal \cdot day⁻¹) were also high (168 and 252 \cdot W^{0.83} in the first and second months). The fact that California sea lion pups devote a large proportion of energy to maintenance rather than to growth or to blubber deposition may reflect both the energetic demands of an aquatic environment and limitations in the ability of lactating females to increase the rate of energy transfer to pups. terrestrial species/aquatic environment/isotope dilution/regression analysis/nursing/California sea lion/*Zalophus californianus*/San Nicolas Island/marine biology/mammalogy.

3322. Bow CS. The geology and petrogeneses of the lavas of Floreana and Santa Cruz islands; Galapagos Archipelago. [dissertation]; 1979. University of Oregon, United-States; Doctoral Monographic; Thesis B; Bibliography and Index of Geology (1969-present) Univ. Microfilms. 322 p. volcanology/volcanism/shield volcanoes/magmas/genesis/partial melting/lava/classification/petrography/igneous rocks/alkali basalt family/basanite/rare earths/abundance/Galapagos Islands/geochemistry/trace elements/alkali basalts/basalts/volcanic rocks/Floreana Island/East Pacific Ocean Islands/isotopes/major elements/mantle/petrology/Quaternary/Santa Cruz Island/volcanoes/xenoliths /GEOREF.

3323. Ogle BA. Oil and gas exploration offshore central and northern California. *Am. Assoc. Pet. Geol., Bull.* 1978;62(7):1230-1231 Address: Ogle Pet. Inc., Santa Barbara, Calif. Conference: Second Circum-Pacific energy and mineral resources conference. Honolulu, Hawaii, July 30-Aug. 4, 1978. petroleum/natural gas/basins/exploration/well-logging/Santa Maria Basin/Salinas Basin/Bodega basin/Santa Cruz Basin/Point Arena Basin/Eel River Basin/Santa Barbara Channel/economic geology/energy sources/petroleum.

3324. Tegner MJ, Butler RA. Drift tube study of the dispersal potential of green abalone (*Haliotis fulgens*) larvae in the Southern California Bight: Implications for recovery of depleted populations. *Mar. Ecol. Prog. Ser.* 1985;26(1-2):73-84.

molluscan larvae/biological drift/Haliotis fulgens/zooplankton/Pieper/recruitment/California Gulf/depleted stocks/haliotis fulgens/Reish/Schroeter/invertebrates/MINERALS MANAGEMENT SERVICE.

3325. Teng LS. Seismic stratigraphic study of the California continental borderland basins: Structure, stratigraphy, and sedimentation. Dissertation, Univ. of South. Calif., Los Angeles, CA 1985;:197.
introduction/MINERALS MANAGEMENT SERVICE.

3326. Teng LS, Gorsline DS. Late Cenozoic sedimentation in California continental borderland basins as revealed by seismic facies analysis. Geol. Soc. Am. Bull. 1989;101(1):27-41.
California/Pacific Ocean/sediments/sedimentation/oceanography/geophysical surveys/marine sediments/sedimentation rates/continental margin/seismic surveys/litho facies/marine sedimentation/Pacific Coast/Western U.S./United States/Southern California/continental borderland/Neogene/Tertiary/Quaternary/upper Cenozoic/Cenozoic/seismic stratigraphy/seismic profiles/acoustical surveys/clastic sediments/detrital sedimentation/pelagic sedimentation/thickness/marginal basins/North American Pacific/MARINE GEOLOGY/OCEANOGRAPHY/20/GEOPHYSICS/APPLIED/chemical oceanography /MINERALS MANAGEMENT SERVICE.

3327. Teng LS, Gorsline DS. Stratigraphy of the Continental Borderland Basins, southern California. Am. Assoc. Pet. Geol. Mem. 41 1988; Dailey/Gorsline/Introduction/Geology/Geologic Features/Text/MINERALS MANAGEMENT SERVICE.

3328. Nuccio RM. Sedimentology of the Beechers Bay Formation, Santa Rosa Island, California [dissertation]. ; 1977. San Diego State University, United-States; Master's Monographic; Thesis B; Bibliography and Index of Geology (1969-present).
unknown p.
Beechers Bay Formation/Monterey Formation/California/sedimentary petrology/sedimentary rocks/clastic rocks/sandstone/sedimentation/provenance/paleocurrents/Pacific Coast/Western U.S./United States/conglomerate/deposition/Luisian/middle Miocene/Miocene/Neogene/Tertiary/Relizian/Santa Rosa Island/GEOREF.

3329. Ogle BA. Prospects for finding additional oil and gas in California's onshore and offshore basins. B.A. Ogle. New ideas, new methods, new developments. Explor. Econ. Pet. Ind. 16. ; 1978. 145-183.
Address: Ogle Pet., Santa Barbara, Calif.
natural gas/petroleum/onshore/offshore/economics/exploration/prospecting/Yowlumne Oil Field/Los Angeles Basin/Outer Banks Basin/Ventura/Santa Barbara Channel Basin/Santa Maria Basin/Salinas Basin/Bodega Basin/Santa Cruz Basin/Point Arena Basin/Eel River Basin/San Joaquin Basin/Sacramento Basin/economic geology/petroleum/energy sources.

3330. Tetra Tech I. Study areas II and IV-C. Water quality analysis and environmental assessments Southern California Bight. Draft final report. Prep. for National Commission on Water Quality 1975;:414.
fish/invertebrates/mammals/anthropogenic/chemical oceanography/MINERALS MANAGEMENT SERVICE.

3331. Tetra Tech I. Southern California Bight. Study areas II and VI-C. Water quality analysis and environmental assessments. Rep. TC 458-08, Tetra Tech, Inc., Pasadena 1976;:470. MINERALS MANAGEMENT SERVICE.

3332. Arleth KF. Marine structural geology and geologic evolution south of Santa Rosa and San Miguel Islands, California. [dissertation] : San Diego State University, United-States; 1977. unknown p. Master's Monographic; Thesis B; Bibliography and Index of Geology (1969-present). Pacific Ocean/oceanography/marine geology/anticlines/folds/California/Pacific Coast/Western U.S./United States/concepts/Cretaceous/Eocene/Paleogene/Tertiary/faults/graben/Paleocene/reflection/San Miguel Island/Santa Rosa Island/seismic surveys/geophysical surveys/structural geology/tectonics/GEOREF.

3333. Ogle BA. Oil and gas exploration offshore Central and Northern California. M.T. Halbouty. Energy resources of the Pacific region. AAPG Studies in Geology 12. ; 1981. 375-381. Address: Ogle Pet., Santa Barbara, CA Conference: Symposium on energy resources of the Pacific region. Honolulu, HI, July 30-Aug. 4, 1978. well-logging/interpretation/fuel resources/lithostratigraphy/Monterey Sandstone/natural gas/petroleum/continental margin/exploration/Tertiary/Cenozoic/sedimentary basins/Santa Maria Basin/Salinas Basin/Eel River Basin/sandstone/clastic rocks/offshore/anticlines/folds/faults/possibilities/traps Santa Barbara Channel/Santa Maria Basin/Salinas Basin/Bodega Basin/Santa Cruz Basin/Point Arena Basin/Eel River Basin/economic geology/energy sources/petroleum.

3334. Nocita BW. Clay size CaCO₃ and clay mineralogy of Recent marine sediments; southern California continental borderland. [dissertation] ; 1977. San Diego State University, United-States; Master's Monographic; Thesis B; Bibliography and Index of Geology (1969-present). unknown p. California/oceanography/clay mineralogy/areal studies/bathymetry/calcium carbonate/Pacific Coast/Western U.S./United States/continental borderland/Holocene/Quaternary/marine environment/sedimentary petrology/sediments/Southern California/GEOREF.

3335. Ogle BA. Significant new developments in the Santa Maria/Santa Barbara area, offshore California; the geology and economic potential. J.R. Moss. New ideas, new methods, new developments. Exploration and Economics of the Petroleum Industry 22. ; 1984. 23-81. Address: stratigraphy/fuel resources/Tertiary/Cretaceous/Monterey Formation/correlation/Mesozoic/Cenozoic/basement/petroleum/natural gas/structural traps/traps/reservoir rocks/Point Arguello Field/oil and gas fields/production/exploration/San Miguel Field/Molino Field/Sockeye Field/Santa Maria/Santa Barbara/Santa Barbara Channel/Los Angeles Basin/Point Conception/economic geology/energy sources.

3336. Ogle BA, Wallis WS, Heck RG, Edwards EB. Petroleum geology of the Monterey Formation in the offshore Santa Maria/Santa

Barbara areas. R.V. Ingersoll, W.G. Ernst. Cenozoic basin development of coastal California. Rubey volume. : Prentice-Hall; 1987. 382-406.

Address: Ogle Pet., Santa Barbara, CA Conference: Rubey Colloquium on Cenozoic basin development of coastal California. Los Angeles, CA Oct. 1984. oil and gas fields/Monterey Formation/Miocene/Neogene/Tertiary/reserves/phosphate rocks/chemically precipitated rocks/shale/clastic rocks/anticlines/folds/fractures/structural traps/traps/Point Arguello Field/Conception Field/production/exploration/evaluation/offshore/Santa Maria/ Santa Barbara/Santa Maria Basin/Santa Barbara Channel/Los Angeles Basin/economic geology/energy sources/petroleum.

3337. Adcock TD. Sedimentary character of the Lower Capistrano Formation, upper Miocene age; Dana Point Harbor to San Clemente, California. [dissertation] : University of Southern California, United-States; 1978.

University of Southern California, United-States; Master's Monographic; Thesis B; Bibliography and Index of Geology (1969-present).

Orange County/Lower Capistrano Formation/California/sedimentary petrology/sedimentary rocks/clastic rocks/provenance/sedimentation/transport/stream transport/Pacific Coast/Western U.S./United States/Dana Point Harbor/deposition/limestone/carbonate rocks/San Clemente Island/sandstone/sedimentary structures/shale/siltstone/stratigraphy/upper Miocene/Miocene/Neogene/Tertiary/GEOREF/GEOREF.

3338. Olson RE, Olsen DR, Rullman JD, Vasser FG,I. Hondo Field development and operations. Proceedings - Offshore Technology Conference 15 1983;2:253-260 Address: Exxon Co., USA Conference: Fifteenth annual offshore technology conference Houston, TX, May 2-5, 1983.

oil and gas fields/Hondo Field/development/Santa Ynez Unit/petroleum/production/Santa Barbara Channel/economic geology/energy sources/petroleum.

3339. Thomas WH, Seibert DLR. Distribution of nitrate, nitrite, phosphate and silicate in the California Current region. Calif. Coop. Oceanic Fish. Invest. Atlas. No. 20, Charts 2-97 1974;:vii-x.

plankton/MINERALS MANAGEMENT SERVICE.

3340. Thompson BE, Jones GF. Benthic macrofaunal assemblages of slope habitats in the southern California borderland. Occasional Pap. Allan Hancock Foundation, New Ser. No. 6 1987;:21. TEXT/CROSS/ALLEN/FISH/MINERALS MANAGEMENT SERVICE.

3341. Edwards BD. Animal sediment relationships in dysaerobic bathyal environments, California continental borderland. [dissertation] ; 1979. University of Southern California, United-States; Doctoral Monographic; Thesis B; Bibliography and Index of Geology (1969-present) Univ. Microfilms. unknown p.

California/paleontology/ecology/sediments/clastic sediments/textures/sedimentary structures/biogenic structures/ichnofossils/Invertebrata/marine environment/sedimentation/environment/basins/bathyal environment/bioturbation/burrows/Pacific Coast/Western U.S./United States/Central California/continental borderland/debris flows/dysaerobic environment/Echinodermata/mass

movements/oxygen/paleoecology/Polychaetia/worms/Santa Cruz Basin/substrates/turbidite /GEOREF.

3342. Orme AR, Brown AJ. Variable sediment flux and beach management, Ventura County, California. O.T. Magoon, H.Converse. Coastal zone '83. Proceedings of the Symposium on Coastal and Ocean Management 3. ; 1983. 2328-2342.

Address: Univ. Calif., Dep. Geogr., Los Angeles, CA Conference: Third symposium on coastal and ocean management; Coastal zone '83. San Diego, CA, June 1-4, 1983. sediments/environmental analysis/engineering geology/beaches/shorelines/changes/human activity/behavior/erosion/bars/three-dimensional models/models/observations/stream sediments/sedimentary petrology/Ventura County/Santa Monica Mountains/Santa Clara River/Santa Barbara Channel/Ventura River/Ormond Beach/Port Hueneme/engineering/environmental geology.

3343. Graham RL. A paleomagnetic study of Recent sediments in the Santa Barbara Basin [dissertation]. ; 1977. Oregon State University, United-States; Master's Monographic; Thesis B; Bibliography and Index of Geology (1969-present). unknown p. Santa Barbara County/paleomagnetism/Holocene/Pacific Ocean/stratigraphy/California/Pacific Coast/Western U.S./United States/Cenozoic/depositional remanent magnetization/remanent magnetization/Quaternary/Northeast Pacific/Santa Barbara Basin/sediments/varves/planar bedding structures/sedimentary structures/GEOREF.

3344. Orr WL. Sulfur and sulfur isotope ratios in Monterey oils of the Santa Maria Basin and Santa Barbara Channel area. Abstracts - Society of Economic Paleontologists and Mineralogists Annual Midyear Meeting 1. 1984:62 Address: Mobil Resour. and Dev. Corp., Dallas, TX Conference: Society of Economic Paleontologists and Mineralogists First annual midyear meeting. San Jose, CA, Aug. 10-13, 1984. sulfur/organic materials/isotopes/S-34 S-32/petroleum/nitrogen/kerogen/deposition/reduction/ratios/Santa Barbara County/San Luis Obispo County/Santa Barbara Channel/Santa Maria Basin/Monterey/economic geology/energy sources/geochemistry/chemistry.

3345. Thornton SE. Mass-movement processes in fine-grained, hemipelagic basin: Santa Barbara Basin, California borderland. Am. Assoc. Pet. Geol. Bull. 1981;65(5):1001. egeanhouse/geochemistry/chemical oceanography/soil mechanics/sediments/sedimentation rates/deposition/continental slope/continental borderland/slumping/Santa Barbara Basin/silt/clastic sediments/clay/mudflows/plasticity/MINERALS MANAGEMENT SERVICE.

3346. Pias NG. Paleooceanography of the Santa Barbara Basin and the California Current during the last 8000 years. [dissertation] ; 1978. University of Rhode Island, United-States; Doctoral Monographic; Thesis B; Bibliography and Index of Geology (1969-present) Univ. Microfilms. 236 p. California/stratigraphy/Holocene/Pacific Ocean/oceanography/ocean circulation/Radiolaria/distribution/temperature/paleoclimatology/paleoecology/microfossils/assemblages/Pacific Coast/Western U.S./United States/California Current/cores/currents/Quaternary/marine transport/nearshore

environment/Northeast Pacific/paleo oceanography/Santa Barbara Basin/sedimentation/sediments/Southern California/time series/GEOREF.

3347. Thornton SE. Basin model for hemipelagic sedimentation in a tectonically active continental margin: Santa Barbara Basin, California continental borderland. *Fine-grained Sediments: Deep-water Processes and Facies* 1984;:377-394.
introduction/MINERALS MANAGEMENT SERVICE.

3348. Orwig DL. An ecological study of the phytoplankton and microzooplankton of two inshore areas in the Santa Barbara Channel. (Volumes I and II) [dissertation]. Santa Barbara, California, USA: University of California; 1978. 659.
phytoplankton/microzooplankton/Santa Barbara Channel/biological oceanography.

3349. Bracewell LW. The contribution of wastewater discharges to surface films and other floatables on the ocean surface. [dissertation] ; 1977. University of California, Berkeley, United-States; Doctoral Monographic; Thesis B; Bibliography and Index of Geology (1969-present). 242 p.Diss. Abstr. Int., Vol. 38, No. 8, p. 3839B, 1978.
California/environmental geology/pollution/Southern California Bight/Pacific Coast/Western U.S./United States/engineering geology/liquid waste/organic materials/Pacific Ocean/waste disposal/GEOREF.

3350. Page GW, Stenzel LE. The breeding status of the snowy plover in California (*Charadrius alexandrinus*). *Western Birds* 1981;12(1):1-40 Breeding *Charadrius alexandrinus* were distributed widely over the state but most were in the interior. Openness of habitat seemed to be a key requirement for nesting. Access to water is probably a breeding requirement although birds sometimes nested hundreds of meters away when no obstacles prevented movements of chicks between the nest and water. Plovers nest around shallow alkaline lakes where the waterline may retreat several hundred meters from the nest during the month between laying and hatching. On San Miguel and San Nicolas islands, bluff-backed beaches with plovers had generous areas of strand which were lightly vegetated or were 50% or more covered by driftwood, etc. The number of breeding snowy plovers may change annually or even mid-breeding season, in response to natural alterations in habitat availability, eg. through winter storms. Numbers have declined on the coast; the species was not found breeding in 33 of the 53 locations with breeding records prior to 1970. Of the 33 areas 28 are not likely to have regular breeding populations again because the habitat has been destroyed or human use of the area is too great.
breeding biology/reproductive biology/snowy plover/*Charadrius alexandrinus*/San Miguel Island/San Nicolas Island/terrestrial biology/ornithology.

3351. Murray SM. Geochemistry and diagenesis of Santa Barbara Basin sediments off southern California. [dissertation] ; 1973.
University of Southern California, United-States; Master's Monographic; Thesis B; Bibliography and Index of Geology (1969-present).
California/oceanography/sediments/continental shelf/United States/diagenesis/geochemistry/Pacific Coast/Western U.S./Santa Barbara Basin/GEOREF.

3352. Page HM, Hubbard DM. Temporal and spatial patterns of

growth in mussels *Mytilus edulis* on an offshore platform: relationships to water temperature and food availability. J. Exp. Mar. Biol. Ecol. 1987;111(2):159-180 Temporal and spatial (depth) patterns of shell growth were studied in the mussel *Mytilus edulis* in relation to water temperature and potential food availability, at an offshore oil platform, Holly (ARCO), in the Santa Barbara Channel, California [USA]. Length-specific growth rates were highest from late May to July and at a depth of 9 m. The time to achieve a length of 50 mm from recruitment was estimated at 6-8 months. Growth rates were not correlated with water temperature, using multiple regression and correlation analysis. Temporal variation in the growth of 20- and 35-mm mussels correlated with chlorophyll a concentration at time lags of 2 and 4 wk, respectively. Variation in growth of mussels with depth was more closely associated with the concentration of particulate organic carbon than with chlorophyll a. Our results indicate that water temperature can be disregarded as an important factor in regulating mussel growth in California waters, but that growth could vary in association with well-documented regional variation in phytoplankton biomass.

phytoplankton/biomass/shell growth/recruitment/chlorophyll a/organic carbon/multiple regression analysis/correlation analysis/oil platform/mussel/*Mytilus edulis*/Santa Barbara Channel/marine biology/mariculture/resource management.

3353. Slade RC. Hydrogeologic investigation of Carpinteria ground water basin, Santa Barbara County, California. [dissertation] ; 1975. University of Southern California, United-States; Master's Monographic; Thesis B; Bibliography and Index of Geology (1969-present).

Santa Barbara County/Casitas Formation/Santa Barbara Formation/California/hydrogeology/ground water/aquifers/United States/water resources/Pacific Coast/Western U.S./Carpinteria/Carpinteria Basin/Carpinteria Formation/Formation/movement/Pleistocene/Quaternary/Pliocene/Neogene/Tertiary/p roduction/recharge/sedimentary rocks/southwest/storage/tectonics/water/water quality/GEOREF.

3354. Pal D. Navy applications experience with small wind power systems. : Naval Civil Engineering Lab., Port Hueneme, CA. NCEL-TN-1724; 1985. 66. This report describes the experience gained and lesson learned from the ongoing field evaluations of seven small, 2-to 20-kW wind energy conversion systems (WECS) at Navy installations located in the Southern California desert, on San Nicolas Island, in California, and in Kaneohe Bay, Hawaii. The field tests show that the WECS's bearings and yaw slip-rings are prone to failure. The failures were attributed to the corrosive environment and poor design practices. Based upon the field tests, it is concluded that a reliable WECS must use a permanent magnet alternator without a gearbox and yaw slip-rings that are driven by a fixed pitch wind turbine rotor. The present state-of-the-art in small WECS technology, including environmental concerns, is reviewed. Also presented is how the technology is advancing to improve reliability and availability for effectively using wind power at Navy bases. The field evaluations are continuing on the small WECS in order to develop operation, maintenance, and reliability data.

Turbines/Energy conversion/Pitch(Inclination)/Rotor blades(Turbomachinery)/Bearings/Corrosion/Environments/Energy/Sources/Field tests/Hawaii/Naval shore facilities/Alternators/Permanent magnets/California/Electromagnetic interference/Field tests/Gearboxes/Inverters/Installation/Navy/Rotors/Wind/Failure/R

eliability/Des erts/South(Direction)/Power conditioning/Slip rings/Yaw/Power supplies/Power/Turbines/Wind turbine rotors/wind power/Renewable energy sources/Southern California desert/San Nicolas Island/Kaneohe Bay, Hawaii/geology/engineering/energy conversion.

3355. Traganza ED, Conrad JC, Breaker LC. Satellite observations of a cyclonic upwelling system and giant plume in the California Current. *Coast. Estuar. Sci.* 1981;(1):228-241. coastal upwelling/infrared imagery/satellite sensing/algal blooms/phytoplankton/primary production/Hickey/physical oceanography/MINERALS MANAGEMENT SERVICE.

3356. Traganza ED, Silva VM, Austin DM, Hanson WL, Bronsink SH. Nutrient mapping and recurrence of coastal upwelling centers by satellite remote sensing; its implication to primary production and the sediment record. *Coastal Upwelling, Its Sediment Records; Part A, Responses of the Sedimentary Regime to Present Coastal Upwelling.* NATO Conference Series IV, Vol. 10A, Vilamoura, Portugal, Sept. 1-4, 1981 1983::61-83. Pacific Ocean/California/oceanography/geophysical surveys/cartography/oceancirculation/remote sensing/satellitethods/upwelling/nutrients/North Pacific/infrared surveys/eastern North Pacific/currents/Point Sur/United States/California Current/temperature/Hickey/physical oceanography/MINERALS MANAGEMENT SERVICE.

3357. Roig JH. Use of heavy minerals as tracers of sand transport of the Santa Barbara Oxnard shelf; Santa Barbara Channel, California. [dissertation] ; 1976. University of Southern California, United-States; Master's Monographic; Thesis B; Bibliography and Index of Geology (1969-present). California/oceanography/marine geology/continental shelf/United States/Pacific Ocean/North Pacific/sedimentation/environment/marine/sediments/clastic sediments/terrigenous/distribution/Pacific Coast/Western U.S./clastic sediments, terrigenous/diagenesis/heavy minerals/mineral composition/provenance/Santa Barbara Channel/southwest/tracers /GEOREF.

3358. Patterson R. Tectonic geomorphology and neotectonics of the Santa Cruz Island faults, Santa Barbara County, California [dissertation]. Santa Barbara, Goleta, CA: University of California; 1979. Unknown. geomorphology/landform evolution/neotectonics/tectonic controls/faults/Santa Barbara County/Santa Cruz Island/structural geology.

3359. Trosper EJ. Classification of southern California borderland geomorphic features. *Marine Geology Report, Univ. of South. Calif.* 1982::10. introduction/MINERALS MANAGEMENT SERVICE.

3360. Beckett KL. Water characteristics and circulation in the passages of the northern Channel Islands, California, 1968. [dissertation] ; 1974. University of Southern California, United-States; Master's Monographic; Thesis B; Bibliography and Index of Geology (1969-present). California/oceanography/oceans/circulation/Pacific Ocean/northeast/Anacapa Islands/bottom features/Pacific Coast/Western U.S./United States/California current/Channel Islands/coastal/currents/insolation/oceans, circulation/San Miguel Island/Santa Barbara Channel/Santa Cruz Island/Santa Rosa Island/tides/wind /GEOREF.

3361. Pawka SS. Island shadows in wave directional spectra. J. Geophys. Res. (C Oceans Atmos.) 1983;88(C4):2579-2591
Address: Shore Processes Lab., Scripps Inst. Oceanogr., La Jolla, CA 92093, USA. Shadows of individual islands are observed in directional spectra sampled with a high resolution linear array at Torrey Pines Beach, California. A detailed investigation of the spectra indicates that the Channel Islands restrict the wave energy density to certain narrow directional sectors. A deep spectral trough, associated with San Clemente Island, is a predominant feature in the well resolved spectra (wave frequencies similar to 0.06-0.15 Hz). Negligible values of energy density in the center of this directional "gap" were consistently observed in the range 0.082-0.114 Hz.
wave spectra/directional spectra/ice waves/islands/statistical analysis/Torrey Pines Beach/California Channel Islands/San Clemente Island/oceanography.

3362. Tsuchiya M. Inshore circulation in the Southern California Bight, 1974-1977. Deep-Sea Res. 1980;27(2A):99-118. California Coast/Circulation processes/STD/Geostrophic flow/California Current/Seasonal variations/Identifiers/Southern California Bight/Dana Point/Del Mar/Hickey/physical oceanography/MINERALS MANAGEMENT SERVICE.

3363. Ashley RJ. Offshore geology and sediment distribution of the El Capitan Gaviota continental shelf, northern Santa Barbara Channel, California. [dissertation] ; 1974. San Diego State University, United-States; Master's Monographic; Thesis B; Bibliography and Index of Geology (1969-present). California/oceanography/continental shelf/United States/sediments/distribution/tectonics/structure/Cenozoic/Tertiary/petroleum/marine geology/Pacific Ocean/North/anticlinal/Pacific Coast/Western U.S./compression/controls/cores/deposition/El Capitan Gaviota Shelf/Elwood Offshore Fold Trend/erosion/faults/folds/Gaviota Offshore Fold Trend/Holocene/Quaternary/homoclinal/Miocene/Neogene/Molino Fold Trend/Monterey Formation/paleogeographic controls/paleogeography/Pico Formation/Pliocene/processes/Repetto Formation/reservoir rocks/sampling/Santa Barbara Channel/scouring/sedimentary rocks/sedimentation/seismic surveys/geophysical surveys/Sisquoc Formation/stress/structural/traps/Ventura Basin/GEOREF.

3364. Pawka SS. Wave directional characteristics on a partially sheltered coast [dissertation]. Shore Processes Lab., La Jolla, CA.: Scripps Institution of Oceanography; 1982. 279. The sheltering effects of the Channel Islands on the wind generated surface gravity wave field at the Southern California coastline are studied with an extensive field experiment. Emphasis is placed on wave directional measurements sampled at Torrey Pines Beach with a linear array of pressure sensors. A linear model was implemented for the evaluation of wave transformations around the islands due to refraction over the shoals in the island region and blocking due to the island cross-sections. This model shows a strong influence of refraction on waves with frequencies less than 0.10 Hz. Only limited confirmation of the model in the frequency range 0.08-0.11 Hz is obtained due to the variable quality of the deep ocean estimates of wave directionality. Several estimation techniques were compared for their performance in directional spectrum analysis. Two methods developed here show significant improvement over the Maximum Likelihood Estimator in defining spectral gaps and in the partition of energy among spectral peaks. The estimation

problem of extracting accurate estimates of the onshore flux of longshore directed momentum, S_{yx} , from linear array data is addressed. A window shaping technique is developed and compared to the integration of the directional spectrum estimates. Using field data, the linear array methods are compared with a biaxial current meter and a 'slope'. array.

Ocean waves/Directional/Wave propagation/Refraction/Frequency Spectra/Island sheltering/North Pacific Ocean/California/Coastal regions/Santa Barbara coastline/California Channel Islands/Oceanography/meteorology/physical oceanography/atmospheric science.

3365. Kolesar PTJ. Factors affecting the magnesium content of calcite secreted by some articulated coralline algae. Diss. Abstr. Int. 1973;34(10):p.5027B

University of California, Riverside, United-States; Doctoral Monographic; Thesis B; Bibliography and Index of Geology (1969-present).

Los Angeles County/algae/Rhodophyta/United States/California/paleobotany/Calliarthon/70/microfossils/thallophtes/calcite/ carbonates/Pacific Coast/Western U.S./Corallinaceae/ecology/effects/experimental studies/field studies/growth/Holocene/Quaternary/living culture/modern/rates/salinity/Santa Catalina Island/sea water/temperature/GEOREF.

3366. rPearce TA. Morphological relationships among *Micrarionta* spp., land snails endemic to the California islands (*Pulmonata: Helminthoglyptidae*). S.J.Long. Annual Report - Western Society of Malacologists 18. ; 1986. 25-26. Address: Univ. Calif., Dep. Paleontol., Berkeley, CA Conference: 18th annual meeting of the Western Society of Malacologists Santa Barbara, CA, Aug. 18-21, 1985.

Holocene/morphology Mollusca/Gastropoda/Pulmonata/Helminthoglyptidae/land snails/*Micrarionta sodalis*/*Micrarionta opuntia*/California Channel Islands/San Nicolas Island/Guadeloupe Islands/Mexico/invertebrate paleontology.

3367. Thompson BE. Food resource utilization and partitioning in macrobenthic communities of the southern California borderland. Dissertation, Univ. South. Calif. 1982; text/benthic invertebrates/8/MINERALS MANAGEMENT SERVICE.

3368. Tegner MJ, Dayton PK. El Nino effects on southern California kelp forest communities. Adv. Ecol. Res. 1987;17:243-289.

macrocystis-pyrifera/peru current/storms/ecology/plant ecology/biostatistics/biometeorology/oceanography/movement/plant physiology/biochemistry/biophysics/growth/differentiation/phaeophyta/invertebrates/sub/hard/kelp/el nino/disease/text/fish/algae/marine/spermatophytes/MINERALS MANAGEMENT SERVICE.

3369. Lee TC. Heat flow and other geophysical studies in the southern California borderland. Diss. Abstr. Int. 1974;35(2):p. 899B University of Southern California, United-States; Doctoral Monographic; Thesis B; Bibliography and Index of Geology (1969-present).

California/geophysical surveys/heat flow/surveys/United States/marine geology/Pacific Ocean/anomalies/Pacific Coast/Western U.S./continental borderland/continental margin/continental shelf/crust/evolution/fault zones/faults/magnetic

surveys/measurement/offshore/plate
tectonics/reflection/seismic surveys/south/structure/GEOREF.

3370. Earce TA. Evolutionary relationship between fossil and modern Micrarionta (Pulmonata; Helminthoglyptidae) on San Nicolas Island, California. H. Bertsch, G.L. Kennedy, F.G. Hochberg Jr. Abstracts and proceedings of the annual meeting of the Western Society of Malacologists. Annual Report - Western Society of Malacologists 19. ; 1987. 16-17.
Address: Univ. Calif., Dep. Paleontol., Berkeley, CA Conference: Annual meeting of the Western Society of Malacologists. Monterey, CA, July 1-6, 1986.
stratigraphy/Mollusca/Gastropoda/Pulmonata/Helminthoglyptidae/Micrarionta opuntia/Micrarionta sodalis/San Nicolas Island/invertebrate/paleontology.

3371. Waddell E. The dynamics of swash and its implication to beach response. Diss. Abstr. Int. 1973;34(6):p.2763B-2764B
Louisiana State University, United-States; Doctoral Monographic; Thesis B; Bibliography and Index of Geology (1969-present).
Walton County/geomorphology/shore features/shorelines/Florida/beaches/erosion/Southeastern U.S./Eastern U.S./United States/northwest/processes/sand waves/bedding plane irregularities/sedimentary structures/Santa Rosa Island/swash/GEOREF.

3372. Pearse JS. A monthly reproductive rhythm in the diadematid sea urchin *Centrostephanus coronatus* Verrill. J. Experimental Marine Biology and Ecology 1972;8:167-186
reproductive biology/reproductive rhythm
Echinoidea/Diadematidae/*Centrostephanus coronatus*/Santa Catalina Island/Big Fisherman's Cove/marine biology.

3373. Fischer PJ. Geologic evolution and quaternary geology of Santa Barbara Basin, Southern California. [dissertation] ; 1972. University of Southern California, United-States; Doctoral Monographic; Thesis B; Bibliography and Index of Geology (1969-present).
California/structural geology/basins/folds/style/Quaternary/United States/Pacific Coast/Western U.S./evolution/Santa Barbara Basin/south/stratigraphy /GEOREF.

3374. Peden DG, Kraay GJ. Comparison of blood characteristics in the plains bison, *Bison bison*, wood bison, *Bison bison athabasca*, and their hybrids. Can. J. Zool. 1979;57(9):1778-1784
Address: KENYA RANGELAND ECOL. MONIT. UNIT, BOX 47146, NAIROBI, KENYA. electrophoresis/carbonic anhydrase/hybrids/blood characteristics carbonic anhydrase alleles/Bovidae/cattle/plains bison/*Bison bison*/wood bison/*Bison bison athabasca*/Santa Catalina Island/National Bison Range/Montana/Oklahoma/Canada/terrestrial biology/mammalogy.

3375. Murray SM. Diagenesis of sediment in the Santa Barbara Basin of the California borderland. [dissertation] ; 1972. University of Southern California, United-States; Master's Monographic; Thesis B; Bibliography and Index of Geology (1969-present).
California/sedimentary petrology/diagenesis/sedimentation/processes/Pacific Coast/Western U.S./United States/Santa Barbara Basin/Santa Barbara County/sediments /GEOREF.

3376. Pilmanis AA, Given RR, Borgh BC. Unique design of the new NOAA/USC saturation diving system. Oceans '84 conference record: Industry, government, education. Designs for the future. Volume 2. New York, NY (USA): IEEE; 1984. 539-543.
Address: Catalina Mar. Sci. Cent., Univ. Southern California, Avalon, CA 90704, USA Conference: Oceans '84 Conference. Washington, DC (USA). 10-12 Sept 1984. Under a cooperative agreement, NOAA and the University of Southern California (USC) have designed, and are currently constructing an underwater habitat/saturation diving system as a national facility to provide extended time and depth capability to marine scientists. It is expected to be in operation in early 1986, and to be initially located at the USC Catalina Marine Science Center on Santa Catalina Island, 26 miles offshore from Los Angeles, CA. The state-of-the-art design of this system will enable scientists to perform in situ research in depths of 50 to 200 FSW in relative comfort, with up-to-date equipment, and with on-campus academic support.
diving chambers/design/saturation diving/diving
bells/design/underwater habitat/Santa Catalina Island/marine
biology/marine technology/engineering.

3377. Shiller GI. Suspension in selected streams of the Southern California Bight in the Flood of 1969. [dissertation] ; 1972.
University of Southern California, United-States; Master's Monographic; Thesis B; Bibliography and Index of Geology (1969-present).
California/sedimentary petrology/sedimentation/transport/stream
transport/Pacific Coast/Western U.S./United
States/coastal/floods/south/suspension /GEOREF.

3378. Piltz FM. Oil- and gas-associated discharge in the Federal OCS. D.F. Soule, Don Walsh. Waste disposal in the oceans: minimizing impact, maximizing benefits. ; 1983. 43-62.
Address: Minerals Management Service, Pacific OCS Region 1340 W. 6th Street L.A., CA 90017.
Exploration for the development of oil and gas resources on the outer continental shelf (OCS) of the United States are usually accompanied by the discharge of a variety of materials into the ocean. Interest in these discharges has focused primarily on drilling muds, cuttings and formation water. This paper describes the major components and volumes of muds, cuttings and formation water expected to be discharged as a result of some of the recent fates and effects research on these discharges and the Bureau of Land Management Environmental Studies Program's role in this area of research are also discussed.
waste disposal/environmental impact/discharge/drilling
muds/cuttings/formation water/fates and effects research/Pacific
OCS/marine
biology/pollution/petroleum/water quality/resource management.

3379. Johnson DL. Landscape evolution (Late Pleistocene Holocene) on San Miguel Island, California. [dissertation] ; 1972.
University of Kansas, United-States; Doctoral Monographic; Thesis B; Bibliography and Index of Geology (1969-present).
622 p.Diss. Abstr. Int., Vol. 33, No. 11, p. 5343B.
California/geomorphology/landform evolution/Quaternary/United
States/Pacific Coast/Western U.S./San Miguel Island/GEOREF.

3380. Piltz FM. Monitoring long-term changes in biological communities near oil and gas production platforms. Oceans 86 Conference Record. Monitoring Strategies Symposium. ; 1986. 3. 856-861.

Conference: Monitoring Strategies Symposium, Washington D.C.
September 23-25, 1986.

The U.S. Department of the Interior Minerals Management Service Pacific OCS Region began a monitoring program conducted through the Environmental Studies Program in 1984 for the long-term effects of oil and gas production platforms on biological communities. Phase I, a broad scale geographic reconnaissance and baseline survey, has been conducted for the Santa Maria Basin offshore California where oil and gas production will begin in the near future. Phase II is beginning and will focus on time series measurements of a wide variety of biological, physical and chemical parameters at platform sites and comparison sites. Emphasis will be given to detecting changes in benthic communities and sublethal changes in life history parameters.

survey/monitoring/long-term changes/oil and gas production
platforms/petroleum/environmental impact/baseline survey/Santa
Maria Basin/petroleum/environmental studies/marine
biology/pollution/water quality/resource management.

3381. Parsley RM. Late Cretaceous through Eocene
paleocurrent directions, paleoenvironment and paleogeography of San
Miguel Island, California. [dissertation] ; 1972.
Ohio University, Athens, United-States; Master's Monographic;
Thesis B; Bibliography and Index of Geology (1969-present).
California/stratigraphy/Cretaceous/paleogeography/United
States/Paleocene/Eocene/Pacific Coast/Western U.S./environmental
analysis/Paleogene/Tertiary/paleocurrents/San Miguel Island/Upper
Cretaceous/GEOREF.

3382. Pipkin BW. Geology of the San Pedro Basin; Los Angeles
Harbor to Santa Catalina Island. NAGT-FWS Santa Catalina Island
field trip. : Natl. Assoc. Geol. Teachers; 1984. 2-4.
Address: Univ. South. Calif., Dep. Geol. Sci., Los Angeles, CA.
sediments/organic materials/metals/engineering
geology/environmental
geology/geochemistry/shorelines/pollution/trace elements/marine
sediments/harbors/toxic materials/thermal regime/hydrogen
sulfides/anaerobic environment/waste disposal/submarine
canyons/turbidity currents/Santa Catalina Island/San Pedro
Basin/Los Angeles-Long Beach Harbor/San Pedro Channel/areal
geology.

3383. Drake DE. Distribution and transport of suspended
matter, Santa Barbara Channel, California. [dissertation] ; 1972.
University of Southern California, United-States; Doctoral
Monographic; Thesis B; Bibliography and Index of Geology (1969-
present).
California/sedimentary petrology/sedimentation/transport/marine
transport/sediments/distribution/Suspended sediments/Pacific
Coast/Western U.S./United States/Santa Barbara Channel/suspended
/GEOREF.

3384. Pipkin BW. Geology of the San Pedro Basin, Los Angeles
Harbor to Santa Catalina Island. E.M. Gath, M.M. Bottoms. Geology
of Santa Catalina Island. : South Coast Geol. Soc.; 1985. 4-8.
Address: Univ. South. Calif., Dep. Geol. Sci., Los Angeles, CA,
USA. guidebook/continental margin/waste disposal/pollution/ocean
currents/grabens/sea water/marine sediments/petroleum/slope
stability/San Pedro Basin/Los Angeles County/Los Angeles
Harbor/Santa Catalina Island/areal geology.

3385. Morin RW. Late Quaternary biostratigraphy of cores
from beneath the California Current. [dissertation] ; 1971.

University of Southern California, United-States; Master's Monographic; Thesis B; Bibliography and Index of Geology (1969-present).
Pacific
Ocean/stratigraphy/Quaternary/northeast/biostratigraphy/GEOREF.

3386. Pipkin BW,e. Geology of Santa Catalina Island and nearby basins. : SEPM; 1984. 62.
areal geology/Santa Catalina Island/areal geology.

3387. Merschat WR. Lower Tertiary paleocurrent trends, Santa Cruz Island, California [dissertation]. ; 1971.
Ohio University, Athens, United-States; Master's Monographic; Thesis B; Bibliography and Index of Geology (1969-present).
California/stratigraphy/Tertiary/United States/sedimentary structures/bedding plane irregularities/current lineations/Pacific Coast/Western U.S./lower Tertiary/paleocurrents/Santa Cruz Island/GEOREF.

3388. Platnick NI. The gnaphosidae (Arachnida, Araneae) of the California Channel Islands. The Journal of Arachnology 1983;11(3):453-455 animal
taxonomy/Arachnida/Araneae/gnaphosidae/California Channel Islands/terrestrial biology/arachnology.

3389. Glover BK. Analysis of terraces in the Santa Ynez drainage basin, Santa Barbara County, California. 1971
University of California, Los Angeles, United-States; Doctoral Monographic; Thesis B; Bibliography and Index of Geology (1969-present). California/geomorphology/terraces/erosion features/Pacific Coast/Western U.S./United States/Santa Barbara County/Santa Ynez River/GEOREF.

3390. Ridlon JB. Bathymetry and structure of San Clemente island, California, and tectonic implications for the Southern California continental borderland. [dissertation] ; 1970.
Oregon State University, United-States; Doctoral Monographic; Thesis B; Bibliography and Index of Geology (1969-present). 295 p.
California/marine geology/structure/United States/Pacific Coast/Western U.S./San Clemente Island/GEOREF.

3391. Powell JA. Faunal affinities of the Channel Islands Lepidoptera: A preliminary overview. Menke AS, Miller DR. Entomology of the California Channel Islands: Proceedings of the first symposium. Santa Barbara, California, USA: Santa Barbara Museum of Natural History; 1985. 69-94.
Presented at: Symposium on Entomology of the California Channel Islands (at) Annual Meeting of the Entomological Society of America, San Diego, CA (USA), Dec 1981 Address: Dep. Entomol., Sci., Univ. California, Berkeley, CA 94720. Lepidoptera California/Channel Islands/terrestrial biology/entomology.

3392. Vattuone GM, Griggs GS, McIntyre DR, Littlepage JL, Harrison FL. Cadmium concentrations in rock scallops in comparison with some other species. 1976;:12.
UCRL-52022/7600/cadmium/molluscs/aquatic ecosystems/ecological concentration/tissue distribution/Thompson/invertebrates/erda/520302/erda/560304/Hinnites multirugosus/Mytilus californianus/Southern California Bight/residues/bioaccumulations/water pollution/ntiserda/zooplankton/pieper/MINERALS MANAGEMENT SERVICE.

- # 3393. Vedder JG, Howell DG. Topographic evolution of the southern California borderland during the late Cenozoic time. The California Islands: Proceedings of a Multidisciplinary Symposium 1980;:7-32.
Santa Barbara Museum of Natural History/physical oceanography/Murray/marine spermatophytes/algae/TEXT/MINERALS MANAGEMENT SERVICE.
- # 3394. Shaefer G. Shelf sediments off San Clemente island, California [dissertation]. ; 1970.
University of Southern California, United-States; Master's Monographic; Thesis B; Bibliography and Index of Geology (1969-present).
California/marine geology/sediments/United States/Pacific Coast/Western U.S./San Clemente Island/GEOREF.
- # 3395. Power DM. Evolution of the House Finch on Santa Cruz Island, California. Canadian Journal of Zoology 1971;49:675-684
evolution Aves/House Finch/Santa Cruz Island/terrestrial biology/ornithology.
- # 3396. Venkatesan MI, Brenner S, Ruth E, Bonilla J, Kaplan IR. Hydrocarbons in age-dated sediment cores from two basins in the Southern California Bight. Geochim. Cosmochim. Acta 1980;44(6):789-802.
Hydrocarbons/Sediments/Marine pollution/algae/spermatophytes/Pollutant analysis/Industrial pollutants/Petroleum/California Coast/US West Coast/Bray/Murray/anthropogenic/Anderson/DDT/Eganhouse/chemical oceanography/sediment/petroleum pollution/marine sediment/MINERALS MANAGEMENT SERVICE.
- # 3397. Wilson JCJ. Engineering properties of Southern California borderland sediments [dissertation]. ; 1970.
University of Southern California, United-States; Master's Monographic; Thesis B; Bibliography and Index of Geology (1969-present).
California/engineering geology/materials/properties/United States/Pacific Coast/Western U.S./continental borderland/materials, properties/sediments/south /GEOREF.
- # 3398. Venrick EL. The lateral extent and characteristics of the north Pacific central environment at 35 degrees north. Deep-Sea Res. 1979;26(10A):1153-1184.
CALIFORNIA/USA/JAPAN/CHLOROPHYLL/INDEX/PRINCIPAL COMPONENT ANALYSIS/CURRENT/MAMMAL/BONNELL/MINERALS MANAGEMENT SERVICE.
- # 3399. Power DM. Numbers of bird species on the California Islands. Evolution 1972;26:451-563
diversity/surveys/Aves/California Channel Islands/terrestrial biology/ornithology.
- # 3400. Smith SV. Calcium carbonate budget of the southern California continental borderland [dissertation]. ; 1970.
University of Hawaii, United-States; Doctoral Monographic; Thesis B; Bibliography and Index of Geology (1969-present).
California/marine geology/geochemistry/calcium carbonate/Pacific Coast/Western U.S./United States/continental borderland/south /GEOREF.
- # 3401. Power DM. Avifauna richness on the Channel Islands, California. Condor 1976;78:384-398
species richness/avifauna Aves/California Channel

Islands/terrestrial biology/ornithology.

3402. Barnes PW. Marine geology and oceanography of Santa Cruz Basin off southern California [dissertation]. ; 1970. University of Southern California, United-States; Doctoral Monographic; Thesis B; Bibliography and Index of Geology (1969-present).
192 p.
California/marine geology/Santa Cruz basin/Pacific Ocean/oceanography/United States/Pacific Coast/Western U.S./GEOREF.

3403. Power DM. Evolution in peripheral isolated populations of *Carpodacus* finches on the California Islands, USA. *Evolution* 1979;33(3):834-847 Address: SANTA BARBARA MUS. NATL. HIST., SANTA BARBARA, CALIF. 93105. The importance of peripherally isolated populations in speciation has long been known. As a prelude to speciation, relatively great phenetic divergence ought to be detectable in geographically isolated populations within a species. House finch populations on the California Islands do show greater phenetic divergence than populations from the adjacent western North American mainland. Canonical variates analysis indicated that there has been greater evolution on fringing islands. The size of a water barrier and distance from the mainland are important. Prevailing winds that have impeded dispersal in certain directions are also important. House finch evolution following dispersal to the Channel Islands and speciation mechanisms are discussed.
dispersal/speciation/wind/canonical variates/analysis/House finch/*Carpodacus*/California Channel Islands/western North American mainland/terrestrial biology/ornithology/evolution.

3404. Power DM. Evolution in peripheral isolated populations: *Carpodacus* finches on the California Islands. *Evolution* 1979;33:834-847 evolution/island populations/isolated populations/*Carpodacus* finches/California Channel Islands/terrestrial biology/ornithology.

3405. Edwards LN. Miocene sedimentary structures of southwestern Santa Cruz Island, California. [dissertation] ; 1967. University of California, Santa Barbara, United-States; Master's Monographic; Thesis B; Bibliography and Index of Geology (1969-present). California/sedimentary petrology/Santa Cruz Island/sedimentary structures/general/sedimentary rocks/structure/Pacific Coast/Western U.S./United States/Miocene/Neogene/Tertiary /GEOREF.

3406. Power DM. Evolution of certain land birds on the California Islands. Power DM. The California Islands: Proceedings of a multidisciplinary symposium. Santa Barbara, CA: Santa Barbara Museum of Natural History; 1980. 613-649.
evolution/island/biology/Aves/California Channel Islands/terrestrial biology/ornithology.

3407. Bereskin SR. Miocene biostratigraphy of southwestern Santa Cruz Island, California [dissertation]. ; 1966. University of California, Santa Barbara, United-States; Master's Monographic; Thesis T; Bibliography of Theses in Geology (1965-1966).
Tertiary/California/Santa Cruz Island/paleontology/index fossils/stratigraphy/Pacific Coast/Western U.S./United States/Miocene/Neogene /GEOREF.

3408. Walker HJ,J, Watson W, Barnett AM. Seasonal occurrence of larval fishes in the nearshore Southern California Bight off San

Onofre, California. Estuarine Coastal Shelf Sci. 1987;25:91-109.
text/fish/MINERALS MANAGEMENT SERVICE.

3409. Power DM. Variability in island populations of the House Finch *Carpodacus mexicanus*. Auk 1983;100(1):180-187
Address: SANTA BARBARA MUSEUM NATURAL HISTORY, SANTA BARBARA, CA 93105. Coefficients of variation and generalized variances are compared for 9 morphological characters from 5 mainland and 4 island populations of the house finch (*C. mexicanus*). The purpose is to test the idea that variability is reduced in isolated populations and that there is a population variation parameter that determines the level of variation in most characters. Variability is greater in bill characters for Guadalupe and San Benito Islands than for mainland and other island populations. There are no consistent differences among samples in variability of wing, tail or hind-limb characters, except for a tendency toward increased tarsus-length variability in a southern Baja California population and reduced variability in this character in San Clemente Island and Guadalupe Island populations. In bill characters, increased variability is found in the most divergent populations. The results do not support the generalization that geographic (= genetic) isolation per se causes much of a change in variability in island populations of birds, nor is there support for the idea of a pervasive quality of the gene pool that determines the level of variability in most characters.
geographic/genetic isolation/gene pool House Finch/*Carpodacus mexicanus*/Guadalupe Island/San Benito Islands/southern Baja California/San Clemente Island/terrestrial biology/ornithology.

3410. Gaal RAP. Marine geology of Santa Catalina Basin area, California [dissertation]. ; 1965.
University of Southern California, United-States; Doctoral Monographic; Thesis T; Bibliography of Theses in Geology (1965-1966).
California/marine geology/general/Pacific Coast/Western U.S./United States/Santa Catalina Basin/GEOREF.

3411. Power DM. Variability in island populations of the House Finch. Auk 1983;100:180-187
variability/island populations/Aves/House Finch/California Channel Islands/terrestrial biology/ornithology.

3412. Power DM. Seabird geographic variation: similarity among populations of Leach's Storm-Petrel. Auk 1986;103:575-585
geographic variation/island biology/morphology/Leach's Storm-Petrel/California Channel Islands/terrestrial biology/ornithology.

3413. Crowther DD, Snyder WS. A tectonic origin for small scale chert folds in the Monterey Formation, California. Anonymous. Geological Society of America, Cordilleran Section, 84th annual meeting.
Abstracts-with-Programs-Geological-Society-of-America. 1988;20(3):p.153 Boise State Univ., Dep. Geol. and Geophys., Boise, ID, United-States Geological Society of America, Cordilleran section, 84th annual meeting with the Paleontological Society of America, Pacific Coast Section, Las Vegas, NV, Mar. 29-31, 1988
Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).
California/structural geology/tectonics/Monterey Formation/Pacific Coast/Western U.S./United States/folds/genesis/chert/chemically precipitated rocks/Santa Barbara Basin/Lions Head/crustal shortening/deformation/GEOREF.

3414. Power DM, (. The California Islands: Proceedings of a multidisciplinary symposium. Santa Barbara, CA: Santa Barbara Museum of Natural History; 1980. 787.
island biology/California Channel Islands/marine biology/terrestrial biology.

3415. Ng AC. Ancient Arctic ice does not contain large excesses of natural lead; II, Chronological variations in lead and barium concentrations and lead isotopic compositions in sediments of four southern California off shore basins. [dissertation] ; 1982.
California Inst. of Technol., United-States; Doctoral Monographic; Thesis B; Bibliography and Index of Geology (1969-present) Univ. Microfilms. 113 p.
Greenland/geochemistry/lead/Antarctica/abundance/ice/barium/marine sediments/sediments/California/environmental geology/pollution/Pacific Ocean/Arctic region/Polar regions/arctic environment/environment/metals/ice sheets/air/atmosphere/alkaline earth metals/isotopes/marginal basins/marine environment/industrial waste/pollutants/toxic materials/Pacific Coast/Western U.S./United States/Southern California/North American Pacific/Santa Monica Basin/San Nicolas Basin/Santa Barbara Basin/San Pedro Basin/GEOREF.

3416. Power DM, Ainley DG. Seabird geographic variation: similarity among populations of Leach's Storm-Petrel. Auk 1986;103:575-585
geographic variation/seabirds/seabirds/Aves/Leach's Storm-Petrel/California Channel Islands/terrestrial biology/ornithology.

3417. Sorensen S. Tectonometamorphic significance of the basement rocks of the Los Angeles Basin and the inner California continental borderland. Ernst, Wallace Gary. Metamorphism and crustal evolution of the Western United States. Rubey-Volume. 1988;7:p.998
Smithson. Inst., Natl. Mus. Nat. Hist., Dep. Miner. Resour., Washington, DC, United-States Rubey colloquium on Metamorphism and crustal evolution of the Western United States, Los Angeles, CA, Jan. 1986 Analytic; Serial; Conference publication B; Bibliography and Index of Geology (1969-present).
California/petrology/metamorphism/P T conditions/mineral assemblages/Catalina Schist/Santa Cruz Island Schist/Willows Plutonic Complex/Los Angeles Basin/California Continental Borderland/Cretaceous/Jurassic/slates/schists/phyllites/chemical composition/basement/Transverse Ranges/Pacific Coast/Western U.S./United States/faults/terranes/GEOREF.

3418. Prezelin BB, Bidigare RR, Matlick A, Putt M, Ver Hoven B. Diurnal patterns of size-fractionated primary productivity across a coastal front. Mar. Biol. 1987;96:575-591
diurnal patterns/primary productivity/photosynthesis/Santa Barbara Channel/marine biology/oceanography.

3419. Weaver DW,e. Geology of the northern Channel Islands, southern California borderland. Am. Assoc. Pet. Geol., Pacific Section 1969;;200. introduction/MINERALS MANAGEMENT SERVICE.

3420. Tajima F. Earthquake source ruptures in the collision zones. Brune JN, Singh SJ. International Association of Seismology and Physics of the Earth's Interior regional assembly; abstracts. Scripps Inst. Oceanogr., Inst. Geophys. and Planet. Phys., United-States. ; 1984. p. p. 250.
Univ. Tex. at Austin, Inst. Geophys., Austin, TX, United-States; Scripps Inst. Oceanogr., Inst. Geophys. and Planet. Phys., United-

States; Maharshi Dayanand Univ., India Natl. Geophys. Res. Inst.,
Hyderabad International Association of Seismology and Physics of
the Earth's Interior regional assembly, Hyderabad, Oct. 31-Nov. 7,
1984 Analytic; Book; Conference publication; Abstract B;
Bibliography and Index of Geology (1969-present).
California/tectonophysics/plate tectonics/Costa Rica/Mexico/Pacific
Coast/Western U.S./United States/Central America/Santa Cruz
Island/plate
collision/rupture/seismic sources/North American Plate/Cocos
Plate/Costa Rica earthquake 1983/Mexico earthquakes/Oaxaca
earthquake 1978/Petatlan earthquake 1979/Guerro earthquake
1982/subduction/GEOREF.

3421. Prezelin BP, Alldredge AL. Primary production of
marine snow during and after an upwelling event. *Limnol. Oceanogr.*
1983;28:1156-1167 primary production/marine snow/upwelling/Santa
Barbara Channel/marine biology/oceanography.

3422. Weinheimer AL. Radiolarian indicators of El Nino and
anti-El Nino events in the Recent sediment of the Santa Barbara
Basin. Siliceous Microfossil and Microplankton of the Monterey
Formation and Modern Analogs. Field Trip Guidebook - Pacific
Section, Society of Economic Paleontologists and Mineralogists 45
1986;:31-37.
California/radiolarians/ecology/clay
mineralogy/oceanography/arealstudies/continental margin/California
Continental Borderland/Santa Barbara Basin/North American
Pacific/ocean currents/El Nino/California Current/faunal
list/Pacific Coast/Southern California/marine sediments/anaerobic
environment/eutrophication/smectite/illit/chlorite/Hickey/physical
oceanography/Eganhouse/chemical oceanography/geochemistry/MINERALS
MANAGEMENT SERVICE.

3423. Ingle JCJ. Paleooceanographic evolution of the Gulf of
California; foraminiferal and lithofacies evidence. Anonymous.
Geological Society of America, 1987 annual meeting and exposition.
Abstracts-with-Programs-Geological-Society-of-America.
1987;19(7):p.712 Stanford Univ., Dep. Geol., Stanford, CA, United-
States Geological Society of America, 1987 annual meeting and
exposition, Phoenix, AZ, Oct. 26-29, 1987 Analytic; Serial;
Conference publication; Abstract B; Bibliography and Index of
Geology (1969-present).
Pacific Ocean/stratigraphy/Neogene/Gulf of California/North
American Pacific/paleo
oceanography/foraminifers/microfossils/lithofacies/tropical
environment/temperate environment/North Pacific/Tertiary/marine
environment/Deep Sea Drilling Project/DSDP Site 474/IPOD/DSDP Site
475/DSDP Site 476/DSDP Site 479/California Current/algal
flora/diatom flora/Globigerinita glutinata/upwelling/Colorado
River/diatomite/subsidence/uplifts/eustacy/GEOREF.

3424. Probert A. Mining history, Santa Catalina Island, Los
Angeles County, California. E.M. Gath, M.M. Bottoms. *Geology of
Santa Catalina Island*. : South Coast Geol. Soc.; 1985. 39-46.
Address: 3277 North San Amadeo, Laguna Hills, CA Note: Reprinted
from "Geology and mineral wealth of the California Transverse
Ranges".
metal ores/practice/Catalina Schist/silver ores/gold ores/lead-zinc
deposits/production/guidebook/basement/recovery/Santa Catalina
Island economic geology/metals/mining geology.

3425. Vedder JG. Regional geology and petroleum potential of
the Southern California borderland. Scholl, David W., Grantz,

Arthur, Vedder, John G. Geology and resource potential of the continental margin of western North America and adjacent ocean basins, Beaufort Sea to Baja California. U. S. Geol. Surv., Menlo Park, CA, United-States.

Circum-Pacific-Council-for-Energy-and-Mineral-Resources,-Earth-Science-Series. 1987;6:p.403

U. S. Geol. Surv., Menlo Park, CA, United-States; U. S. Geol. Surv., Menlo Park, CA, United-States Analytic; Serial; Map B; Bibliography and Index of Geology (1969-present).

California/areal geology/maps/economic geology/petroleum/Pacific Coast/Western U.S./United States/geophysical maps/Southern California/Santa Barbara Channel/Ventura Basin/Los Angeles Basin/compression/terrane/offshore/source rocks/geophysical profiles/Tertiary/igneous rocks/sedimentary rocks/structural traps/traps/stratigraphic traps/Quaternary/Pacific Ocean/GEOREF.

3426. Wallace MG, Rakshit A, Duckstein L, Stoltfus D. Forecasting river flow decrease due to increased pumpage in semiarid Southwestern states. Anonymous. AGU 1987 fall annual meeting. Eos,-Transactions,-American-Geophysical-Union. 1987;68(44):p.1292

Univ. Ariz., Water Resour. Res. Cent., Tucson, AZ, United-States American Geophysical Union, 1987 fall annual meeting, San Francisco, CA, Dec. 6-11, 1987 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).

Southwestern U.S./hydrogeology/hydrology/United States/surface water/semi arid environment/discharge/ground water/San Pedro River basin/rivers and streams/drainage basins/Santa Cruz River basin/water management/GEOREF.

3427. Prothero WA. An ocean bottom seismometer. R.P. Meyer, R.F. Mereu c. Proceedings of the workshop on portable digital seismograph development. : Int. Assoc. Seismol. and Phys. Earth's Int., Comm. Controlled Source Seismol.; 1983. 111.

Address: Univ. Calif., Dep. Geol., Santa Barbara, CA, USA; Univ. West. Ont., London, ON Conference: Workshop on portable digital seismograph development. Los Altos, CA, Nov. 30-Dec. 2, 1983.

automatic data
processing/seismology/instruments/seismographs/teleseismic signals/ocean
floors/algorithms/earthquakes/noise/microcomputers/methods/data acquisition/geophysical methods/seismic methods/Santa Barbara Channel/geology/geophysics/seismology.

3428. Bebout GE, Barton MD. Fluid flow and metasomatism in a subduction zone hydrothermal system; Catalina schist terrane, California. Anonymous. V. M. Goldschmidt conference. ; 1988. p. p.29.

Univ. Calif., Dep. Earth and Space Sci., Los Angeles, CA, United-States Geochem. Soc. V. M. Goldschmidt conference, Baltimore, MD, May 11-13, 1988 Analytic; Book; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).

California/geochemistry/isotopes/Pacific Coast/Western U.S./United States/petrology/metamorphism/metamorphic rocks/Santa Catalina Island/pelagic environment/sediments/veins/blueschist/schists/amphibolite facies/Lower Cretaceous/Cretaceous/P T conditions/oxygen/hydrogen/carbon/O 18/O 16/stable isotopes/metasomatism/metabasalt/metaigneous rocks/metachert/metasedimentary rocks/C 13/C 12/D/H/deuterium/GEOREF.

3429. Prothero WA,J, Schaecher W. First noise and teleseismic recordings on a new ocean bottom seismometer capsule. Bulletin of the Seismological Society of America 1984;74(3):1043-1058

Address: Univ. Calif., Dep. Geol. Sci., Santa Barbara, CA. An efficient triggering algorithm consisting of multiple high-pass filters effectively discriminates between locally generated earthquakes and noise, and teleseisms. During a 1-month deep ocean deployment west of the Santa Barbara Channel, a magnitude 5.9 earthquake at a distance of 76 degrees was recorded, in addition to a number of regional events in the 300- to 450-km range. Noise levels were monitored by automatically recording data at intervals. Vertical noise levels were approximately 20 times greater than those recorded at quiet land sites, and horizontal noise levels were about 5 times greater than that. The instrument consists of a microprocessor-controlled data logging system in three parallel pressure tubes, joined by a common baseplate. No external connectors are exposed to sea water, allowing the deployment time to extend to 1 yr. Data are recorded on two Braemar cassette recorders with a capacity of 15 Mbits each, for a continuous recording time of approximately 43 hr. This is adequate for the expected data acquisition rate, given the robustness of the triggering algorithm. The sensors are Mark Products L4-C 1-Hz seismometers with useful extended low-frequency response to about 30-sec periods for earthquake signals. The three components are leveled with a mechanical gimbal arrangement. The instrument has been successfully deployed 3 times in the Santa Barbara Channel and deep ocean.--Modified journal abstract. seismology/instruments/ocean bottom seismographs/geophysical profiles/noise/teleseismic signals/filters/algorithms/earthquakes/seismographs/mantle/upper mantle/Santa Barbara Channel/geology/geophysics/seismology.

3430. Cline C, Spero H. Ecological effects on the morphology of *Orbulina universa*; Evidence from the plankton. Anonymous. Geological Society of America, Southeast Section, 37th annual meeting.

Abstracts-with-Programs-Geological-Society-of-America. 1988;20(4):p.257-258 Univ. SC, Mar. Sci. Progr., Columbia, SC, United-States; Univ. SC, Dep. Geol. Sci., Columbia, SC, United-States Geological Society of America, Southeast Section, 37th annual meeting, Columbia, SC, Apr. 6-8, 1988 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). foraminifera/Globigerinacea/morphology/ecology/Orbulina universa/Orbulina/Globigerinidae/Rotaliina/plankton/data collection/shell/Southern California Bight/surface water/environmental geology/microfossils/Protista/paleontology/GEOREF.

3431. Purcell LJ. Nighttime ammonium excretion by the blacksmith (*Chromis punctipinnis*: Pomacentridae) at Santa Catalina Island, California, and its potential for uptake by benthic algae [dissertation]. Long Beach, California, USA: California State University; 1985. 66. ammonium uptake/excretion/benthic algae/Pomacentridae/blacksmith/*Chromis punctipinnis*/Santa Catalina Island/marine biology.

3432. Bachman SB, Crouch JK. Exploration potential of offshore Northern California basins. Anonymous. 1988 AAPG annual convention with DPA/EMD divisions and SEPM. AAPG-Bulletin. 1988;72(2):p.157

Crouch, Bachman, and Assoc., Santa Barbara, CA, United-States
1988 AAPG annual convention with DPA/EMD divisions and SEPM,
Houston, TX, Mar. 20-23, 1988 Analytic; Serial; Conference
publication; Abstract B; Bibliography and Index of Geology (1969-
present).

California/economic geology/fuel resources/Monterey
Formation/Pacific Coast/Western U.S./United States/Northern
California/exploration/offshore/sedimentary basins/Santa Maria
Basin/Point Arguello Field/Point Arena Basin/Eel River
basin/reservoir rocks/chert/chemically precipitated
rocks/petroleum/Santa Cruz Basin/Bodega Basin/reserves/GEOREF.

3433. Willason SW, Favuzzi J, Cox JL. Patchiness and
nutritional condition of zooplankton in the California Current.
U.S. Natl. Mar. Fish. Serv. Fish. Bull. 1986;84:157-176.
MINERALS MANAGEMENT SERVICE.

3434. Johnson KS, Stout PM, Berelson WM, Sakamoto AC. Cobalt
and copper distributions in the waters of Santa Monica Basin,
California. Nature (London). 1988;332(6164):p.527-530
Moss Landing Mar. Lab., Moss Landing, CA, United-States; Univ.
Calif., United-States; Univ. South. Calif., United-States
Analytic; Serial B; Bibliography and Index of Geology (1969-
present).

California/geochemistry/sea water/Pacific Ocean/trace
elements/cobalt/copper/Pacific Coast/Western U.S./United
States/Southern California/Santa Monica Basin/North American
Pacific/trace
metals/mobility/scavenging/geochemical cycle/pollution/Southern
California Bight/GEOREF.

3435. Williams PM, Baldwin RJ. Cupric ion activity in
coastal seawater. Mar. Sci. Commun. 1976;2:161-181.
copper/seawater/California Bight/Eganhouse/chemical
oceanography/MINERALS MANAGEMENT SERVICE.

3436. Raftery PJ. Marine geology and geologic evolution of
the northern Channel Islands Platform west of San Miguel Island
[dissertation]. Northridge, CA: California State University; 1984.
118.

faults/stratigraphy/geophysical surveys/displacements/continental
shelf/Cenozoic/seismic surveys/strike-slip faults/Monterey
Shale/Sisquoc Formation/Pico Formation/Channel Islands Platform
subduction/Ferrelo fault zone/Santa Rosa Fault/anticlines
unconformities/Peninsular Ranges/Transverse Ranges/boundary west of
San Miguel Island/marine geology/oceanography/surficial
geology/quaternary geology.

3437. Gorsline DS. Deposition in active margin basins; with
examples from the California continental borderland. Gorsline, D.
S. Depositional systems in active margin basins. Univ. South.
Calif., Los Angeles, CA, United-States. SEPM-Guidebook.
1987;54:p.33

Univ. South. Calif., Dep. Geol. Sci., Los Angeles, CA, United-
States; Univ. South. Calif., Los Angeles, CA, United-States
Analytic; Serial B; Bibliography and Index of Geology (1969-
present).

California/sedimentary petrology/sedimentation/deposition/marine
environment/Pacific Coast/Western U.S./United States/active
margins/petroleum/sedimentary
basins/uplifts/subsidence/textures/transgression/regression/turbi
dity currents/continental borderland/basement/anaerobic
environment/transport/bioturbation/biogenic structures/sedimentary

structures/geophysical profiles/acoustical surveys/geophysical surveys/Santa Barbara Basin/Santa Cruz Basin/Tanner Basin/Santa Monica Basin/GEOREF.

3438. Ramirez MG. Systematics and biogeography of the genus *Lutica* (Araneae: Zodariidae) (abstract). *American Zoologist* 1987;27(4):85A Spiders of the genus *Lutica* from 14 populations in southern and Baja California, including four of the Channel Islands, were compared electrophoretically on the basis of variability at eight gene loci. Populations of the northern mainland group and Santa Catalina Island appear to be distinct species, with San Miguel, Santa Cruz and San Nicolas Islands comprising one subspecies and the southern mainland group comprising another subspecies. The genetic differentiation between populations on San Miguel and Santa Cruz Islands is in the range expected for conspecific populations, as might be expected due to their prior interconnection. The degree of difference between the populations on San Nicolas and Santa Catalina Islands is in the range expected for sibling and full species, consistent with their prior interconnection. The degree of difference between the populations on San Nicolas and Santa Catalina Islands is in the range expected for sibling and full species, consistent with their historic separateness. The northern islands, San Miguel and Santa Cruz, are more closely related genetically to the southern mainland group than they are to the northern mainland group, consistent with the geologic history of the northern island microplate. systematics/biogeography/evolution/vicariance/Araneae/Zodariidae/Lutica/spider San Miguel Island/Santa Cruz Island/San Nicolas/Santa Catalina Island/mainland from Santa Barbara to Baja California/arachnology/Terrestrial biology/evolution.

3439. Kraemer SMC. Quaternary Conception Fan, Santa Barbara, California; two distinct canyon(s) fan systems. Anonymous. AAPG annual convention with divisions SEPM/EMD/DPA. AAPG-Bulletin. 1987;71(5):p.578
Roy F. Weston, Woodland Hills, CA, United-States AAPG annual convention with divisions SEPM/EMD/DPA, Los Angeles, CA, June 7-10, 1987 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). California/oceanography/continental shelf/Pacific Coast/Western U.S./United States/Southern California/Santa Barbara Basin/Conception Fan/submarine fans/submarine canyons/Cojo Fan/Gaviota Canyon/Cojo Canyon/GEOREF.

3440. Ramirez MG. Evolution and historical biogeography of the spider genus *Lutica* (Araneae: Zodariidae). *American Zoologist* 1988;28(4):10A evolution/biogeography
Araneae/Zodariidae/Lutica/spiders/California Channel Islands/Santa Barbara/Baja California/terrestrial biology/evolution/arachnology.

3441. Isaacs CM. Use of well cuttings for determining compositional trends in the Monterey Formation, California. Anonymous. AAPG annual convention with divisions SEPM/EMD/DPA. AAPG-Bulletin. 1987;71(5):p.570-571 U. S. Geol. Surv., Menlo Park, CA, United-States AAPG annual convention with divisions SEPM/EMD/DPA, Los Angeles, CA, June 7-10, 1987 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). California/sedimentary petrology/sedimentary rocks/Monterey Formation/Pacific Coast/Western U.S./United States/Southern California/Santa Maria Basin/Santa Barbara Basin/Ventura Basin/Miocene/Neogene/Tertiary/well cuttings/applications/composition/GEOREF.

3442. Rarey PJ. Sockeye Field, Southeastern Santa Barbara Channel, California: History, geology, and development plans. AAPG Bulletin - American Association of Petroleum Geologists 1988;72:392
Address: CHEVRON USA INC, VENTURA, CA.
Santa Barbara Channel/geology/petroleum.

3443. Winant CD, Beardsley RC, Davis RE. Moored wind, temperature and current observations made during the coastal ocean dynamics experiments 1 and 2 over the northern California continental shelf and upper slope. J. Geophys. Res. 1987;92(C2):1569-1604.
Hickey/text/physical oceanography/MINERALS MANAGEMENT SERVICE.

3444. Keller FB. The seismic expression of submarine fan deposits, San Pedro Bay, Southern California borderland. 1987 Shell Dev. Co., Bellaire Res. Cent., Houston, TX, United-States SEPM annual midyear meeting, Austin, TX, Aug. 20-23, 1987
Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). Anonymous. SEPM annual midyear meeting.
Abstracts-Society-of-Economic-Paleontologists-and-Mineralogists,- Annual-Midyear -Meeting. 4. p. 41.
California/oceanography/sedimentation/Southern California/submarine fans/deposition/San Pedro Bay/Pacific Coast/Western U.S./United States/cyclic processes/seismic surveys/geophysical surveys/GEOREF.

3445. Recksiek CW. California's market squid. Pac. Discovery Calif. Acad. Sci. San Franc. 1978;31(6):19-27
Address: Kinetic Lab. of Santa Cruz, Santa Cruz, CA 95060, USA. An illustrated, descriptive account is given of a trip in the research vessel Alaska off one of the Californian Channel Islands. The aim of the trip was to gain a better understanding of the natural history and behaviour of the commercially important squid species, *Loligo opalescens*. The progress made in the current research programme is described and present knowledge of the habits of the species is briefly reported.
commercial species/life history/behavior/*Loligo opalescens*/market squid/Californian Channel Islands/marine biology/fisheries/resource management.

3446. Lange CB, Schimmelmann A, Burke SK, Tont SA, Berger WH, Soutar A, Casey RE, Weinheimer AL. Microfossil and geochemical responses to the 1983 El Nino in the Santa Barbara Basin, California. Anonymous. AGU 1988 ocean sciences meeting. Eos,- Transactions,-American-Geophysical-Union. 1987;68(50):p.1778
Scripps Inst. Oceanogr., La Jolla, CA, United-States; Univ. San Diego, United-States American Geophysical Union; 1988 ocean sciences meeting, New Orleans, LA, Jan. 18-22, 1988 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).
California/oceanography/ocean circulation/Pacific Ocean/Pacific Coast/Western U.S./United States/Santa Barbara Basin/North American Pacific/El Nino/diatom flora/radiolarians/microfossils/foraminifers/geochemistry/marine sediments/ecology/pore water/organic materials/climate effects/GEOREF.

3447. Reed DC. Factors affecting the production of sporophylls in the giant kelp *Macrocystis pyrifera*. Journal of Experimental Marine Biology and Ecology 1987;113:60-69
The effects of variation in vegetative biomass, stand density, and

stand location on sporophyll production in the giant kelp *Macrocystis pyrifera* were examined in a multifactorial experiment off the coast of Santa Barbara, CA. Results indicate that vegetative biomass greatly influences zoospore production in this kelp, since the removal of 75% of vegetative fronds led to a drastic decrease in sporophyll production. Sporophyll biomass was shown to be closely correlated to zoospore production ($r=0.995$). Plants growing offshore produced significantly less sporophyll biomass per plant than those from the persistence of the surface canopy offshore and the senescence of it inshore. As a possible result, timing of events such as storms which remove vegetative biomass could affect the local population dynamics of this kelp by decreasing zoospore production.

sporophylls/reproductive
biology/biomass/density/production/zoospore
production/storms/disturbance/*Macrocystis pyrifera*/giant kelp/Santa Barbara Channel/Naples Reef/Ellwood/marine
biology/botany/phycology.

3448. Winter A. Distribution of living coccolithophores in the California current system Southern California Borderland USA. *Mar. Micropaleontol.* 1985;9(5):385-394.

Emiliana huxleyi/*Umbilicosphaera sibogae*/*Gephyrocapsa oceanica*/*Rhabdosphaera longistylis*/abundance/community structure/diversity/Hardy/phytoplankton/pyrrophyta/Hickey/physical oceanography/MINERALS MANAGEMENT SERVICE.

3449. Matrai P. Particulate organic sulfur in the Southern California Bight. Anonymous. AGU 1988 ocean sciences meeting. *Eos, -Transactions, -American-Geophysical-Union.* 1987;68(50):p.1772 *Scripps Inst. Oceanogr., La Jolla, CA, United-States American Geophysical Union; 1988 ocean sciences meeting, New Orleans, LA, Jan. 18-22, 1988 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).* California/geochemistry/sea water/Pacific Ocean/sulfur/Pacific Coast/Western U.S./United States/Southern California/Southern California Bight/North American Pacific/organic materials/organic sulfur/particulate materials/GEOREF.

3450. Reed DC, Laur DR, Ebeling AW. Variation in algal dispersal and recruitment: The role of episodic events. *Ecol. Monogr.* 1988;58:321-335 J. dispersal/recruitment/algae/Santa Barbara Channel/marine biology/ecology/botany/phycology.

3451. Alldredge AL. Mass flocculation and settlement of diatoms; significant source of marine snow?. Anonymous. AGU 1988 ocean sciences meeting. *Eos, -Transactions, -American-Geophysical-Union.* 1987;68(50):p.1759 *Univ. Calif., Dep. Biol. Sci., Santa Barbara, CA, United-States American Geophysical Union; 1988 ocean sciences meeting, New Orleans, LA, Jan. 18-22, 1988 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).* Pacific Ocean/oceanography/sedimentation/flocculation/diatom flora/bioclastic sedimentation/marine sedimentation/ecology/North American Pacific/California/Pacific Coast/Western U.S./United States/Southern California Bight/GEOREF.

3452. Reible DD. Investigations of transport in complex atmospheric flow systems: I. small scale studies of diffusion through porous media, impact of fumehood exhaust reentry on indoor air quality, and pollutant transport near an isolated island. II.

pollutant transport in mountain-valley and coastal regions of California. [dissertation] California, USA: California Institute of Technology; 1982. 371.

A variety of gaseous transport problems were investigated through the use of a sensitive tracer technique employing sulfur hexafluoride. Sulfur hexafluoride is an inert, non-toxic gas that can be detected at concentrations as low as 1 part in a trillion by electron capture gas chromatography. An experimental means of estimating gaseous diffusivities in porous media was developed and employed to compare diffusivities in dry and moist soils. Tracer techniques were also employed to analyze the infiltration of building exhaust air (e.g. from a laboratory fumehood) back into the building. The primary objective of the research program, however, was the development of a better understanding of the mechanisms by which pollutants are transported in large mountain-valley or coastal air basins. Mountain-valley and coastal environments both exhibit diurnal wind reversals due to differential heating between the land and sea surface or between the surfaces of higher elevation and those below. Studies in the Central Valley and the Santa Barbara Channel areas of California indicated that extensive lateral mixing and pollutant carryover into days subsequent to their release can result from the diurnal wind reversals. Diurnal wind reversals also resulted in tracer and/or pollutant plume bifurcation due to significant wind directional shear with altitude. Temporal and spatial variations in the surface layer mixing height resulted in significant interaction with the air aloft. A model was developed to illustrate the implications of significant interaction between the surface layer and the air aloft. In addition to elucidating the basic behavior of pollutants in a mountain-valley or coastal environment, the tracer experiments provided a detailed view of the pollutant transport into, within, and out of the regions studied. These regions included the San Joaquin and Sacramento Valley's of California (the Central Valley), and the Santa Barbara Channel area, off the southern California coastline. In addition, the impact of the Central Valley on the Sierra Nevada slopes and the western Mojave Desert was analyzed.

gaseous transport/pollutant transport/air basins/wind reversals/
Santa Barbara Channel/air
quality/pollution/chemistry/engineering/chemical energy.

3453. Smith CR, DeMaster DJ. Heterogeneous modes and rates of bioturbation at a single site at the deep sea floor. Anonymous. AGU 1988 ocean sciences meeting. Eos, -Transactions, -American-Geophysical-Union. 1987;68(50):p.1749 Univ. Wash., Sch. Oceanogr., Seattle, WA, United-States; N.C. State Univ., United-States American Geophysical Union; 1988 ocean sciences meeting, New Orleans, LA, Jan. 18-22, 1988 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).

Pacific Ocean/oceanography/sedimentation/North American Pacific/Santa Catalina Basin/deep sea sedimentation/bioturbation/biogenic structures/sedimentary structures/sedimentation rates/radioactive tracers/isotopes/thorium/lead/Pb 210/Th 228/Th 234/marine sediments/GEOREF.

3454. Remsen WE, J. Geology of the San Nicolas Bank, southern California continental borderland [dissertation]. Northridge, CA: California State University; 1982. 135.

geophysical surveys/stratigraphy/oceanography/seismic surveys Cenozoic/marine geology/Vaqueros Formation/Rincon Formation

Monterey Formation/ocean floors/continental margin/Phanerozoic sedimentation/cyclic processes/marine sedimentation/clay mineralogy/areal studies/claystone/clastic rocks/unconformities faults/Saucesian/lower Miocene/Miocene/Neogene/Tertiary Relizian/Luisian/tectonic controls/sedimentary basins/siltstone/San Nicolas Bank/San Nicolas Island/marine geology/oceanography.

3455. Cusimano GL, Ku TL, Kusakabe M. Water column and pore water profiles of beryllium in the Southern California borderland. Anonymous. AGU 1988 ocean sciences meeting. Eos,-Transactions,-American-Geophysical-Union. 1987;68(50):p.1682
Univ. South. Calif., Dep. Geol. Sci., Los Angeles, CA, United-States American Geophysical Union; 1988 ocean sciences meeting, New Orleans, LA, Jan. 18-22, 1988 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).
Pacific Ocean/geochemistry/beryllium/Southern California/North American Pacific/sea water/pore water/marine sediments/geochemical profiles/GEOREF.

3456. Rentz DCF, Weissman DB. Faunal affinities, systematics, and bionomics of the Orthoptera of the California Channel Islands. Berkeley, California: University of California Press; 1981. 240.
Island fauna/Zoogeography/biogeography
Orthoptera/Insects/California Channel Islands/ terrestrial biology/entomology.

3457. Wooster WS, Jones JH. The California undercurrent off northern Baja California. J. Mar. Res. 1970;28(2):235-250.
Hickey/text/physical oceanography/MINERALS MANAGEMENT SERVICE.

3458. Word JQ, Mearns AJ, Allen MJ. Better control stations: The 60-meter survey. Annual Report 1977;:89-97.
Pacific Ocean East/California Coast/coastal waters/waste waters/marine pollution/monitoring methods/environmental impact/sollutant analysis/sediments/tissues/trawls/species diversity/sampling methods/surveys/fish/Invertebrata/benthic organisms/water
column/abundance/Southern California Bight/municipal wastewater discharges/control conditions/control stations/60-metersurvey/trawl samples/sediment chemistry samples/grab samples/algae/spermatophytes/Bray/anthropogenic/Anderson/MINERALS MANAGEMENT SERVICE.

3459. Schmidt H, Reimers CE. Trace metal accumulation in the Santa Barbara Basin. Anonymous. AGU 1988 ocean sciences meeting. Eos,-Transactions,-American-Geophysical-Union. 1987;68(50):p.1682
Scripps Inst. Oceanogr., La Jolla, CA, United-States American Geophysical Union; 1988 ocean sciences meeting, New Orleans, LA, Jan. 18-22, 1988 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).
Pacific Ocean/geochemistry/trace elements/Southern California/North American Pacific/sea water/trace metals/metals/marine sediments/pollution/GEOREF.

3460. Rentz DCF, Weissman DB. Faunal affinities, systematics, and bionomics of the Orthoptera of the California Channel Islands. Publ. Entomol., Univ. Calif. 1982;94:1-240
This monograph is the culmination of ten years of research on the Orthoptera of the California Channel Islands and adjacent coast of southern California between the Palos Verdes Peninsula and Point Conception. This is the first extensive

treatment of any insect group on these islands. The first section of this study deals with the species of Orthoptera on the eight islands, and the adjacent mainland sites of the Santa Monica Mountains, Point Conception, and the Palos Verdes Peninsula. Within each island or mainland study area all collection sites are described ecologically and the species occurring there are listed. For most Acrididae (grasshoppers), estimates of population density are given permitting comparison in future years.

zoogeography/biogeography/systematics/life history/new species/new subspecies Insecta Orthoptera/Acrididae/California Channel Islands/California coast from Palos Verdes peninsula to Point Conception/ terrestrial biology/entomology.

3461. Wyllie JG, Lynn RJ. Distribution of temperature and salinity at 10 meters (1960-1969) and mean temperature, salinity and oxygen at 150 meters (1950-1968) in the California current. Calif. Coop. Oceanic Fish. Invest. Atlas 1971;15:1-18. Hickey/physical oceanography/MINERALS MANAGEMENT SERVICE.

3462. Bachman SB, Crouch JK. Attitudes change about N. California basins. Oil and Gas Journal. 1987;85(50):p.55-58 Crouch, Bachman & Assoc., Santa Barbara, CA, United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present). California/economic geology/fuel resources/Monterey Formation/Pacific Coast/Western U.S./United States/exploration/Northern California/sedimentary basins/drilling/reservoir rocks/Eel River basin/Bodega Basin/Santa Cruz Basin/Point Arena Basin/GEOREF.

3463. Reveal JL. Notes on endangered buckwheats (Eriogonum: Polygonaceae) with three newly described from the Western USA. Brittonia 1981;33(3):441-448 Address: DEP. BOTANY, UNIV. MD., COLL. PARK, MD. 20742. Three unnamed buckwheats listed by the USA Fish and Wildlife Service in Dec. 1980 as potentially endangered or threatened plants as formally proposed: *E. crosbyae* sp. nov. from Lake County, Oregon; *E. grande* var. *dunklei* var. nov. from San Miguel Island, Santa Barbara County, California and *E. ovalifolium* var. *williamsiae* var. nov. from Washoe County, Nevada. Several other species proposed by the Fish and Wildlife Service as potentially endangered or threatened (*E. allenii*, *E. correllii*, *E. eremicum*, *E. floridanum*, *E. lemmonii*, *E. sp./sp. nov. ined. [= E. libertini]*, *E. tumulosum*, *E. umbellatum* var./var. nov. ined., *E. umbellatum* var. *minus*, *E. vestitum* and *E. zionis* var. *coccineum*) are discussed and evidence is given why they cannot be considered endangered or threatened under the present Endangered Species Act of 1973, as amended.

new species/new variety/endangered species/buckwheats/Polygonaceae/Eriogonum crosbyae sp. nov./Eriogonum grande var./dunklei var./nov./Eriogonum ovalifolium var./williamsiae var. nov./Lake County/Oregon/San Miguel Island/Washoe County/Nevada/terrestrial biology/botany.

3464. Williams PM. Chemistry of the dissolved and particulate phases in the water column. Lecture notes on coastal and estuarine studies. Plankton dynamics of the Southern California Bight 1986;15:53-83.

ecosystem interrelationships/text/chemical oceanography/bacterioplankton/assimilation/turnover/chlorophyll a/silicate/amino acid/phosphorus/carbon/atp/nitrogen/dissolved oxygen/metals/water/chemistry/southern california

bight/microbiology/hickey/physical
oceanography/hardy/phytoplankton/geesey/algae/marine
spermatophytes/bray/murray/MINERALS MANAGEMENT SERVICE.

3465. Reynolds S, Gorsline DS. Nicolas and Eel submarine fans, California Continental Borderland. Am. Assoc Pet. Geol. Bull. 1987;71(4):452-463 Address: Univ. Southern California, Dep. Geol. Sci., Los Angeles, CA 90089-0741. Nicolas and Eel submarine fans occur in the San Nicolas basin-an outer basin of the California Continental Borderland that has a low sedimentation rate. Nicolas Fan lies southeast of San Nicolas Island and the broad San Nicolas Bank. The upper fan is characterized by numerous channels. The midfan region may be divided into 3 distinct areas: a central midfan and 2 subfans. The central midfan depositional system is typical of Normark's suprafan. The subfans are essentially flat, sandy lobes. Eel Fan lies west of San Clemente Island and is fed by an erosional valley. Its midfan region may also be characterized as a flat, sandy lobe. Box-core data show that Holocene turbidity currents have occurred on the central Nicolas Fan, whereas the subfans and Eel Fan are nearly inactive. The local tectonic regime influences these fans by determining slope trends, creating bathymetric obstacles, controlling canyon location, and triggering mass movements. deep-sea fans/stratigraphy/sedimentation/turbidity currents/tectonics/geophysical surveys/seismic surveys/submarine fans/geophysical profiles/reflection/Pleistocene/Quaternary/Holocene/mass movements/San Nicolas basin/Nicolas Fan/Eel Fan/Santa Barbara Channel/stratigraphy/geology/.

3466. Crittenden R, Muhs DR. Cliff height and slope angle relationship in a chronosequence of Quaternary marine terraces, San Clemente Island, California. Zeitschrift fuer Geomorphologie. 1986;30(3):p.291-301 Univ. Wis., Madison, Dep. Geogr., Sci. Hall, Madison, WI 53706, United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present). California/geomorphology/shore features/marine terraces/geochronology/Quaternary/cliffs/altitude/slopes/angular unconformities/chronostratigraphy/age/corals/mollusks/absolute age/uranium/Channel Islands/San Clemente Island/+ geochronology/+ dates/+ geochemistry/Pacific Coast/Western U.S./United States/GEOREF.

3467. Rhodes RJ, Smith TJ, Taylor FS. Status of geothermal aquaculture in the United States. J. Shellfish Res. 1984;4(1):99 Address: South Carolina Div. Mar. Resour., Charleston, SC 29412. Conference: Annu. Meet. National Shellfisheries Association Hilton Head Island, SC (USA) 6 Jun 1983. Identified low-temperature (< 90 degree C) geothermal systems in the United States contain an estimated beneficial heat of 36.9×10^{15} J. These systems are separated into conduction-dominated systems and hydrothermal convection systems. Substantial research has been conducted on the utilization of thermal effluents from power generating stations for aquaculture however, only limited information is available on efforts to develop extensive geothermal water resources for aquatic food production in the U.S. There are several firms in the Western states using geothermal well water to commercially produce the channel catfish *Ictalurus punctatus*. Additionally, some private research and development projects are examining the application of geothermal water for the culture of various warm water species including Tilapia and ornamental species. The freshwater prawn *Macrobrachium rosenbergii* is a target species for a number of geothermal aquaculture research and

development projects in California, Nevada, South Carolina, and Texas. Current geothermal aquaculture technology involves the direct use of hydrothermal well water as a culturing medium. Water temperatures are usually < 55 degree C. The use of geothermal water by aquaculture firms offers a number of advantages. Indigenous and nonindigenous species, and development of local specialty markets. thermal aquaculture/aquaculture systems/aquaculture development/fish culture/prawn culture channel catfish/Ictalurus punctatus/Tilapia/freshwater prawn/Macrobrachium rosenbergii/California/USA/marine biology/aquaculture/resource management.

3468. Young DR. Mercury in the environment: A summary of information pertinent to the distribution of mercury in the Southern California Bight. South. Calif. Coastal Water Res. Proj., Los Angeles, CA 1971;:37.
sediments/mercury/california/marine organisms/southern california bight/anthropogenic/anderson/MINERALS MANAGEMENT SERVICE.

3469. Young DR. Cadmium and mercury in the Southern California Bight, summary of findings, 1971 to 1973. 1974;:16.
anthropogenic/chemical oceanography/MINERALS MANAGEMENT SERVICE.

3470. Young DR. Chlorinated hydrocarbon contaminants in the Southern California Bight and New York Bight USA. Ecological Stress and the New York Bight: Science and Management; Proceedings of a Symposium on the Ecological Effects of Environmental Stress, New York, NY (USA), June 10-15, 1979 1982;:263-276. marine organism/poly chlorinated/bi phenyl/ddt/sewage/toxicology/anthropogenic/MINERALS MANAGEMENT SERVICE.

3471. Young DR. A comparative study of trace metal contamination in the Southern California Bight and New York Bight USA. Ecological Stress in the New York Bight: Science and Management; Proceedings of a Symposium on the Ecological Effects of Environmental Stress, New York, NY (USA), June 10-15, 1979 1982;:249-262.
invertebrate/fish/sewage/metal/pollution/anderson/anthropogenic/toxicology/egan house/chemical oceanography/MINERALS MANAGEMENT SERVICE.

3472. Savrda CE, Bottjer DJ. Trace fossils as indicators of bottom water redox conditions in ancient marine environments. Bottjer, David J., Droser, Mary L., Savrda, Charles E. New concepts in the use of biogenic sedimentary structures for paleoenvironmental interpretation; volume and guidebook. Univ. South. Calif., Los Angeles, CA, United-States. Field-Trip-Guidebook-Pacific-Section,-Society-of-Economic-Paleontologists-and-M ineralogists. 1987;52:p.3-26 Auburn Univ., Dep. Geol., Auburn, AL, United-States; Univ. South. Calif., Los Angeles, CA, United-States; Auburn Univ., United-States; Univ. South. Calif., United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present). California/sedimentary petrology/sedimentary structures/biogenic structures/environmental analysis/sedimentary rocks/marine environment/Pacific Coast/Western U.S./United States/Eh/Chondrites ichnofossils/Planolites/ichnofossils/Thalassinoides/aerobic environment/Santa Monica Basin/San Pedro Basin/Santa Barbara Basin/lebensspuren/bioturbation/anaerobic environment/burrows/oxygenation/field trips/guidebook/GEOREF.

3473. Richardson SL. Pelagic eggs and larvae of the deepsea

sole, *Embassichthys bathybius* (Pisces: Pleuronectidae), with comments on generic affinities. Fish. Bull. 1981;79(1):163-170
Address: Gulf Coast Res. Lab., Ocean Springs, MS 39564, USA. The deepsea sole, *Embassichthys bathybius* (Gilbert), occurs in the northeast Pacific Ocean from Santa Catalina Island, southern California, to Pratt Seamount, Gulf of Alaska, in depths from 320 to 1,432 m. It grows to 47 cm and is reportedly uncommon. Life history data are minimal and nothing is known about its reproduction or early life. Pelagic eggs and larvae of this species are described here for the first time based on collections taken off the Oregon coast. Knowledge of these early stages provides some insight into reproductive strategy as well as information on larval morphology which may be useful for examining systematic relationships.

fish larvae/taxonomy/morphology (organisms)/sexual reproduction/fish eggs *Embassichthys bathybius*/deepsea sole/Santa Catalina Island/southern California/Pratt Seamount/Gulf of Alaska/Oregon coast/marine biology.

3474. Dunham JBL, Blake GHL. Guide to coastal outcrops of the Monterey formations of western Santa Barbara County, California. Field Trip Guidebook Pacific Section, Society of Economic Paleontologists and Mineralogists. ; 1987. 53. Unocal, Brea, CA, United-States Monographic; Serial Field trip held June 11-12, 1987; prepared for 1987 annual convention of the Natl. AAPG, Los Angeles, June 7-10, 1987. B; Bibliography and Index of Geology (1969-present). California/stratigraphy/Miocene/foraminifers/biostratigraphy/Santa Barbara/Monterey Formation/Pacific Coast/Western U.S./United States/Santa Barbara County/Neogene/Tertiary/outcrops/field trips/guidebook/Southern California/Point Conception/Santa Barbara Basin/Santa Maria Basin/Pismo Basin/SEM data/petrography/shale/clastic rocks/mudstone/chert/chemically precipitated rocks/dolostone/carbonate rocks/Lions Head/lithostratigraphy/correlation/Sisquoc Formation/sandstone/microfossils/laminations/planar bedding structures/sedimentary structures/GEOREF.

3475. Ridgway SH, Robison CC. Homing by released captive California sea lions, *Zalophus californianus*, following release on distant islands. Can. J. Zool. 1985;63(9):2162-2164
Address: Biosci. Div., Nav. Ocean Syst. Cent., San Diego, CA 92152. Captive male California sea lions were twice flown to offshore breeding islands and released. Three animals returned to their pen in San Diego Bay after discharge on San Clemente Island, about 115 km away. Two of four returned to the same facility from San Nicolas Island, about 240 km away. The fastest sea lion returned in 2 days from San Clemente and in 4 days from San Nicolas. This is the first evidence for such specific east--west navigation by sea lions and suggests that these animals are good navigators.
homing behavior/navigation behavior/animal navigation marine mammals/California sea lions/*Zalophus californianus*/San Nicolas Island/San Clemente Island/San Diego/marine biology/mammalogy.

3476. Young DR, Heesen TC, McDermott DJ. Synoptic survey of chlorinated hydrocarbon inputs to the Southern California Bight.: Appendices. Final report Oct 72-May 76. 1981;II:190.
chlorohydrocarbons/southern california bight/water pollution/industrial wastes/antifouling coatings/harbors/surface water runoff/fallout/ocean currents/harbors/sea water/bacteria/dispersing/sediments/algae spermatophytes/Bray/MINERALS MANAGEMENT SERVICE.

3477. Young DR, Jan TK, Heesen TC. Cycling of trace metal and chlorinated hydrocarbon wastes in the Southern California Bight. Estuarine Interactions. Fourth Biannual Estuarine Research Conference, Mt. Pocono, PA (USA), Oct. 2-5, 1977. 1978;:481-496. mussel/invertebrate/fish/municipal waste discharge/aerial fallout/paints/primers/corrosion preventing anodes/ddt/poly chlorinated/bi phenyl/anthropogenic/anderson/anthropogenic/Anderson/marine organisms/PCB compounds/contamination/estuaries/halogenated pesticides/US west coast/trace elements/metals/California coast/hydrocarbons/chlorine compounds/algae and spermatophytes/Bray/geochemistry chemical/oceanography/metals/pollution/trace elements/hydrocarbons/organic materials/MINERALS MANAGEMENT SERVICE.

3478. Lange CB, Berger WH, Burke SK, Casey RE, Schimmelmann A, Soutar A, Weinheimer AL. El Nino in Santa Barbara Basin; diatom, radiolarian and foraminiferan responses to the '1983 El Nino' event. Marine Geology. 1987;78(1-2):p.153-160 Scripps Inst. Oceanogr., La Jolla, CA, United-States; Univ. San Diego, United-States Analytic; Serial Letter. B; Bibliography and Index of Geology (1969-present). California/oceanography/continental margin/Pacific Ocean/sediments/algal flora/diatom flora/Holocene/radiolarians/ecology/marine environment/foraminifers/changes/Pacific Coast/Western U.S./United States/Southern California/Santa Barbara Basin/North American Pacific/microfossils/El Nino event 1983/nutrients/environmental analysis/marine sediments/Quaternary/GEOREF.

3479. Young DR, McDermott DJ, Heesen TC. Polychlorinated biphenyl inputs to the Southern California Bight. Tech. Mem. 224, South. Calif. Coastal Water Res. Proj. 1975;:50. text/chemical oceanography/MINERALS MANAGEMENT SERVICE.

3480. Horvitz L. A geochemical survey in the Santa Barbara Channel and its relationship to subsurface heavy oil deposits. Meyer, Richard F. Exploration for heavy crude oil and natural bitumen. U. S. Geol. Surv., Tulsa, OK, United-States. AAPG-Studies-in-Geology. Sponsored in coop. with U.N. Inst. Train. and Res./U.N. Dev. Programme Inf. Cent. Heavy Crude and Tar Sands 1987;25:p.365-375 Horvitz Res. Lab., Houston, TX, United-States; U. S. Geol. Surv., Tulsa, OK, United-States Exploration for heavy crude oil and natural bitumen, Santa Maria, CA, Oct. 29-Nov. 2, 1984 Analytic; Serial; Conference publication B; Bibliography and Index of Geology (1969-present). carbon/isotopes/C 13/C 12/California/economic geology/fuel resources/geochemistry/surveys/Monterey Formation/Santa Barbara Channel/Pacific Coast/Western U.S./United States/heavy oil/oil and gas fields/Hondo Field/Pescado Field/Sacate Field/middle Miocene/Miocene/Neogene/Tertiary/hydrocarbons/organic materials/C 13/stable isotopes/geochemical methods/GEOREF.

3481. Rintoul B. New sales may awaken U.S. West coast. Offshore 1978;38(7):116, 118, 120, 124, 126 Address: Offshore Mag., 1200 South Post Rd., Houston TX 77056, USA. Offshore oil plays a significant role in the production picture in California and Alaska. In both states, operators hope to enhance the offshore contribution. In California, companies are moving to bring on stream new sources of oil in San Pedro Bay and the Santa Barbara Channel and to increase production from existing

wells in the Channel. In Alaska, wildcatters are at the starting post with a campaign which is expected to prove up important reserves in Lower Cook Inlet. Three lease sales are tentatively scheduled, including two for the Outer Continental Shelf waters off California and one for state and federal waters in Alaska's Beaufort Sea.

leases/oil exploration/gas exploration/San Pedro Bay/Santa Barbara Channel/Alaska/Lower Cook Inlet/Beaufort Sea/petroleum/.

3482. Rintoul B. Worldwide drilling and production: United States West Coast. Offshore 1978;38(7):116-126

Address: Offshore, 1200 S. Post Oak Rd., Suite 106, Houston, TX 77056. Offshore California in the San Pedro Bay, Shell was in the permitting process with plans to position a 2-platform complex, including a drilling platform with slots for more wells, and a production platform. Production was set to begin in 1980 at a rate of 20,000-25,000 BPD. Pipelines were planned between the platforms and to shore. Partners in the 50% owned Shell project included Occidental and Aminoil. In the Santa Barbara channel, Exxon planned to begin production of 25,000-30,000 BPD from the Hondo Field before the end of 1978. A tanker was being converted to process and store crude offshore. Unless an agreement is reached to pipe gas ashore, it will be reinjected. Depending on subsequent tests, Exxon could begin construction of new platforms or subsea systems to develop the Pescado and Sacate offshore fields by 1980. Estimated reserves for the 3 fields is 1 billion bbl. In other developments, Chevron planned to install a platform with slots for 48 wells 12 mi SW of Ventura; production was expected to increase from various outlying fields; Texaco announced a gas discovery in the Pitas Point Unit of the Santa Barbara Channel; and no discoveries were made in San Pedro Bay (aside from Shell's well), Tanner Bank, or the Santa. Rosa Island and Santa Barbara Island sectors. Exploratory drilling, platform drilling, offshore production statistics, and offshore lease sales are also cited. The Prudhoe Bay Field production reached 200 million bbl in Apr. 1978.

Offshore construction/Offshore drilling/Offshore exploitation/Offshore exploration/Offshore leases/Offshore operations/Offshore wells/Offshore structures/Petroleum industry/Oil and gas operations/Fixed platforms/Shell/Exxon/Pescado Field/Sacate Field/Chevron/Texaco/California Coast/San Pedro Bay/Santa Barbara Channel/Tanner Bank/Santa Rosa Island/Prudhoe Bay/Alaska Coast/petroleum.

3483. Willingham CR, Hamilton DH. The nature of the Hosgri fault zone; Part I, Structure and extent. Anonymous. Geological Society of America, 83rd annual meeting, Cordilleran Section. Abstracts-with-Programs-Geological-Society-of-America. 1987;19(6):p.464 Earth Sci. Assoc., Palo Alto, CA, United-States Geological Society of America, 83rd annual meeting, Cordilleran Section; with the Paleontological Society of America, Pacific Coast Section, Hilo, HI, May 20-22, 1987 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).

California/structural geology/faults/Santa Barbara/Hosgri fault zone/San Gregorio Fault/San Simeon fault zone/Santa Barbara Channel/right lateral faults/common depth point method/Pacific Coast/Western U.S./United States/thrust faults/seismic surveys/geophysical surveys/displacements/Point Arguello/Point Conception/Santa Barbara County/GEOREF.

3484. Rintoul B. West Coast production hits red tape.

Offshore 1979;39(7):132-142

Off California, offshore oil accounts for 15.3% of the state's present production, or 149,000 BPD out of the state's total of 976,000 BPD. In Alaska, offshore oil accounts for 8.5% of the state's present production of 1,344,000 BPD. In San Pedro Bay, California, Shell Oil Co. plans to position a 2-platform complex to begin development of a giant oil field which lies 9 mi offshore from Huntington Beach. The Beta field is estimated to contain producible reserves of 150 million bbl. In the Santa Barbara Channel, Exxon Co. and Chevron are bringing oil fields on stream. Exxon began development in Hondo Offshore field from Petroleum Hondo in 1977 and is drilling its eighth well in 850 ft of water, 5.5 mi offshore. Exxon hopes to produce 1,000 BPD of oil from its 28 planned wells in the Hondo field. Pacific Offshore Pipeline Co. plans to purchase natural gas from Exxon's Hondo field. Development of the Beta field, protest to the Beta field development, EPA protests with Exxon's development in Hondo field, platform installation, upcoming sales, and operational safety are discussed. Offshore production/Oil and gas/Gas fields/Offshore operations/Exxon/Shell Oil Co/oil fields/California Coast/San Pedro Bay/Huntington Beach/Alaska Coast/Santa Barbara Channel/petroleum.

3485. Steritz JW, Luyendyk BP. Hosgri fault zone, offshore Santa Maria Basin, California. Anonymous. Geological Society of America, Cordilleran Section, 83rd annual meeting. Abstracts-with-Programs-Geological-Society-of-America. 1987;19(6):p.454 Univ. Calif., Dep. Geol. Sci., Santa Barbara, CA, United-States Geological Society of America, Cordilleran Section, 83rd annual meeting; with the Paleontological Society of America, Pacific Coast Section, Hilo, HI, May 20-22, 1987 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). California/structural geology/faults/Santa Barbara/Hosgri fault zone/Central California/Pacific Coast/Western U.S./United States/Transverse Ranges/upper Miocene/Miocene/Neogene/Tertiary/offshore/Point Sal/Point Conception/Santa Barbara Channel/right lateral faults/displacements/Santa Barbara County/GEOREF.

3486. Rintoul B. California is hopeful for oil increase. Offshore 1980;40(7):112-116 California in 1979 was characterized by 5 active rigs, 9 multi-well production platforms, 120 wells drilled, and a daily average offshore crude production of 114,600 bopd. California's offshore production has been declining, but 2 significant developments could result in increased output in the future. Exxon has cleared a key obstacle in the path toward producing Hondo Offshore field in the Santa Barbara Channel. Also, there is an increase in the platform population which represents the capability for production increase. Though production was declining, offshore oil still accounted for 15% of California's daily production. Other items detailed include pollution control, Beta Field development, and platform installation. Petroleum industry/Offshore production/Offshore drilling/Offshore wells/Offshore structures/Platforms/Exxon/Hondo Offshore field/Beta Field/Santa Barbara Channel/petroleum/pollution/.

3487. Guthrie DA. Quaternary rodents from San Miguel Island, California. Krause, David W., Rose, Kenneth D. Abstracts of papers; Forty-seventh annual meeting, Society of Vertebrate Paleontology. Journal-of-Vertebrate-Paleontology. 1987;7(3 Suppl.):p.17 Claremont McKenna Coll., Sci. Dep., Claremont, CA, United-States Society of Vertebrate Paleontology, Forty-seventh annual meeting,

Tucson, AZ, Oct. 22-24, 1987 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).

California/paleontology/Mammalia/Pacific Coast/Western U.S./United States/San Miguel Island/Quaternary/Rodentia/Northern Channel Island/Peromyscus maniculatus/GEOREF.

3488. Risotto SP, Rudolph RW. Pacific summary report/index, November 1984-May 1986; outer continental shelf oil and gas activities in the Pacific and their onshore impacts. : U. S. Miner. Manage. Serv., Offshore Inf. and Publ., Vienna, VA. MMS 86-0060; 1986. 115.

Prep. for: Outer Continental Shelf Oil and Gas Inf. Program Contract no. 14-12-0001-30042. Address: Rogers, Golden, & Halpern, Reston, VA, USA. fuel resources/impact statements/continental shelf/petroleum/natural gas/Santa Maria Basin/Santa Barbara Channel/Point Arena Basin/engineering/environmental geology/economic geology/petroleum.

3489. Robison BH. Reconnaissance survey of Santa Cruz Island. : California State Water Resources Control Board, Water Quality Monitoring Report 79-8; 1978. 109. Conducted terrestrial, subtidal and aerial surveys of Santa Cruz Island for state program on areas of special biological significance. site surveys/Santa Cruz Island/terrestrial biology/marine biology.

3490. Zweifel JR. Collecting and processing data on fish eggs and larvae in the California Current region. Natl. Marine Fish. Serv., Tech. Rep. CIRC-370 1972;:42. plankton samplers/fish eggs/data acquisition/data processing/fish larvae/california current/zooplankton/Pieper/MINERALS MANAGEMENT SERVICE.

3491. Robison BH. Reconnaissance survey of Anacapa Island. : California State Water Resources Control Board, Water Quality Monitoring Report 79-7; 1979. 39. Conducted terrestrial, subtidal and aerial surveys of Anacapa Island for state program on areas of special biological significance. site surveys/Anacapa Island/marine biology/terrestrial biology.

3492. Robison BH. Midwater biological research with the WASP ADS. Mar. Technol. Soc. J. 1983;17(3):21-27 Address: Mar. Sci. Inst., Univ. California, Santa Barbara, CA, USA. In the late summer of 1982, a pilot project was conducted in the Santa Barbara Channel to test the feasibility of using the WASP Atmospheric Diving Suit for biological research in midwater. The pilot project had two primary goals: to test the WASP's potential as a tool for oceanographic research, and to see if the kinds of information we are lacking can be obtained through in situ research. The results of the pilot project clearly demonstrate that: (1) the use of small, ADS submersibles like WASP is a practical means for providing researchers with direct access to the midwater environment; and (2) there are many, highly significant aspects of midwater biology that can now be studied using in situ methods. diving suits/performance assessment/biological surveys/environmental surveys/diving surveys/WASP/diving surveys/Santa Barbara Channel/marine technology/engineering/marine biology.

3493. Robison BH. Midwater biological research with the WASP ADS. Mar. Tech. Soc. Jour. 1983;17:21-27

Used one-person subs to study the ecology of the mesopelagic community of the Santa Barbara Basin, at depths between the surface and 600 m. midwater/research/submersibles/mesopelagic ecology/Santa Barbara Basin/marine biology.

3494. Cushing J, Wenner AM, Noble E, Daily M. A groundwater hypothesis of the origin of 'fire areas' on the northern Channel Islands, California. Quaternary Research (New York). 1986;26(2):p.207-217
Univ. Calif., Dep. Biol. Sci., Santa Barbara, CA, United-States; Santa Barbara Mus. Nat. Hist., United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present).
California/stratigraphy/Pleistocene/clay mineralogy/areal studies/iron/geochemistry/bones/manganese/Mammalia/Elephantoidea/Pacific Coast/Western U.S./United States/Channel Islands/Quaternary/fire areas/ground water/X ray data/smectite/clay minerals/sheet
silicates/silicates/illite/carbonization/C 14/Santa Rosa Island/Santa Cruz Island/magnetic properties/wood/Mammuthus/Elephantidae/Proboscidea/color/tusks/GEOREF.

3495. Robison BH, Cox JL. Reconnaissance survey of San Miguel Island. ; 1981. 102.
Conducted terrestrial, subtidal, and aerial surveys of San Miguel Island for state program on areas of special biological significance.
site surveys/San Miguel Island/marine biology/terrestrial biology.

3496. Berelson WM, Hammond DE, Johnson KS. Benthic fluxes and the cycling of biogenic silica and carbon in two Southern California borderland basins. Geochimica et Cosmochimica Acta. 1987;51(6):p.1345-1363
Univ. South Calif., Dep. Geol. Sci., Los Angeles, CA, United-States; Univ. Calif., United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present).
California/oceanography/continental margin/Pacific Ocean/geochemistry/carbon/sediments/marine sediments/pore water/sea water/processes/diffusion/organic materials/sedimentation/biochemical sedimentation/silicon/geochemical cycle/Pacific Coast/Western U.S./United States/Southern California/continental borderland/North American Pacific/biogenic effects/silica/sediment water interface/San Pedro Basin/San Nicolas Basin/organic carbon/solution/diagenesis/GEOREF.

3497. Robles C. Predator foraging characteristics and prey population structure on a sheltered shore. Ecology 1987;68(5):1502-1514 Address: Biol. Dep., California State Univ., Los Angeles, CA 90032. The author investigated predation on mussels occurring at upper levels of a sheltered rocky shore on Santa Catalina Island, USA. Despite continuous recruitment, the mussels *Mytilus californianus*, *M. edulis*, and *Septifer bifurcatus* seldom survived to lengths > 1.5 cm, and they remained inconspicuous beneath a canopy of perennial algae. Surveys using scuba at high tide and gut-content analyses showed that intertidal mussels were preyed upon by whelks (*Ceratostoma nuttali* and *Maxwellia gemma*), diurnal fishes (*Halichoeres semisinctus* and *Semicossyphus pulcher*), and nocturnal spiny lobsters (*Panulirus interruptus*). Whelks and fishes foraged primarily on mid to low shore levels, the lower half of the mussels' vertical range.
predation/ecological zonation/recruitment/*Mytilus californianus*/*Mytilus edulis*/*Septifer bifurcatus*/*Ceratostoma*

nuttali/Maxwellia gemma/Halichoeres semisinctus/Semicossyphus pulcher/Panulirus interruptus/Santa Catalina Island/marine biology/ecology.

3498. Cummings D, Johnson TA, Gaal RA. Shallow structural geology, offshore Santa Maria River to Point Arguello, Central California. Anonymous. Geological Society of America, Cordilleran Section, 83rd annual meeting with the Paleontological Society of America, Pacific Coast Section. Abstracts-with-Programs-Geological-Society-of-America. 1987;19(6):p.369 Leighton and Assoc., Irvine, CA, United-States; Calif. State Lands Comm., United-States Geological Society of America, Cordilleran Section, 83rd annual meeting with the Paleontological Society of America, Pacific Coast Section, Hilo, HI, May 20-22, 1987 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). California/structural geology/tectonics/Santa Barbara County/Santa Maria River/offshore/Central California/Pacific Coast/Western U.S./United States/Point Arguello/Hosgri fault zone/faults/Lompoc Solvang Fault/Santa Ynez River Fault/Lions Head Fault/folds/focal mechanism/earthquakes/Santa Barbara Channel/Monterey/San Andreas Fault/GEOREF.

3499. Rosenthal J, Savant C. Pacific Missile Test Center energy projects. Summary of projects, contributions, and plans. : Pacific Missile Test Center, Point Mugu, CA. PMTC-TP-80-14; 1980. 52. This report is a compilation of the projects undertaken at the Pacific Missile Test Center to conserve energy, develop and apply alternative energy sources, and develop, in the 1980s, basic capability (BACADE) projects for applying energy-saving technology to the needs of the Pacific Missile Test Center. Energy conservation/Test facilities/Naval shore facilities/Photovoltaic effect/Solar collectors/Turbines/Wind machines/Heat recovery/California Channel Islands/geology/Energy Conversion.

3500. Kolpack RL. Sedimentology of the mainland nearshore region of Santa Barbara Channel, California. Knight, R. John, McLean, J. Ross. Shelf sands and sandstones. Petro-Can., Calgary, AB, Canada. Memoir-Canadian-Society-of-Petroleum-Geologists. 1986;11:p.57-72 Mar. Processes Res., West Covina, CA, United-States; Petro-Can., Calgary, AB, Canada; Shell Can., Canada Shelf sands and sandstones, Calgary, AB, Jun. 15-17, 1984 Analytic; Serial; Conference publication B; Bibliography and Index of Geology (1969-present). California/oceanography/continental shelf/sedimentation/transport/littoral drift/Santa Barbara Channel/Pacific Coast/Western U.S./United States/Point Conception/nearshore environment/Holocene/Quaternary/sand/clastic sediments/silt/clay/Ventura/bathymetry/grain size/physical properties/GEOREF.

3501. Rossi SS, Rommel GW, Benson AA. Hydrocarbons in sand crabs (Emerita analoga) from southern California (U.S.A.). Chemosphere: Chemistry, Physics, and Biology as Focused on Environmental Problems 1978;7(2):131-141 Address: SIO, Marine Biology Research Div., La Jolla, CA 92093. E. analoga (Crustacea: Hippidae) collected from 3 beaches-Dutch Harbor (San Nicolas Island), Corona del Mar, and Coil Oil Point-contained 0.9-24.1 lg/g dry wt saturated hydrocarbons, and 3.6-21.4 lg/g dry wt unsaturated hydrocarbons. Major constituents were (in wt % total): n-alkanes (13.1%), heneicosapentaene plus heneicosahexaene (1.0%), squalene

(5.1%), and unidentified polyenes (7.8%). Crabs from beaches exposed to small boat traffic (Corona del Mar) and natural oil seepage (Coal Oil Point) were slightly and severely tainted, respectively, with petroleum hydrocarbons. Crabs from presumably uncontaminated San Nicolas Island (85 km offshore) contained only biogenic compounds.

Hydrocarbons/Marine pollution/Petroleum/Chemical analysis/Environmental impact/Oil contamination/Hydrocarbons/small boat traffic/natural oil seepage/petroleum wastes/oil pollution/pollution surveys/residues/pollution levels/pollution monitoring/Arthropoda/Crustacea/Hippidae/Emerita analoga/sand crabs/Dutch Harbor/San Nicolas Island/Corona del Mar/Santa Barbara Channel/Coil Oil Point/marine biology/petroleum/water quality/pollution/resource management.

3502. Ogle BA, Wallis WS, Heck RG, Edwards EB. Petroleum geology of the Monterey Formation in the offshore Santa Maria/Santa Barbara areas. Ingersoll RV, Ernst WG. Cenozoic basin development of coastal California. ; 1987. 6. p. p. 382-406.

Ogle Pet., Santa Barbara, CA, United-States Prentice-Hall, Englewood Cliffs, NJ Rubey cColloquium on Cenozoic basin development of coastal California, Los Angeles, CA, Oct. 1984 Analytic; Book; Conference publication B; Bibliography and Index of Geology (1969-present).

California/economic geology/oil and gas fields/Monterey Formation/Miocene/Neogene/Tertiary/Pacific Coast/Western U.S./United States/Southern California/reserves/Santa Maria Basin/Santa Barbara Channel/phosphate rocks/chemically precipitated rocks/shale/clastic rocks/anticlines/folds/fractures/structural traps/traps/Point Arguello Field/Conception Field/Los Angeles Basin/production/exploration/evaluation/GEOREF.

3503. Roth VL. Dwarf mammoths from the Santa Barbara, California Channel Islands: size, shape, development, and evolution [dissertation]. : Yale University; 1982. 291.

This study is an analysis of the morphological changes accompanying dwarfism in *Mammuthus exilis*, a small mammoth from Pleistocene deposits of Santa Rosa Island, California. To establish a philosophical framework for the act of comparison, two methodological issues, homology and measurement, are examined first. Growth series of mammoths from island and mainland populations are then compared, in order to determine in what manner ancestral patterns of ontogeny have been altered during the evolutionary change of body size. Patterns of variation in size, shape and ontogenetic stage of dental and osteological specimens of living analogues, *Elephas maximus* and *Loxodonta africana*, provide a basis for inferences on the nature of heterochronic and allometric variation in the dwarf mammoths. Similarities in the patterns of ontogenetic variation in teeth of *L. africana*, *E. maximus*, *M. columbi* and *M. exilis* suggest homologous features in the developmental programs of these species, while differences in dental ontogeny can be correlated with differences in jaw morphology. Some variability (e.g. *L. africana* vs *E. maximus*) is heterochronic in nature, whereas some is fabrication. A study of morphological variation provides evidence that, in elephants, size and shape of the jaw can directly affect the morphology of the teeth. Some aspects of postcranial morphology in the dwarf mammoths may be related to a greater angulation of the limbs in these small forms. Growth (size increase), epiphyseal fusion and dental progression proceed on independent time scales in different individuals of *E. maximus*, and within a single elephant species, a wide variety of

shapes is expressed at any given size or ontogenetic stage. As a result, it is not generally possible to distinguish ontogenetic from geometric scaling in bivariate comparisons of measurements on long bones of *M. columbi*, *M. exilis*, *E. maximus*, and *E. falconeri*. Maternal effects and genetic assimilation of stunting may have been responsible for size reduction in the island mammoths.

dwarfism/morphological changes/ontogeny/Mammuthus exilis/dwarf mammoth/Santa Rosa Island/paleontology/biology.

3504. Garrison RE, Kastner M, Kolodny Y. Phosphorites and phosphatic rocks in the Monterey Formation and related Miocene units, coastal California. Ingersoll RV, Ernst WG. Cenozoic basin development of coastal California. 6. ; 1987. p. p.348-381. Univ. Calif., Earth Sci. Board, Santa Cruz, CA, United-States; Scripps Inst. Oceanogr., United-States; Hebrew Univ., Israel Prentice-Hall, Englewood Cliffs, NJ Rubey cColloquium on Cenozoic basin development of coastal California, Los Angeles, CA, Oct. 1984 Analytic; Book; Conference publication B; Bibliography and Index of Geology (1969-present).

California/stratigraphy/Miocene/sedimentary rocks/chemically precipitated rocks/phosphate rocks/sedimentation/environment/shelf environment/organic materials/geochemistry/Monterey Formation/Sisquoc Formation/Pacific Coast/Western U.S./United States/Neogene/Tertiary/marl/clastic rocks/laminations/planar bedding structures/sedimentary structures/organic carbon/distribution/Transverse Ranges/Coast Ranges/Salinas Basin/Cuyama Basin/Sespe Creek/Ventura Basin/Pismo Basin/Huasna Basin/Santa Maria Basin/Santa Barbara Basin/sedimentary basins/SEM data/concretions/secondary structures/turbidite/paleo oceanography/GEOREF.

3505. Rowland SM. Geology of Santa Catalina Island; a review. B.W. Pipkin. Geology of Santa Catalina Island and nearby basins. : SEPM; 1984. 1-27. Address: Univ. Nev., Dep. Geosci., Las Vegas, NV.

metamorphic rocks/igneous rocks/sedimentary rocks/Farallon Plate/plate tectonics/Mesozoic/Phanerozoic/Cenozoic/Catalina Schist/subduction zones/thrust faults/faults/Greenschist Thrust/Blueschist Thrust/Ollas Thrust/paleogeography/Catalina Pluton/San Onofre Breccia/Santa Catalina Island/areal geology.

3506. Lagoe MB. Middle Cenozoic basin development, Cuyama Basin, California. Ingersoll RV, Ernst WG. Cenozoic basin development of coastal California. 6. ; 1987. p. p. 172-206. Univ. Tex. at Austin, Dep. Geol. Sci., Austin, TX, United-States Prentice-Hall, Englewood Cliffs, NJ Rubey cColloquium on Cenozoic basin development of coastal California, Los Angeles, CA, Oct. 1984 Analytic; Book; Conference publication B; Bibliography and Index of Geology (1969-present).

California/structural geology/tectonics/stratigraphy/Cenozoic/paleogeography/foraminifers/biostratigraphy/sedimentation/environment/coastal environment/Vaqueros Formation/Monterey Formation/Santa Margarita Formation/Pacific Coast/Western U.S./United States/Cuyama Basin/subsidence/sedimentary basins/Oligocene/Paleogene/Tertiary/Miocene/Neogene/microfossils/Santa Maria Basin/Santa Barbara Basin/GEOREF.

3507. Rowland SM. Geology of Santa Catalina Island. E.M. Gath, M.M. Bottoms. Geology of Santa Catalina Island. : South Coast Geol. Soc.; 1985. 16-29. Address: Univ. Nev., Dep. Geosci., Las

Vegas, NV.

Catalina Schist/Franciscan Formation/San Onofre Breccia/guidebook/subduction zones/Farallon Plate/North American Plate/Mesozoic/Cenozoic/melange/blueschist/greenschist/amphibolites/serpentinite/volcanic rocks/limestone/landslides/marine terraces/alluvium/thrust faults/Santa Catalina Island/areal geology.

3508. Dickinson WR, Armin RA, Beckvar N, Goodlin TC, JanecKe SU, Mark RA, Norris RD, Radel G, Wortman AA. Geohistory analysis of rates of sediment accumulation and subsidence for selected California basins. Ingersoll RV, Ernst WG. Cenozoic basin development of coastal California. 6. ; 1987. p. p.1-23. Univ. Ariz., Dep. Geosci., Tucson, AZ, United-States Prentice-Hall, Englewood Cliffs, NJ Rubey cColloquium on Cenozoic basin development of coastal California, Los Angeles, CA, Oct. 1984 Analytic; Book; Conference publication B; Bibliography and Index of Geology (1969-present). California/stratigraphy/Tertiary/structural geology/tectonics/sedimentation/sedimentation rates/coastal environment/Great Valley Sequence/Pacific Coast/Western U.S./United States/subsidence/sedimentary basins/uplifts/Cuyama Basin/Caliente Range/Sacramento Valley/Ventura Basin/Gaviota Pass/Santa Barbara/Santa Cruz Basin/San Joaquin Valley/San Andreas Fault/GEOREF.

3509. Rowland SM. Geology of Santa Catalina Island. California Geology 1984;37(11):239-251 Address: Univ. Nev., Dep. Geosci., Las Vegas, NV. Santa Catalina Island is one of several exposed ridge crests in the California continental borderland geomorphic province. This province is a 250-km-wide region of NW-SE trending basins and ridges off the coast of S California and Baja California. The geology of the continental borderland is complex. Catalina Schist/Farallon-North American Subduction Zone/Franciscan Complex/graywacke/clastic rocks/greenstone/schists/structural geology/Miocene/Neogene/Tertiary/Cretaceous/Mesozoic/paleogeography/volcanic rocks/sedimentary rocks/stratigraphy/drest ridges/greenschist/glaucophane-lausonite facies/Santa Catalina Island/Southern California/Baja California/areal geology.

3510. Hauksson E. Constraints on the velocity structure of the crust in the Los Angeles Basin and the central Transverse Ranges, Southern California. AGU 1985 fall meeting. Eos,- Transactions,-American-Geophysical-Union. 1985;66(46):p.973 Univ. South. Calif., Dep. Geol. Sci., Los Angeles, CA, United-States AGU 1985 fall meeting, San Francisco, CA, Dec. 9-13, 1985 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). California/tectonophysics/crust/geophysical surveys/seismic surveys/Los Angeles Basin/Santa Catalina Island/Southern California/Pacific Coast/Western U.S./United States/velocity structure/elastic waves/Mohorovicic discontinuity/GEOREF.

3511. Russell AG, Cass GR, Seinfeld JH. On some aspects of nighttime atmospheric chemistry. Environ. Sci. Technol. 1986;20(11):1167-1172 Address: ENVIRON. QUALITY LAB., California INST. TECHNOL., PASADENA, CALIF. 91125. Nighttime atmospheric chemistry is simulated in two different situations: an offshore oceanic environment, the Santa Barbara Channel region of the south central cost of California [USA] and a dry environment, the Mojave Desert of California. In the marine case, conversion of NOx to peroxyacetyl nitrate (PAN) and HNO3 is

rapid; HNO₃ is formed by homogeneous hydrolysis of N₂O₅ and by nitrate radical reactions with organic gases, and the rate of HNO₃ production is limited by the abundance of O₃. Even in the desert case, predictions indicate that homogeneous hydrolysis of N₂O₅ dominates HNO₃ formation at night. The implications of recent studies concerning the unimolecular decomposition of NO₃ are discussed. nitrogen oxides/ peroxyacetyl nitrate/nitric acid/nitrogen pentoxide ozone/nitrate/air pollution/atmosphere/chemical analysis/nitrogen oxides/monitoring/Santa Barbara Channel/Mojave Desert chemistry/atmospheric chemistry/pollution.

3512. Russell BJ, Meltzer AS, Kieckhefer RM. Refraction surveys in Santa Cruz Basin and on Patton Ridge, California borderlands. AGU 1985 fall meeting. Eos, -Transactions, -American-Geophysical-Union. 1985;66(46):p.973 Chevron Oil Field Res. Co., La Habra, CA, United-States AGU 1985 fall meeting, San Francisco, CA, Dec. 9-13, 1985 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). California/tectonophysics/crust/geophysical surveys/seismic surveys/Patton Ridge/Santa Cruz Basin/Pacific Coast/Western U.S./United States/velocity structure/oceanic crust/Cenozoic/sedimentary cover/continental borderland/GEOREF.

3513. Rust RW. Synonymy in California Channel Island Epeolini bees (Hymenoptera: Anthophoridae). Pan-Pac. Entomol 1984;60(2):119-121 Address: Dep. Biol., Univ. Nevada, Reno, NV 89557.

A recent review of the endemic insect fauna of the California Channel Islands (Miller, 1984) indicated 16 taxa of bees (Apoidea). Earlier revisions of bee taxa containing California Channel Island endemics have shown that the island endemics are synonyms of mainland taxa: Anthidium Grigarick and Stange, 1968; Dioxys Hurd, 1958; Melissodes LaBerge, 1961; Andrena LeBerge and Ribble, 1975, Ribble, 1968; Bombus Milliron, 1971; Coelioxys Mitchell, 1973; Agapostemon Roberts, 1972; Osmia, Halictus Sandhouse, 1927, 1941; Hylaeus Snelling, 1970; and Colletes, Bombus Stephen, 1954, 1957. The author presents two additional synonyms of California Channel Island Epeolini bees in the genera Epeolus and Triepeolus . taxonomic revision/synonymy/endemic species/taxonomy Epeolini bees/Hymenoptera/Anthophoridae/Epeolus eastwoodae/Epeolus minimus/Epeolus piscatoris Cockerell 1939/Triepeolus heterurus/Cockerell and Sandhouse, 1924/Triepeolus/California Channel/terrestrial biology/entomology.

3514. Chang SK, Douglas RG. Translated title: Holocene turbidites of Santa Catalina Basin, California continental borderland. Jijirhag Hoiiji = Journal of the Geological Society of Korea. 1987;23(1):p.16-31 Korea Ocean Res. and Dev. Inst., Seoul, South-Korea; Univ. Calif., United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present). California/stratigraphy/Holocene/sediments/clastic sediments/turbidite/algal flora/biostratigraphy/foraminifers/sedimentation/environment/hemipelagic environment/Pacific Coast/Western U.S./United States/Quaternary/continental borderland/Santa Catalina Island/Santa Catalina Basin/microfossils/biogenic structures/sedimentary structures/Neogloboquadrina pachyderma/cores/GEOREF.

3515. Rust RW. Bees of Anacapa Island, California

(Hymenoptera: Apoidea). Menke AS, Miller DR. Entomology of the California Channel Islands: Proceedings of the first symposium. Santa Barbara, California: Santa Barbara Museum of Natural History; 1985. 117-119.

Address: Biol. Dep., Univ. Nevada, Reno NV 89557.

Twenty-eight species of bees in six families are known from Anacapa Island and none are endemic. Four species are parasitic on other bee species. bees/Hymenoptera/Apoidea/Anacapa Island/terrestrial biology/entomology.

3516. Boltovskoy D, Riedel WR. Polycystine radiolaria of the California current region; seasonal and geographic patterns. Marine Micropaleontology. 1987;12(1):p.65-104

Univ. Buenos Aires, Dep. Cien. Biol., Buenos Aires, Argentina;

Univ. Calif. at San Diego, United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present).

California/stratigraphy/Holocene/paleoclimatology/radiolarians/biostratigraphy/ Pacific Coast/Western U.S./United States/Quaternary/seasonal variations/SEM

data/Collosphaeridae/Actinommidae/Spongodiscidae/Coccodiscidae/Phacodiscidae/Py

loniidae/Litheliidae/Spyrida/Plagoniidae/Theoperidae/Carpocaniidae/Pterocoryidae/Artostrobiidae/Cannobotryidae/microfossils/GEOREF.

3517. Rust R, Menke A, Miller D. A biogeographic comparison of the bees, sphecid wasps, and mealybugs of the California Channel islands (Hymenoptera, Homoptera). Menke AS, Miller DR. Entomology of the California Channel Islands: proceedings of the first symposium. Santa Barbara, California, USA: Santa Barbara Museum of Natural History; 1985. 29-51.

Presented at: Symposium on Entomology of the California Channel Islands (at) Annual Meeting of the Entomological Society of America, San Diego, CA (USA), Dec 1981 Address: Dep. Biol., Univ. Nevada, Reno, NV 89557.

There are three main goals in this paper: 1) to describe the distribution patterns of three diverse groups of insects, 2) to compare these patterns and determine if there are general statements that apply to all three groups, and 3) to test the hypothesis that certain inter-island similarity relationships can be predicted based on Knowledge of geological and climatological history. Bees, sphecid wasps (Hymenoptera: Apoidea and Sphecidae) and mealybugs (Homoptera: Pseudococcidae) have different biologies and species dispersal patterns, and they have an array of life-history strategies. On the islands these insects display a diversity of distribution patterns from widespread taxa that occur on each island and on the mainland, to island endemics restricted to one or a few of the islands.

zoogeography/biogeography/dispersal patterns/life history strategies/endemic

species/Pseudococcidae/Apoidea/Sphecidae/bees/sphecid wasps/Hymenoptera Homoptera/California Channel Islands/terrestrial biology/entomology.

3518. Horvitz SA. Processing near surface hydrocarbon data to yield improved interpretations; a case study. Oil and Gas Journal. 1987;85(17):p.95-96, 98, 100

Tex. South. Univ., Houston, TX, United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present).

California/economic geology/fuel resources/Pacific Coast/Western U.S./United States/Santa Ynez Mountains/case studies/mathematical models/models/Santa Barbara Channel/reservoir rocks/oil water interface/statistical analysis/sampling/standard deviation/GEOREF.

3519. Sackinger PA, Reible DD, Shair FH. Uncertainties associated with estimation of mass balances and gaussian parameters from atmospheric tracer studies. J. Air Pollut. Control Assoc. 1982;32(7):720-724

Address: DEP. CHEMICAL ENGINEERING, LOUISIANA STATE UNIV.,. BATON ROUGE, LA. 70803.

Data resulting from 2 atmospheric tracer experiments in the land-sea breeze winds in Los Angeles, California [USA], were used to compare the observed and released amounts of tracer (a mass balance). The mass balance calculation indicated that essentially all of the tracer transported to sea during the land breeze was transported back across the shore during the subsequent sea breeze. A methodology for calculating a mass balance and the associated uncertainties was presented. The experimental and calculation procedures allowed mass balance estimates with less uncertainty than was present in individual measurements of concentration or mixing height. A methodology for calculating dispersion parameters for the Gaussian plume model from tracer data was discussed and applied to the results of 2 atmospheric tracer studies conducted during the afternoon sea breeze in the Santa Barbara Channel of California. The method involved the integral definitions of the statistical quantities. By considering only tracer concentrations > 10% of the maximum concentration and at sufficiently many data points, the uncertainty associated with the parameter estimation was less than the relative uncertainties in any individual data point. These studies were primarily designed to relate the uncertainties in estimates of mass balances and in estimations of Gaussian parameters to the uncertainties inherent within field data. air pollution model/wind/sea breeze/Santa Barbara Channel/Los Angeles/air pollution.

3520. Weinheimer AL, Carso TL, Wigley CR, Casey RE. Radiolarian responses to Holocene and Neogene California, El Nino and anti El Nino events. 2nd workshop on climate variability of the eastern North Pacific and western North America. ; 1985. p. p. 18. PACLIM 2nd workshop on climate variability of the eastern North Pacific and western North America, Pacific Grove, CA, May 19-23, 1985 Analytic; Book; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). radiolarians/biostratigraphy/Neogene/California/stratigraphy/Holocene/Pacific Ocean/paleoclimatology/Cenozoic/Pacific Coast/Western U.S./United States/El Nino/Tertiary/Quaternary/microfossils/Santa Barbara Basin/Monterey/North Pacific/GEOREF.

3521. Salzman AG. The selective importance of heat stress in gull nest location. Ecology 1982;63(3):742-751
Address: DEP. BIOL., UNIV. CHICAGO, CHICAGO, ILLINOIS 60637. A brief but intense heat wave on June 9, 1979 caused catastrophic chick mortality in a population of western gulls [*Larus occidentalis*] on Santa Barbara Island, California, USA. Mortality ranged from 0-90% in different areas of the colony. Mortality was not a function of the amount of vegetation cover available to chicks, nor did chick age or size affect the probability of mortality during the heat wave. In the absence of a heat wave, chick mortality due to heat stress is rare in this population. Microclimate analysis in 1980 showed that the area of high chick heat stress mortality in 1979 was characterized by higher ground and air temperatures and lower wind velocities than the area of low mortality. Taxidermic thin metal chick models had a higher integrated thermal load or operative environmental temperature, in the area of previous high mortality. The persistent nesting by gulls in areas of high potential chick mortality cannot be

explained by habitat shortage or by the competitive inferiority of those birds. Enhanced access to food resources may explain the persistence of 1 area, but not of several others. Analysis of long-term weather records for the southern Channel Islands region showed that heat waves during the breeding season are rare: of 9 possible heat waves in 62 yr of data, 5 have occurred since 1973. The present nesting distribution of gulls on the island has probably not evolved in a regime of frequent heat waves, but rather in response to a long period of highly equable climatic conditions. heat stress/nesting/heat wave/mortality/food resource/ground temperature/air temperature/climatic condition model/wind velocity/colonies/juveniles/biological stress/temperature effects/mortality causes/Charadriiformes/western gulls/Larus occidentalis/Santa Barbara Island/terrestrial biology/ornithology.

3522. Emery KO. Holocene temperature depth curves of the eastern North Pacific. 2nd workshop on climate variability of the eastern North Pacific and western North America. ; 1985. p. p.17. Woods Hole Oceanogr. Inst., Woods Hole, MA, United-States PACLIM 2nd workshop on climate variability of the eastern North Pacific and western North America, Pacific Grove, CA, May 19-23, 1985 Analytic; Book; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). paleoclimatology/Holocene/Pacific Ocean/stratigraphy/foraminifers/biostratigraphy/North Pacific/Quaternary/paleotemperature/microfossils/Santa Barbara Basin/Santa Rosa Cortes Ridge/GEOREF.

3523. Crain WE, Thurston SP. Geology and oil and gas exploration in California's offshore basins. Anonymous. AAPG fourth Circum-Pacific energy and mineral resources conference. AAPG-Bulletin. 1986;70(7):p.917-918 Chevron U.S.A., San Francisco, CA, United-States AAPG fourth Circum-Pacific energy and mineral resources conference, , Aug. 17-22, 1986 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). California/oceanography/continental shelf/economic geology/fuel resources/Monterey Formation/Sisquoc Formation/Pacific Coast/Western U.S./United States/pull apart basins/Neogene/Tertiary/clastic rocks/source rocks/reservoir rocks/petroleum/natural gas/offshore/Santa Barbara Basin/Los Angeles Basin/exploration/production/GEOREF.

3524. Santa Barbara County CDoE, Resources. Chevron USA proposed pipeline installation, Santa Barbara Channel. ; 1979. Two volumes, variously paginated. ((78-EIR-16)). Addresses: California, Santa Barbara County, Department of Environmental Resources, Santa Barbara, CA, USA; California Coastal Commission-2San Francisco, CA-3USA; U.S. Geological Survey-2Los Angeles, CA-3USA; U.S. Army Corps of Engineers-2Los Angeles, CA-3USA Note: Environmental impact report/environmental assessment. impact statements/pipelines/fuel resources/Santa Barbara Channel/engineering geology/environmental geology.

3525. Stapor FW, May JP. Sediment budgets at Santa Rosa Island and Perdido Key, Florida. The Geological Society of America, 98th annual meeting. Abstracts-with-Programs-Geological-Society-of-America. 1985;17(7):p.726 Exxon Prod. Res. Co., Houston, TX, United-States; The Citadel, United-States The Geological Society of America, 98th annual meeting, Orlando, FL, Oct. 28-31, 1985 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).

Florida/oceanography/sedimentation/data
processing/transport/littoral drift/Southeastern U.S./Eastern
U.S./United States/Perdido Key/Santa Rosa Island/sediment
budget/Florida Keys/Gulf Coastal Plain/North
America/simulation/Fort Walton Beach/East
Pass/erosion/history/Pensacola/GEOREF.

3526. Satterlie RA, Case JF. Development of bioluminescence and other effector responses in the pennatulid coelenterate *Renilla koellikeri*. *Biological Bulletin* 1979;157(3):506-523
Address: Univ. of Alberta, Dept. of Zoology, Edmonton, Alberta T6G 2E9, Canada. Development is followed in the octocoral (*R. koellikeri*) from the fertilized egg to the mature primary polyp during 3 reproductive seasons to describe the onset of effector form and function, and to reference 3 particular activities: ciliary swimming, muscular activities, and bioluminescence. Effector function observations aid in description of nervous system functional development which underlies effector activation during various larval stages. Colonies were taken in shallow water off Zuma Beach, California, and in the Santa Barbara Channel by divers. Ciliary activity and swimming, 1st apparent in the early planula =32 hr after spawn, persisted until settlement at =130 hr. Muscular reactions, 1st noted as local contractions in the swimmer stage at =60 hr, conducted elicited contractions at =80 hr, suggesting presence of a functional conduction system in the planula. At settlement, separate peduncular and anthocodial muscular contractions were evident. Future photocytes 1st fluoresced at 80 hr, and intensity increased until settlement. Bioluminescence followed settlement, but responses did not exhibit normal facilitation until the primary polyp stage. Therefore, preceding stage responses may reflect colonial and polyp conduction system maturation as well as development of connections between the 2 systems. Delay of both. settlement and metamorphosis was obtained by rearing the larvae in containers without sand.
Development/Bioluminescence/Neurophysiology/Cilia/Contractile muscles/Swimming/Settlement/Polypsneuroeffector function/Anthozoa/Cnidaria/*Renilla koellikeri*/sea pansy/Santa Barbara Channel/Zuma Beach/marine biology.

3527. Tajima F, Ruff LJ, Kanamori H. Subduction in the Santa Cruz Islands; source process of the 1966 and 1980 earthquakes. Anonymous. AGU 1986 spring meeting. *Eos, -Transactions, -American-Geophysical-Union*. 1986;67(16):p.310 Univ. Tex., Inst. Geophys., Austin, TX, United-States; Univ. Mich., United-States; Calif. Inst. Technol., United-States American Geophysical Union 1986 spring meeting, Baltimore, MD, May 19-22, 1986 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). California/seismology/earthquakes/P waves/Santa Cruz Island/Pacific Coast/Western U.S./United States/body waves/elastic waves/subduction/GEOREF.

3528. Saunders RT. Endangered species: a safe harbor for the sea otter. *Sierra* 1986;71(5):26
Wildlife preservation/Endangered species/sea otter/*Enhydra lutris*/California Channel Islands/marine biology/mammalogy.

3529. Matsueda H, Handa N. Vertical flux of hydrocarbons as measured in sediment traps in the eastern North Pacific Ocean. *Marine Chemistry*. 1986;20(2):p.179-195
Nagoya Univ., Water Res. Inst., Nagoya, Japan Analytic; Serial B; Bibliography and Index of Geology (1969-present).
Pacific Ocean/oceanography/ocean circulation/sediments/marine sediments/geochemistry/organic

materials/hydrocarbons/distribution/sedimentation/processes/biochemical sedimentation/North American Pacific/ocean currents/California Current/organic carbon/productivity/marine transport/plankton/GEOREF.

3530. Savrda CE, Bottjer DJ, Gorsline D. Biofacies in oxygen-deficient basins of the California borderland. B.W. Pipkin. Geology of Santa Catalina Island and nearby basins. : SEPM. 54-62. Address: Univ. South. Calif., Los Angeles, CA.

sedimentation/paleoecology/indicators/environment/anaerobic environment/marine environment/stratigraphy/biofacies/petroleum/deep-sea environment/ichnofossils echinoderms/gastropods/arthropods/Santa Monica Basin/San Pedro Basin/marine geology/oceanography.

3531. Martin W, Bender M, Heggie D, Jahnke R, Weiss R. Benthic nitrogen dynamics in San Clemente Basin. Anonymous. AGU 1986 fall meeting and ASLO winter meeting. Eos,-Transactions,-American-Geophysical-Union. 1986;67(44):p.1007 Univ. R.I., Grad. Sch. Oceanogr., Kingston, RI, United-States; Scripps Inst. Oceanogr., United-States AGU 1986 fall meeting and ASLO winter meeting, San Francisco, CA, Dec. 8-12, 1986 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). geochemistry/geochemical cycle/nitrogen/organic materials/oxidation/sediments/pore water/California/San Clemente Basin/organic carbon/sediment water interface/Pacific Coast/Western U.S./United States/GEOREF.

3532. Sayce JR, Hunt GL,. Sex ratios of pre fledging western gulls. Auk 1987;104(1):33-37 Address: Dep. Ecol. and Evol. Biol., Univ. California, Irvine, CA 92717, USA. Western Gull (*Larus occidentalis*) chicks on Santa Barbara Island, California, had a sex ratio at hatching of 1.12 M/F the sex ratio of chicks greater than or approximate to 35 days of age was 0.89. The sex ratio at hatching and fledging did not vary significantly from 1.0 or from each other, but the data suggest that male mortality before fledging exceeded that of females. Depressed growth rates of male chicks hatched third may be responsible for these higher male mortality rates. The authors found no evidence for seasonal or hatching-order effects on sex ratios at hatching. They suggest that post fledging differences in mortality between the sexes are in part responsible for the skewed sex ratio (0.67 males/female) observed in the adult breeding population. sex ratio/juveniles/population structure/marine birds/mortality/fledging/growth rate depression/Western Gull/*Larus occidentalis*/Santa Barbara Island/terrestrial biology/ornithology.

3533. Tajima F. Source duration with complexity and source process time. AGU 1984 spring meeting. Eos,-Transactions,-American-Geophysical-Union. 1984;65(16):p.235 Univ. Tex. at Austin, Inst. Geophys., Austin, TX, United-States AGU 1984 spring meeting, Washington, DC, Apr. 14, 1984 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). seismology/earthquakes/prediction/seismic sources/surface waves/elastic waves/long period waves/Santa Cruz Island earthquake 1980/GEOREF.

3534. Scepan J, Estes JE, Carlson RM. Remote sensing for detection of oil in the marine environment, an evaluation of the USA Coast Guard Aireye Surveillance system. Sci. Total. Environ.

1986;56(0):287-293 Address: REMOTE SENSING RES. UNIT, UNIV. OF CALIF., SANTA BARBARA, CALIF. 93106 Presented at: INTERNATIONAL CONFERENCE ON MAN'S ROLE IN CHANGING THE GLOBAL ENVIRONMENT, PART B, VENICE, ITALY, OCTOBER 21-26, 1985.
oil pollution/remote sensing/Santa Barbara Channel/geology/petroleum.

3535. Shaw PM, Johns RB. The identification of organic input sources of sediments from the Santa Catalina Basin using factor analysis. Leythaeuser, D., Rullkoetter, Juergen. Advances in organic geochemistry 1985; Part II, Molecular and general organic geochemistry. Inst. Pet. and Org. Geochem., Julich, Federal-Republic-of-Germany. Organic-Geochemistry. 1986;10(4-6):p.951 Univ. Melbourne, Dep. Org. Chem., Parkville, Victoria, Australia; Inst. Pet. and Org. Geochem., Julich, Federal-Republic-of-Germany Twelfth international meeting on organic geochemistry, Julich, Sept. 16-20, 1985 Analytic; Serial; Conference publication B; Bibliography and Index of Geology (1969-present).
California/geochemistry/sediments/organic materials/fatty acids/lipids/Pacific Coast/Western U.S./United States/Santa Catalina Basin/factor analysis/statistical analysis/hydrocarbons/ketones/alcohols/sterols/steroids/ketols/diols/cores/alkenes/aliphatic hydrocarbons/biomarkers/experimental studies/GEOREF.

3536. Schacher GE, Spiel DE, Davidson KL, Fairall CW. Comparison of overwater stability classification schemes with measured wind direction variability. Technical rept. : Naval Postgraduate School, Monterey, CA. NPS-61-82-002; 1982. 61. Schemes for assessing atmospheric stability are described and a modification to the Pasquill scheme to parameterize it for the overwater regime is developed. The various schemes are compared to measured values of the wind direction standard deviation. The results are location specific, applying only to the California channel islands area.
Wind/Troposphere/Stability/Dynamics/Classification/Statistical analysis/Wind direction Variations/North Pacific Ocean/California/Coastal regions/California Channel Islands/Atmospheric Sciences/Meteorology.

3537. Whiticar MJ, Faber E. Methane oxidation in sediment and water column environments; isotope evidence. Leythaeuser, D., Rullkoetter, Juergen. Advances in organic geochemistry 1985; Part II, Molecular and general organic geochemistry. Inst. Pet. and Org. Geochem., Julich, Federal-Republic-of-Germany. Organic-Geochemistry. 1986;10(4-6):p.759
Fed. Inst. Geosci. and Nat. Resour., Hanover, Federal-Republic-of-Germany; Inst. Pet. and Org. Geochem., Julich, Federal-Republic-of-Germany Twelfth international meeting on organic geochemistry, Julich, Sept. 16-20, 1985 Analytic; Serial; Conference publication B; Bibliography and Index of Geology (1969-present).
geochemistry/processes/oxidation/organic materials/hydrocarbons/methane/carbon/isotopes/C 13/C 12/sediments/anaerobic environment/stable isotopes/fractionation/models/kinetics/Mono Lake/California/Pacific Coast/Western U.S./United States/Baltic Sea/European Atlantic/North Atlantic/Atlantic Ocean/Gulf of Mexico/North American Atlantic/Santa Barbara Basin/Mississippi Delta/Bransfield Strait/Skan Bay/experimental studies/GEOREF.

3538. Schectman SM. The 'Bambi syndrome': How NEPA's public participation in wildlife management is hurting the environment. Environ. Law 1978;8(2):611-643 Details are given of the controlled

shooting of 24 burros on San Miguel island, California. The burros caused a lot of damage to the island flora and their browsing and trails promote soil erosion. Two burros were originally introduced to the island in the early 1950's and since then their numbers have increased without control. This wildlife problem is reviewed from a wildlife manager's perspective. An examination is made of the problem, the legislation and the policies in question, also discussed is the effect of well intentioned public participation regulations on the manager dealing with this resource problem today. wildlife management/culling/environmental protection/feral populations/erosion/Bambi syndrome/National Environmental Policy Act/Resource Management/legislation/Endangered Species/Wildlife Management/burros/San Miguel Island/terrestrial biology/mammalogy/resource management.

3539. Bebout GE. High P/T fluid flow during subduction zone metamorphism; Catalina Schist terrane, Santa Catalina Island, CA. The Geological Society of America, 99th annual meeting. Abstracts-with-Programs-Geological-Society-of-America. 1986;18(6):p.538 Univ. Calif., Dep. Earth and Space Sci., Los Angeles, CA, United-States The Geological Society of America, 99th annual meeting, San Antonio, TX, Nov. 10-13, 1986 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). California/petrology/metamorphism/prograde metamorphism/P T conditions/Catalina Schist/subduction zones/terrane/Santa Catalina Island/Pacific Coast/Western U.S./United States/blueschist facies/greenschist facies/amphibolite facies/veins/metagabbro/metaigneous rocks/eclogite facies/538/GEOREF.

3540. Schmitt RJ. Consequences of dissimilar defenses against predation in a subtidal marine community. Ecology 1982;63(5):1588-1601
Address: DEP. BIOLOGICAL SCI., MARINE SCI. INST., UNIV. CALIF., SANTA BARBARA, CALIF. 93106.
The interaction between the preferences of predators and defenses of prey and the role it plays in shaping distribution and abundance patterns of 2 gastropod species in a subtidal marine community were investigated. The snails *Tegula eiseni* and *T. aureotincta* are patchily distributed on horizontal rocky substrata at depths of 2-10 m off Santa Catalina Island, California, USA. the dominant invertebrate predators in these habitats are the sea stars *Pisaster giganteus* and *Astrometis sertulifera*, the whelk *Kelletia kelletii*, the cephalopod *Octopus bimaculatus* and the lobster *Panulirus interruptus*. Their preferred prey include sea urchins, crabs and sessile bivalves; the *Tegula* spp. are less-favored prey. A positive correlation was found between the abundance of the 5 predators and that of their preferred nongastropod prey. A negative association was detected between predator density and abundance of the motile gastropods, prey that tend to rank lower on the preference hierarchies of the predators. The 2 most common snail species were the *Tegula* congeners, which comprise 83% of the gastropod group by number. The spatial distributions of the 2 *Tegula* spp. are not identical. *T. eiseni*, but not *T. aureotincta*, is abundant in areas supporting moderate densities of predators. Both species are rare in habitats with high predator densities and common where few predators occur. The 2 *Tegula* spp. have defenses against predation that differ from one another. *T. aureotincta* displays a flight behavior presence of *Pisaster*, *Astrometis* and *Kelletia*. No such reaction is elicited when the snail is exposed to rapidly moving unavoidable predators such as *Octopus* and *Panulirus*. *T. eiseni* does

not employ flight defenses but, instead, has morphological features that reduce its acceptability as food. Such features are not characteristic of *T. aureotincta*. These differences in defense probably account for the marked preference for *T. aureotincta* over *T. eiseni* by invertebrate predators. Field experiments involving predator prey manipulations on patch reefs indicate that both emigration and death by predation account for the lack of *T. aureotincta* in areas with high and intermediate densities of predators. As a consequence of its relatively more effective defense, *T. eiseni* can persist in habitats that contain moderate numbers of predators. The absence of *T. eiseni* in high predator density areas is the result of direct predation. The dissimilarity in defense mechanisms of the snails accounts for the observed difference in distribution and abundance of the *Tegula* spp. The distribution of predators is correlated with that of their preferred prey. The defenses of the favored prey appear to be superior to those of motile gastropods, and, as a consequence, the less-preferred gastropod prey are heavily consumed when they occur in the same areas. Although there might be little direct interaction between prey groups, the spatial distribution of preferred prey can thus influence the distribution and abundance of motile gastropods.

flight behavior/morphological features/prey preferences/predation/predatory behavior/defensive behavior/community structure/habitat utilization/spatial distribution/Mollusca/Gastropoda/*Tegula eiseni*/*Tegula aureotincta*/*Kelletia kelletii*/Cephalopoda/Octopus *bimaculatus*/Echinodermata/*Pisaster giganteus*/*Astrometis sertulifera*/star fish/sea stars/Crustacea/*Panulirus*/spiny lobster/*interruptus*/Santa Catalina Island/marine biology/ecology.

3541. Marton RA, Hammond DE, Ku TL. Ra 228 in two basins of the Southern California continental borderland. AGU 1985 fall meeting.

Eos, -Transactions, -American-Geophysical-Union. 1985;66(46):p.939 Univ. South. Calif., Dep. Geol. Sci., Los Angeles, CA, United-States AGU 1985 fall meeting, San Francisco, CA, Dec. 9-13, 1985 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).

California/geochemistry/isotopes/sediments/radium/Ra 228/sedimentation/environment/marine environment/San Pedro Basin/San Nicolas Basin/Southern California/Pacific Coast/Western U.S./United States/mathematical models/models/GEOREF.

3542. Schmitt RJ. Indirect interactions between prey: apparent competition, predator aggregation, and habitat segregation. Ecology 1987;68(6):1887-1897

Address: MARINE SCI. INST., UNIV. CALIF., SANTA BARBARA, CALIF. 93106. Field experiments were performed to explore the nature of indirect interactions between two groups of ecologically distinct prey that occur on subtidal rocky reefs at Santa Catalina Island, California [USA]. Mobile gastropods (*Tegula aureotincta*, *Tegula eiseni*, and *Astraea undosa*) and sessile bivalves (mostly *Chama arcana*) share a common set of invertebrate predators (lobster *Panulirus interruptus*, cephalopod *Octopus bimaculatus*, and whelk *Kelletia kelletii*). the gastropods, which are secondarily preferred prey, principally occur on cobble reefs and less commonly on high-relief boulder reefs. Sessile bivalves and other species of favored prey are common on high-relief reefs and are rare or absent in cobble areas. The density of each predator species is greatest in high-relief areas containing abundant favored prey. Addition of bivalves to replicate cobble plots resulted in marked increases in predator density, relative to controls, because predators

aggregated to areas containing favored prey. Greater densities of predators in the presence of experimentally added bivalves resulted in greater mortality and lower population densities of gastropods relative to controls. Conversely, mortality of *Chama* was higher where gastropods were common compared with cobble areas containing fewer gastropods. This occurred because the density compared with cobble reef, although low overall, was positively correlated with density of gastropods. Thus each group of prey was negatively affected by the presence of the other because each alternative prey increased the local density of predators. Such a doubly negative indirect interaction between prey, mediated by a shared predator, is known as "apparent competition"; this is the first experimental demonstration of its existence. Because gastropods and bivalves are superior at withstanding predation in different habitats, shared predation and apparent competition may be sufficient mechanisms to maintain the pattern of habitat segregation displayed by these prey groups.

predator density/subtidal rocky reef/field manipulation/indirect interactions/predator-prey relationships/predator-prey interactions/competition/aggregation/habitat utilization/predation/interspecific relationships/population density/*Tegula aureotincta*/*Tegula eiseni*/*Astraea undosa*/*Chama arcana*/*Panulirus interruptus*/*Octopus bimaculatus*/*Keletia kelletii*/Santa Catalina Island/marine biology/ecology.

3543. Berelson W, Hammond DE, Johnson KS. Benthic fluxes and the carbon budget in two Southern California borderland basins. AGU 1985 fall meeting. *Eos, -Transactions, -American-Geophysical-Union*. 1985;66(46):p.939 Univ. South. Calif., Dep. Geol. Sci., Los Angeles, CA, United-States; Univ. Calif., Mar. Sci. Inst., United-States AGU 1985 fall meeting, San Francisco, CA, Dec. 9-13, 1985 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). California/geochemistry/sediments/carbon/sedimentation/environment/marine environment/Southern California/Pacific Coast/Western U.S./United States/San Pedro Basin/San Nicolas Basin/GEOREF.

3544. Schmitt RJ, Coyer JA. The foraging ecology of sympatric marine fish in the genus *Embiotoca* (Embiotocidae): Importance of foraging behavior in prey size selection. *Oecologia* (Berlin) 1982;55:369-378
Two locally sympatric temperate marine reef fishes have high taxonomic similarity in diets. Subdivision of gammarid amphipods, their principal prey, was found. The principal interspecific difference in fish diets concerned the sizes of prey items taken. Disparate foraging behaviors was a much better indicator of the relative differences in diets of these two fishes than was external fish morphology.
sympatric/foraging behavior/prey size selection *Embiotoca jacksoni*/black surfperch/*Embiotoca lateralis*/striped surfperch/Santa Cruz Island/marine biology/ecology.

3545. Buchholtz MR, Santschi PH, Broecker WS. Radiotracer partitioning at the sediment water interface; laboratory and field experiments. AGU 1985 fall meeting. *Eos, -Transactions, -American-Geophysical-Union*. 1985;66(46):p.939 Lamont-Doherty Geol. Obs., Palisades, NY, United-States AGU 1985 fall meeting, San Francisco, CA, Dec. 9-13, 1985 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). isotopes/tracers/radioactive tracers/sediments/geochemistry/Pacific Ocean/barium/Ba 133/cesium/Cs 134/zinc/Zn 65/cerium/Ce 141/tin/Sn 113/iron/Fe 59/mercury/Hg 203/antimony/Sb 125/manganese/Mn 54/cobalt/Co 60/sea

water/San Clemente Basin/absorption/GEOREF.

3546. Sorensen SS, Barton MD. Metasomatism and partial melting in a subduction complex; Catalina Schist, Southern California. *Geology (Boulder)*. 1987;15(2):p.115
Smithson. Inst., Dep. Miner. Sci., Washington, DC, United-States; Univ. Calif., United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present).
California/petrology/metasomatism/environment/subduction zones/fluid inclusions/P T conditions/metamorphic rocks/terraces/Los Angeles County/Catalina Schist/Pacific Coast/Western U.S./United States/Southern California/Santa Catalina Island/Channel Islands/amphibolitization/high pressure/paleosalinity/partial melting/mantle/amphibolites/eclogite/schists/migmatites/plate tectonics/geochemistry/GEOREF.

3547. Schoen SB. Langmuir circulation and small-scale patchiness of marine phytoplankton and zooplankton [dissertation]. Santa Barbara, California, USA: University of California; 1987. 254.

Net and bottle sampling programs were used to test the hypotheses that Langmuir circulations can influence the small-scale distribution of marine phytoplankton and zooplankton. Phytoplankton were concentrated in Langmuir cell convergences in densities which were two to four times those measured in divergences. An index of chlorophyll a patchiness indicated that patchiness of phytoplankton was greatest over the windspeed range, 3 to 5 m/s, which is the lower range of windspeeds over which Langmuir circulations can occur. Net tows indicated the presence of near surface zooplankton patches oriented parallel to the wind direction over the windspeed range of 5 to 7 m/s. Selected zooplankton taxa were concentrated in Langmuir cell divergences in densities which were two to five times those in convergences. An analysis of windspeeds over a one year period in the Santa Barbara Channel indicated that concentration of phytoplankton and zooplankton can occur regularly on an hourly, daily and monthly basis.
zooplankton/phytoplankton/Langmuir circulation/biological oceanography/ marine biology.

3548. Bilodeau BJ, Haug GA, Thurston SP. Oil and gas developments in West Coast in 1985. *AAPG Bulletin*. 1986;70(10):p.1303-1314
Chevron USA, San Ramon, CA, United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present).
Pacific Coast/economic geology/energy sources/Monterey Formation/Western U.S./United States/petroleum/natural gas/geothermal energy/California/Oregon/Washington/offshore/onshore/exploration/production/enhanced recovery/Santa Barbara Channel/Santa Maria Channel/San Joaquin Basin/The Geysers/Imperial Valley/Sacramento Basin/Coso Hot Springs KGRA/Casa Diablo Hot Springs/annual report/GEOREF.

3549. Scholl JP. Skull fragments of the California sea lion (*Zalophus californianus*) in stomach of a white shark (*Carcharodon carcharias*). *J. Mammal.* 1983;64(2):332
Address: Dep. Fish & Game, 350 Golden Shore, Long Beach, CA 90802, USA. stomach content/new records/predation/food consumption/predation/*Carcharodon carcharias*/white shark/*Zalophus californianus*/California sea lion/San Diego/California Channel Islands/marine biology/mammalogy/ichthyology.

3550. Asper VL, Honjo S. The spatial distribution of large amorphous aggregates (marine snow) in the deep ocean. AGU 1984 spring meeting. *Eos, -Transactions, -American-Geophysical-Union*. 1984;65(16):p.226 Woods Hole Oceanogr. Inst., Woods Hole, MA, United-States AGU 1984 spring meeting, Cincinnati, OH, May 14-17, 1984 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). Pacific Ocean/oceanography/sediments/Atlantic Ocean/composition/marine snow/Sargasso Sea/Panama Basin/California Current/Equatorial Pacific/GEOREF.

3551. Schwan TG, Kelly PR. *Ixodes signatus* (Ixodoidea: Ixodidae) parasitizing Pigeon Guillemots on the Channel Islands, California. *Journal of Medical Entomology* 1981;18(2):171-172 parasites/pests of animals/seasonal occurrence/new records/first record/zoogeography/range extention/parasitism Ixodoidea/Ixodidae/Ixodes signatus/Arthropoda/Phalacrocorax/Phalacrocorax penicillatus/Cepphus columba/Pigeon Guillemots/California Channel Islands/terrestrial biology/parasitology/entomology.

3552. Sorensen SS. Metamorphic geology of the Catalina Schist; insights into Pelona Schist petrogenesis?. Anonymous. The Geological Society of America, Cordilleran Section, 82nd annual meeting. Abstracts-with-Programs-Geological-Society-of-America. 1986;18(2):p.188 Smithson. Inst., Natl. Mus. Nat. Hist., Dep. Miner. Sci., Washington, DC, United-States The Geological Society of America, Cordilleran Section, 82nd annual meeting, Los Angeles, CA, Mar. 25-28, 1986 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). California/petrology/metamorphic rocks/composition/Catalina Schist/Pelona Schist/Pacific Coast/Western U.S./United States/metamorphism/P T conditions/greenschist/schists/blueschist/Santa Catalina Island/amphibolites/protoliths/genesis/GEOREF.

3553. Schwartz RK. Bedform and stratification characteristics of some modern small-scale washover sand bodies. *Sedimentology* 1982;29(6):835-849 Address: Allegheny College, Meadville, PA. 16335. Washover sand bodies commonly develop along microtidal coastlines in beach/barrier island or spit settings. Wave runup, usually in conjunction with an abnormally high water level, may overtop the most landward berm of the beach and the foredune crest, if one exists, to produce overwash and subsequent runoff across the more landward subaerial surface. Two main elements of the resulting deposition are the washover fan and runoff channel. Newly formed, small-scale washover deposits were examined along the Outer Banks, North Carolina, Near Pt Mugu, California, and at Presque Isle (Lake Erie), Pennsylvania. High velocity discontinuous surges moving across the fan surface resulted in the development of a plane bed and subhorizontal to low-angle (landward dipping) planar stratification which comprised the major part of the fan. Similarly, rhomboid forms were produced by high velocity sheet flow across the fan surface. Where flow carried into a standing body of water, delta-type foreset strata developed. The sets of sedimentary structures comprising modern washover sand bodies provide criteria for the identification of similar deposits in ancient sediments and for more specific interpretation of the environment. Washover sand bodies/beach barrier island/micro tidal coastline/barrier island/plane bed/foreset strata/sedimentary

structures/bedforms/stratification/fans/sediment transport/North Carolina/Lake Erie/Pennsylvania/Pt. Mugu/marine geology/sedimentology/sedimentary geology.

3554. Sorensen SS. Petrology and distribution of the basement rocks of the Los Angeles Basin and inner Southern California borderland. Anonymous. The Geological Society of America, Cordilleran Section, 82nd annual meeting. Abstracts-with-Programs-Geological-Society-of-America. 1986;18(2):p.188 Smithsonian Inst., Natl. Mus. Nat. Hist., Dep. Miner. Sci., Washington, DC, United-States The Geological Society of America, Cordilleran Section, 82nd annual meeting, Los Angeles, CA, Mar. 25-28, 1986 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). metamorphic rocks/petrology/basement/California/Catalina Schist/Willows Plutonic Complex/Santa Cruz Island Schist/Santa Monica Formation/Southern California/Pacific Coast/Western U.S./United States/Los Angeles Basin/Mesozoic/distribution/schists/blueschist/greenschist/phyllites/slates/GEO REF.

3555. Schwarz J. Learning about life in an oil seep. EXXON USA 1982;XXI(4):12 Oil seep/Santa Barbara Channel/petroleum/pollution/marine biology.

3556. Simila GW. Seismic slip rate estimates for the San Clemente and Santa Cruz basins, Southern California borderland. Anonymous. The Geological Society of America, Cordilleran Section, 82nd annual meeting. Abstracts-with-Programs-Geological-Society-of-America. 1986;18(2):p.185 Calif. State Univ., Dep. Geol. Sci., Northridge, CA, United-States The Geological Society of America, Cordilleran Section, 82nd annual meeting, Los Angeles, CA, Mar. 25-28, 1986 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). California/seismology/earthquakes/seismicity/San Clemente Basin/Santa Cruz Basin/Southern California/Pacific Coast/Western U.S./United States/magnitude/reverse faults/faults/focal mechanism/normal faults/right lateral faults/effects/GEOREF.

3557. Science Applications International Corp. LJ,C. Assessment of long-term changes in biological communities of the Santa Maria Basin and Western Santa Barbara Channel - Phase 1. Volume 1. Executive Summary. Final report, 1984-1986. : MMS-86/0012-VOL-1; 1986. 40. ((Sponsored by Minerals Management Service, Los Angeles, CA. Pacific OCS Region.)). Santa Barbara Channel; Santa Maria Basin;. The anticipated development and production of significant oil reserves in the area generated the need to develop baseline information on the biological, chemical, and geological characteristics of the area. A survey of soft-bottom habitats was conducted at 107 stations along 16 transects, with bottom depths ranging from 165 to 3000 feet. A total of 142 sediment (box) cores were collected for analysis of benthic infauna, total organic carbon, petroleum hydrocarbons, chromium, barium and various sediment parameters. Selected hard-bottom areas were surveyed using a manned submersible along 23 transects over bottom depths of 180 to 790 feet. Hard-bottom assemblages are expected to be more sensitive than soft bottom assemblages to impacts from oil and gas operations. Water pollution/Crude oil/Marine biology/Metals/Hydrocarbons/Chromium/Barium/Sediments/Offshore drilling/Benthos/Environmental impacts/Substrates/Ocean

bottom/Natural gas/Monitoring/Habitats/biological
oceanography/marine biology/petroleum.

3558. Science Applications International Corp. LJ,C.
Assessment of long-term changes in biological communities of the
Santa Maria Basin and Western Santa Barbara Channel - Phase 1.
Volume 2. Synthesis of findings. Final Report 1984-1986. :
MMS-86/0012-VOL-2; 1986. 714. ((Sponsored by Minerals Management
Service, Los Angeles, CA. Pacific OCS Region)).
The anticipated development and production of significant oil
reserves in the area generated the need to develop baseline
information on the biological, chemical, and geological
characteristics. A survey of soft-bottom habitats was conducted at
107 stations along 16 transects, with bottom depths ranging from
165 to 3000 feet. A total of 142 sediment (box) cores were
collected for analysis of benthic infauna, total organic carbon
petroleum hydrocarbons, chromium, barium and various sediment
parameters. Selected hard-bottom areas were surveyed along 23
transects over bottom depths of 180 to 790 feet. Depth was a major
factor influencing the distribution of infaunal organisms. Hard-
bottom assemblages are expected to be more sensitive than soft
bottom assemblages to impacts from oil and gas operations.
Water pollution/Crude oil/Marine biology/Santa Maria
Basin/Ecology/Metals/Hydrocarbons/Chromium/Barium/Sediments/Depth
/Substrates/Ocean bottom/Shellfish/Worms/Habitats/benthic
infauna/Santa Barbara Channel/Outer continental shelf/Biological
Oceanography/petroleum/marine biology.

3559. Smith CR, Jumars PA, DeMaster DJ. In situ studies of
megafaunal mounds indicate rapid sediment turnover and community
response at the deep sea floor. Nature (London).
1986;323(6085):p.251
Univ. Wash., Sch. Oceanogr., Seattle, WA, United-States; N.C. State
Univ., United-States Analytic; Serial B; Bibliography and Index
of Geology (1969-present).
Pacific Ocean/oceanography/sedimentation/ecology/observations/deep
sea environment/diagenesis/bioturbation/sediments/marine
sediments/processes/North American Pacific/Santa Catalina
Basin/biogenic structures/sedimentary structures/mounds/bedding
plane irregularities/communities/biogenic
effects/geochemistry/GEOREF.

3560. Science Applications ILJC. Intertidal study of the
Southern California Bight, 1976/1977. Volume III. Principal
investigators' reports, report sections 1.1.8-1.1.13. Final rept.
: BLM/YN/SR-78/17-VOL-3-3; 1978. 635. ((Sponsored by Bureau of
Land Management, Washington, DC.)). Note: See also PB-290 740,
Volume 3, Sections 1.1.1-1.1.7, PB-300 344, and Volume 3, Sections
1.1.14-1.1.17, PB-300 346.
Rocky intertidal, sandy beach, slough, and subtidal biological
habitats were studied to determine community composition,
biogeographical and seasonal variation, and community recovery.
Kelp bed distribution and their seasonal variation are delineated
for the shallow areas along the mainland coast and around the
offshore islands. Rocky intertidal investigation show there is a
north-south biogeographical pattern with island sites lusher than
mainland counterparts. Sandy beach and slough communities appear to
be controlled by physiographic factors and physical variables
rather than geographic pattern. Sediment and biota samples from
mainland, island and subtidal sites were analyzed for selected
trace metal and hydrocarbon characteristics. Geographical pattern,
seasonal variations, and intro-site variations are presented. Crude
oil/Ecology/Marine biology/Oil pollution/Continental

shelves/Hydrocarbons/Intertidal zone/Invertebrates/Metals/Trace elements/Environmental impacts/Acidity/Distribution (Property)/Concentration (Composition)/Atomic spectroscopy/Neutron activation analysis/Aquatic animals/Outer continental shelves/Baseline studies/Trace metals/Standing crop/Dutch Harbor/giant kelp/Macrocytis pyrifera/San Nicolas Island/Southern California Bight/marine biology/petroleum.

3561. Champion DE, Howell DG, Marshall M. Paleomagnetism of Cretaceous and Eocene strata, San Miguel Island, California, borderland and the northward translation of Baja California. JGR. Journal of Geophysical Research. B. 1986;91(11):p.11,557-11,570 U. S. Geol. Surv., Menlo Park, CA, United-States; San Diego State Univ., United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present). California/stratigraphy/Cretaceous/Eocene/Mexico/tectonophysics/late tectonics/North America/paleomagnetism/Santa Barbara County/Pacific Coast/Western U.S./United States/Southern California/San Miguel Island/Paleogene/Tertiary/continental borderland/Baja California/sedimentary rocks/movement/natural remanent magnetization/remanent magnetization/demagnetization/reversals/terranes/allochthons/GEOR EF.

3562. Scott TA. San Clemente Loggerhead Shrike: natural history and management of an endangered population (California) [dissertation]. Berkeley, California, USA: University of California; 1987. 165.

This study assesses the population status and factors contributing to the perceived decline of the San Clemente Loggerhead Shrike (*Lanius ludovicianus mearnsi*), a subspecies of predatory bird endemic to San Clemente Island and representative of bird populations on near-shore islands. On San Clemente Island, the major factors affecting shrike distribution appear to be caused by habitat alteration and predation caused by the introduction of exotic species and domestic livestock, which have altered or destroyed the majority of shrike nest locations on the island. The minimum estimate of breeding adults was 22 (11 pairs) in 1985 and in 1986; the maximum estimate was 15 pairs in 1985 and 12 pairs in 1986. Breeding pairs were concentrated in the southwestern drainages of the island, with 94% of nests occurring within 30 m of streambeds. Shrike nests only occurred in *Rhus integrifolia*, *Prunus lyonii*, *Heteromeles arbutifolia*, primarily because of the canopy height (>\$1.6 m) used by shrikes for nesting substrate. Nest locations were used over consecutive years, averaging 2.1 years of occupancy over the 3 years of the study. Mortality primarily occurred as a result of predation. Approximately 45% of the young that left shrike nests died within two weeks. Predators destroyed 45% of all nests prior to fledging of young, and herbivores have altered the vegetation on the island. Shrikes on the island are limited by heavy predation of young, the limited number of suitable nest locations over the northern half of the island and the amount of foraging areas required by shrike pairs. The most predictable aspect of shrike activity on the island is their use of nest sites. The most effective management goals are to protect shrike pairs during the breeding season, maintain existing nest locations, and to restore suitable nesting shrubs in the northern half of the island. The management recommendations for nest protection are (1) completely remove predators from a portion of the nest locations and (2) protect the remaining nests with antipredator fencing. The

recommendation for nest maintenance is to remove feral goats from the island. Finally, the recommendation for restoration of nesting habitat is the planting and irrigation of *Rhus integrifolia*. (Abstract shortened with permission of author.).
predatory bird/habitat alteration/exotic species/San Clemente/Loggerhead/Shrike/*Lanius ludovicianus mearnsi*/San Clemente Island/terrestrial biology.

3563. Risotto SP, Rudolph RW. Pacific summary report/index, November 1984 May 1986; outer continental shelf oil and gas activities in the Pacific and their onshore impacts. 1986
Rogers, Golden, & Halpern, Reston, VA, United-States Monographic; Report Prep. for Outer Continental Shelf Oil and Gas Inf. Program Contract no. 14-12-0001-30042. B; Bibliography and Index of Geology (1969-present) U. S. Miner. Manage. Serv., Offshore Inf. and Publ., Vienna, VA, United States. Pacific Ocean/economic geology/fuel resources/environmental geology/impact statements/United States/continental shelf/petroleum/natural gas/Santa Maria Basin/Santa Barbara Channel/Point Arena Basin/economic geology maps/maps/GEOREF.

3564. Seagars DJ, Henderson JR. Cephalopod remains from the stomach of a short-finned pilot whale collected near Santa Catalina Island, California. *J. Mammal* 1985;66(4):777-779
Address: NMFS, Southwest Reg., 300 South Ferry St., Terminal Island, CA 90731, USA.

It is generally presumed that the short-finned pilot whale (*Globicephala macrorhynchus*) of the Pacific preferentially consumes squid. However, squid beaks in the stomach of this delphinid have been reported only twice and neither account identified the species of squid. Norris and Prescott (1961) described group behavior in "feeding schools" of short-finned pilot whales among schools of squid but did not identify the species. This note provides the first identification of squid beaks from the stomach of a short-finned pilot whale collected dead from the Pacific Ocean.

diets/stomach content/marine mammals/feeding biology/feeding behavior/predation/short-finned pilot whale/*Globicephala macrorhynchus*/Cephalopoda/squid/Santa Catalina Island/marine biology/mammalogy.

3565. Casey RE. Phaeodarian radiolarians as potential indicators of thermal maturation. Casey, Richard E., Barron, John A. Siliceous microfossil and microplankton of the Monterey Formation and modern analogs. Univ. San Diego, Mar. Stud. Program, San Diego, CA, United-States.

Field-Trip-Guidebook-Pacific-Section,-Society-of-Economic-Paleontologists-and-M ineralogists. 1986;45:p.87-89
Univ. San Diego, Mar. Stud. Program, San Diego, CA, United-States;
Univ. San Diego, Mar. Stud. Program, San Diego, CA, United-States;
U. S. Geol. Surv., United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present).

California/sedimentary petrology/diagenesis/sediments/marine sediments/indicators/radiolarians/paleoecology/Cenozoic/Monterey Formation/Pacific Coast/Western U.S./United States/microfossils/maturity/thermal history/Orca Basin/pyrolysis/Phaeodarina/Radiolaria/Santa Barbara Basin/Neogene/Tertiary/Holocene/Quaternary/anaerobic environment/organic materials/geochemistry/GEOREF.

3566. Seelig WN. Preliminary analysis of SOAR cable landing sites at San Clemente Island. : Naval Facilities Engineering Command, Washington, DC. Chesapeake Div. CHES/NAVFAC-FPO-1-84(13);

1984. 63.

The SOAR permanent underwater range is now in the preliminary design stage for an area west of San Clements Island. The purposes of this report are to: (1) summarize environmental data available for the area around the island, (2) identify and analyze potentially useful cable landing sites using available data; and (3) recommend promising methods of landing the cables at the various sites. The 4 sites examined re ranked from best to worst as: Seal Cove, West Cove, Eel Point and North Wilson Cove. The ranking process considered wave climate, wave forces on the cables, local hydrography and topography, construction conditions, the offshore profiles, track and the distance from the site to the range. Two passes of armor are required to protect the cables. Tentative lengths of this armoring are recommended. Detailed sub-bottom and hydrographic studies need to be performed at Seal Cove and West Cove to determine if 3 feet or more of sand is available offshore in water depths greater than 75 feet. If so, the amount of armor required could be reduced and significant cost savings could result.. A swim-by of Eel Point is recommended to determine if this site warrants further consideration. The cable landing area in Seal Cove should be examined to determine if there are any special problems with this area. Surf and runup conditions in Seal and West Coves should be examined during a major storm to determine if any unusual hydraulic conditions are present. Keywords: SOAR(Southern California Acoustic Array); Santa Barbara Islands.

Transmission lines/Electric cables/West(Direction)/Construction/Environments/Hydrography/Offshore/Profiles/Armor/Landing fields/Costs/Savings/Hydraulic equipment/Range (Distance)/Underwater/Storms/Topography/Depth/Water/Inlets/Waterways/Sites/Surf /Waves/North pacific ocean/Naval shore facilities/Acoustic ranges/Underwater equipment/Inshore areas/Bays/Sand/SOAR/Southern California Acoustic Range/San Clements Island/marine engineering/civil engineering.

3567. Perez GAM, Casey RE. Paleooceanographic reconstructions from radiolarian bearing Baja California and adjacent sections. Casey, Richard E., Barron, John A. Siliceous microfossil and microplankton of the Monterey Formation and modern analogs. Univ. San Diego, Mar. Stud. Program, San Diego, CA, United-States. Field-Trip-Guidebook-Pacific-Section,-Society-of-Economic-Paleontologists-and-M ineralogists. 1986;45:p.55 8100 Cambridge, Houston, TX, United-States; Univ. San Diego, Mar. Stud. Program, San Diego, CA, United-States; U. S. Geol. Surv., United-States; Univ. San Diego, Mar. Stud. Program, United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present).

Mexico/stratigraphy/Miocene/radiolarians/biostratigraphy/paleoecology/Neogene/Tertiary/microfossils/paleoceanography/paleocirculation/upwelling/Gulf of California/North American Pacific/Pacific Ocean/Didymocyrtis antepenultima/El Nino/California Current/faunal list/Maria Madre Island/Maria Cleofas Island/Arroyo Hondo/Tortugas/GEOREF.

3568. Serbeniuk G. Beauty caught (Torrey pine *Pinus torreyana*). Environment Southwest 1983;502:14-16 Address: Univ California, Santa Cruz, CA.

The rare Torrey pine *Pinus torreyana*, existing at only one mainland and island locality in California, has minimal genetic diversity. This has been one variously interpreted as being due to genetic bottlenecks in shifting climates of the recent past or to recent recolonisation of the mainland by seeds from the Channel Islands, themselves colonised 25 Myr BP.

Torrey pine/Pinus torreyana/California Channel Islands/terrestrial biology/botany.

3569. Domack CR. Reconstruction of the California Current at 5, 8, and 10 million years b.p. using radiolarian indicators. Casey, Richard E., Barron, John A. Siliceous microfossil and microplankton of the Monterey Formation and modern analogs. Univ. San Diego, Mar. Stud. Program, San Diego, CA, United-States. Field-Trip-Guidebook-Pacific-Section,-Society-of-Economic-Paleontologists-and-M ineralogists. 1986;45:p.39-54
Hamilton Coll., Dep. Geol., Clinton, NY, United-States; Univ. San Diego, Mar. Stud. Program, San Diego, CA, United-States; U. S. Geol. Surv., United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present).
California/stratigraphy/Neogene/radiolarians/paleoecology/Mexico/Pacific Coast/Western U.S./United States/microfossils/North American Pacific/Pacific Ocean/California Current/paleocurrents/paleo oceanography/Tertiary/species diversity/Baja California/DSDP Site 173/Deep Sea Drilling Project/DSDP Site 33/DSDP Site 469/IPOD/DSDP Site 470/DSDP Site 472/DSDP Site 471/DSDP Site 473/DSDP Site 493/DSDP Site 83A/faunal list/GEOREF.

3570. Shaw WJ, Borrmann S, Fellbaum S, Skupniewicz CE, Vaucher CA. Sodar, rawinsonde, and surface layer measurements at a coastal site. Part 2. SCCAMP (South Central Coast Aerometric Monitoring Project) Data report. Technical report July 85-May 86. : Naval Postgraduate School, Monterey, CA. NPS-63-86-001; 1986. 107.

This report presents data gathered by the Naval Postgraduate School (NPS) during the South Central Coast Aerometric Monitoring Project (SCCAMP) in September and October of 1985. The data are from a triaxial monostatic doppler acoustic sounder and a 20-meter meteorological tower which were located at the Ellwood pier near Goleta, California and from rawinsondes launched from the R/V Acania in the Santa Barbara Channel.
Marine atmospheres/Meteorological data/Acoustics/Boundary layer/California/Coastal regions/Doppler systems/Layers/Measurement/Piers/Radiosondes/Sites/Surfaces/Wind velocity/Atmospheric sounding/Doppler Acoustic Sounder/Rawinsonde/Ellwood pier/Goleta, California/physical oceanography/physical meteorology/atmospheric sciences/.

3571. Weinheimer AL. Radiolarian indicators of El Nino and anti El Nino events in the Recent sediment of the Santa Barbara Basin. Casey, Richard E., Barron, John A. Siliceous microfossil and microplankton of the Monterey Formation and modern analogs. Univ. San Diego, Mar. Stud. Program, San Diego, CA, United-States. Field-Trip-Guidebook-Pacific-Section,-Society-of-Economic-Paleontologists-and-M ineralogists. 1986;45:p.31
UNOCAL, Houston, TX, United-States; Univ. San Diego, Mar. Stud. Program, San Diego, CA, United-States; U. S. Geol. Surv., United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present).
California/oceanography/continental margin/radiolarians/ecology/marine environment/clay mineralogy/areal studies/Pacific Coast/Western U.S./United States/microfossils/California Continental Borderland/Santa Barbara Basin/North American Pacific/Pacific Ocean/ocean currents/El Nino/California Current/faunal list/Southern California/marine sediments/anaerobic environment/eutrophication/smectite/clay minerals/sheet silicates/silicates/illite/chlorite/chlorite group/GEOREF.

3572. Shields JD. Surface morphology and description of *Otobothrium kurisi* new species (Cestoda: Trypanorhyncha) from a hammerhead shark, *Sphyrna lewini*. *Int. J. Parasitol.* 1985;15:122-124
Surface morphology and description of *Otobothrium kurisi* new species from a hammerhead shark. *O. kurisi* is the third species of *O.* to be described with a villous peduncle. The density of microtriches was compared to that of other species of tapeworms.
parasites/morphology/new species/scanning electron microscopy/bothridial surface spines/villi/microtriches
Cestoda/Trypanorhyncha/tapeworm/Sphyrna lewini/hammerhead shark/Santa Barbara Channel/marine biology/parasitology.

3573. Cleveland MN, Casey RE. Radiolarian indices of physical and chemical oceanographic phenomena in Recent sediments of the Southern California Continental Borderland. Casey RE, Barron JA. Siliceous microfossil and microplankton of the Monterey Formation and modern analogs. *Univ. San Diego, Mar. Stud. Program, San Diego, CA, United-States. Field-Trip-Guidebook-Pacific-Section, -Society-of-Economic-Paleontologists-and-M ineralogists.* ; 1986. 45. p. 21-30. *Occident. Colombia, Bogota, Colombia; Univ. San Diego, Mar. Stud. Program, San Diego, CA, United-States; U. S. Geol. Surv., United-States; Univ. San Diego, Mar. Stud. Program, United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present).*
California/oceanography/continental margin/radiolarians/ecology/algal flora/diatom flora/observations/Pacific Coast/Western U.S./United States/microfossils/California Continental Borderland/North American Pacific/Pacific Ocean/species diversity/marine sediments/anaerobic environment/biocenoses/California Current/El Nino/ocean currents/Southern California/GEOREF.

3574. Shields JD. An analysis of egg mortality in *Cancer anthonyi*. *Hydrobiologia* 1987;156:?
abstract.
egg mortality/Cancer anthonyi/Santa Barbara Channel/marine biology.

3575. Carson TL. Radiolarian response to the 1983 California El Nino. Casey, Richard E., Barron, John A. Siliceous microfossil and microplankton of the Monterey Formation and modern analogs. *Univ. San Diego, Mar. Stud. Program, San Diego, CA, United-States. Field-Trip-Guidebook-Pacific-Section, -Society-of-Economic-Paleontologists-and-M ineralogists.* 1986;45:p.9-19 *Kurz Assoc., Bridgewater, MA, United-States; Univ. San Diego, Mar. Stud. Program, San Diego, CA, United-States; U. S. Geol. Surv., United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present).*
California/oceanography/continental margin/radiolarians/ecology/marine environment/Pacific Coast/Western U.S./United States/microfossils/North American Pacific/Pacific Ocean/ocean currents/El Nino/California Continental Borderland/species diversity/California Current/Spongaster/biomass/nutrients/planktonic taxa/GEOREF.

3576. Shields JD. The dynamics and mechanisms of egg mortality in *Cancer anthonyi* (Decapoda) [dissertation]. Santa Barbara, California: University of California; 1987. 107.
egg mortality/Cancer anthonyi/yellow crab/Santa Barbara Channel/marine biology.

3577. Casey RE, Carson TL, Weinheimer AL. The modern California current system and radiolarian responses to 'normal' (anti El Nino) conditions. Casey, Richard E., Barron, John A. Siliceous microfossil and microplankton of the Monterey Formation and modern analogs. Univ. San Diego, Mar. Stud. Program, San Diego, CA, United-States.

Field-Trip-Guidebook-Pacific-Section,-Society-of-Economic-Paleontologists-and-M ineralogists. 1986;45:p.1-7
Univ. San Diego, Mar. Stud. Program, San Diego, CA, United-States;
Univ. San Diego, Mar. Stud. Program, San Diego, CA, United-States;
U. S. Geol. Surv., United-States; Kurz Assoc., United-States;
UNOCAL, United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present).
California/oceanography/continental margin/radiolarians/ecology/marine environment/Pacific Coast/Western U.S./United States/microfossils/ocean currents/California Current/North American Pacific/Pacific Ocean/El Nino/upwelling/temperature/salinity/Davidson Current/GEOREF.

3578. Shields JD. Reproductive ecology and fecundity of Cancer crabs. A. Wenner, A.M. Kuris. Crustacean Issues. Volume 7. ; In press. reproductive biology/reproductive ecology/fecundity Crustacea/Decapoda/Cancer/crabs/Santa Barbara Channel/marine biology.

3579. Pearce TA. Morphological relationships among Micrarionta spp., land snails endemic to the California islands (Pulmonata: Helminthoglyptidae). Long, S. J. The Western Society of Malacologists, annual report. Annual-Report-Western-Society-of-Malacologists. 1986;18:p.25 Univ. Calif., Dep. Paleontol., Berkeley, CA, United-States 18th annual meeting of the Western Society of Malacologists, Santa Barbara, CA, Aug. 18-21, 1985 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).
California/paleontology/Mollusca/Gastropoda/Holocene/Micrarionta Sodalis/Pacific Coast/Western U.S./United States/Pulmonata/Helminthoglyptidae/Channel Islands/Guadeloupe Islands/Mexico/Micrarionta opontia/San Nicholas Island/Quaternary/morphology/GEOREF.

3580. Shields JD. Fecundity and the reproductive potential of Cancer anthonyi in southern California. To be submitted to Fish. Bull. 1988 fecundity/reproductive potential/Cancer anthonyi/yellow crab/Santa Barbara Channel/marine biology.

3581. Muhs DR. The influence of topography on the spatial variability of soils in Mediterranean climates. Thorn CE. Space and time in geomorphology. Univ. Ill., Dep. Geogr., Urbana-Champaign, United-States. ; 1982. p. p. 269-284. Univ. Wis., Dep. Geogr., Madison, WI, United-States; Univ. Ill., Dep. Geogr., Urbana-Champaign, United-States George Allen and Unwin, London Binghamton symposia in geomorphology, No. 12, Binghamton, NY, 1982 Analytic; Book; Conference publication B; Bibliography and Index of Geology (1969-present). Mediterranean region/soils/weathering/California/surveys/spatial variations/mineral composition/topography/Pacific Coast/Western U.S./United States/geomorphology/San Clemente Island/GEOREF.

3582. Shields JD. Rhizophyidium littoreum on the eggs of Cancer anthonyi: pathogen or saprobe? To be submitted to Biol. Bull in 1989 Unpublished manuscript pathogen/saprobe Rhizophyidium littoreum/bacteria/Cancer anthonyi/yellow crab/Santa Barbara Channel/marine biology/parasitology.

3583. Stolz JF, Chang S, Kirschvink JL. Magnetotactic bacteria and single domain magnetite in hemipelagic sediments. Nature (London). 1986;321(6073):p.849 Jet Propul. Lab., Pasadena, CA, United-States; Calif. Inst. Technol., United-States Analytic; Serial Calif. Inst. Technol., Div. Geol. and Planet. Sci.; Contrib. No. 4328. B; Bibliography and Index of Geology (1969-present). Pacific Ocean/oceanography/sediments/marine sediments/magnetic minerals/bacteria/biochemistry/Holocene/paleomagnetism/remanent magnetization/TEM data/magnetotactic bacteria/magnetic domains/magnetite/oxides/biogenic effects/stability/Quaternary/Santa Barbara Basin/North American Pacific/GEOREF.

3584. Shields JD, Kuris AM. Mechanisms of egg mortality in *Cancer anthonyi*. Am. Zool. 1987;27:15A, #54 egg mortality/*Cancer anthonyi*/yellow crab/Santa Barbara Channel/marine biology.

3585. Hein FJ, Longstaffe FJ, Segó DC. Sediment types, clay mineralogy and geotechnical properties of deep water marine sediments; offshore Baffin Island, Queen Charlotte Vancouver islands and California borderland. Pelletier, B. R., Matich, M. A. J., Meyerhoff, G. G. 3rd Canadian conference on marine geotechnical engineering. Canadian-Conference-on-Marine-Geotechnical-Engineering---Conference-Canadienne-sur-le-Genie-Geotechnique-Marin. 1986;3(2):p.559-575 Univ. Alta., Dep. Civ. Eng., Edmonton, AB, Canada 3rd Canadian conference on marine geotechnical engineering, St. John's, NF, June 10-13, 1986 Analytic; Serial; Conference publication B; Bibliography and Index of Geology (1969-present). California/geophysical surveys/gravity surveys/British Columbia/clay mineralogy/areal studies/soil mechanics/materials/properties/plasticity/Pacific Coast/Western U.S./United States/Santa Barbara Basin/San Nicholas Island/Santa Cruz Island/Western Canada/Canada/Queen Charlotte Islands/Vancouver Island/Baffin Island/Atterberg limits/bathymetry/histograms/statistical analysis/sediments/bioturbation/biogenic structures/sedimentary structures/clay/clastic sediments/GEOREF.

3586. Shields JD, Kuris AM. An in vitro analysis of egg mortality in *Cancer anthonyi*: the role of symbionts and temperature. Biol. Bull. 1988;174:267-275 Quantify brood mortality caused by egg predator nemertean worms and compare the system to that of the heavily infested Dungeness crab, *Cancer magister*, in northern California. eggs/brood mortality/egg predator/parasitism *Cancer anthonyi*/yellow rock crab/*Lagenidium callinectes*/nemertean worm/Santa Barbara Channel/Summerland, California/Gaviota, California/marine biology/parasitology.

3587. Thornton SE. Origin of mass flow sedimentary structures in hemipelagic basin deposits; Santa Barbara Basin, California Borderland. Geo Marine Letters. 1986;6(1):p.15 Unocal Int., Los Angeles, CA, United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present). California/oceanography/continental slope/sedimentation/transport/turbidity currents/Pacific Ocean/geophysical surveys/seismic surveys/sedimentary structures/interpretation/Holocene/Quaternary/Santa Barbara

Basin/varves/planar bedding structures/turbidite/mudflows/Pacific Coast/Western U.S./United States/hemipelagic environment/cores/continental borderland/GEOREF.

3588. Shields JD, Kuris AM. *Carcinonemertes wickhami* n. sp. (Nemertea), an egg predator on the California lobster, *Panulirus interruptus*. To be submitted to *J. Parasitol.* in 1989 Unpublished manuscript
egg predator Nemertea/*Carcinonemertes wickhami*/nemertean/*Panulirus interruptus*/California lobster/Santa Barbara Channel/marine biology/parasitology.

3589. Sorensen SS. Metamorphism of Jurassic, island arc like basement rocks from the Transverse Ranges and Southern California borderland. The Geological Society of America, Cordilleran Section, 81st annual meeting. Abstracts-with-Programs-Geological-Society-of-America. 1985;17(6):p.410 Univ. Calif. at Los Angeles, Dep. Earth and Space Sci., Los Angeles, CA, United-States The Geological Society of America, Cordilleran Section, 81st annual meeting, Vancouver, BC, May 8-10, 1985 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). California/petrology/metamorphism/P T conditions/interpretation/Santa Cruz Island Schist/Santa Monica Formation/Pacific Coast/Western U.S./United States/Southern California/Transverse Ranges/basement/Jurassic/Santa Cruz Island/Santa Monica Mountains/Los Angeles Basin/Willows Plutonic Complex/terrane/island arcs/composition/metasedimentary rocks/amphibolites/greenschist/schists/gabbros/GEOREF.

3590. Shields JD, Okazaki RK, Kuris AM. Brood mortality and egg predation by *Carcinonemertes epialti* on the yellow crab, *Cancer anthonyi*. *Can. J. Fish. Aqu. Sci.* In press
brood mortality/egg predation/*Carcinonemertes*/nemertean/*Cancer anthonyi*/yellow crab/Santa Barbara Channel/marine biology/parasitology.

3591. Orians KJ, Bruland KW. The biogeochemistry of aluminum in the Pacific Ocean. *Earth and Planetary Science Letters.* 1986;78(4):p.397 Univ. Calif., Inst. Mar. Sci., Santa Cruz, CA, United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present).
Pacific Ocean/geochemistry/aluminum/sea water/biogeochemistry/sediment water interface/California Current/North Pacific/South Pacific gyre/bottom water/GEOREF.

3592. Shipley CO. Development of vocalization in northern elephant seal bulls [dissertation]. Los Angeles, California, USA: University of California; 1981. 107.
Northern elephant seals breed on a number of islands off the coast of California and Baja. This species is polygynous and during the breeding season, which lasts from mid-December until early March, bulls spend much of their time in disputes over access to females. These disputes involve stylized threat displays in which the bulls emit a highly segmented vocalization. This threat vocalization has been studied by a number of authors, virtually all of whom have noted extensive variation in the form of the call either between individual bulls in a colony or between colonies. This has led to suggestions that differences between individual threat calls may convey information about dominance or that differences between groups of seals might reflect regional dialects in this species. The present series of studies was designed to evaluate these hypotheses and to document the course of development of male elephant seal threats. The first

study was conducted during the 1977-1978 breeding season and was designed to assess the range of vocal behavior among San Nicolas bulls and to test previous hypotheses about this behavior. It was found that these animals displayed all of the call types previously reported for this species. In addition, a new call type termed a patterned threat was observed. Individual bulls appeared to be very consistent in their vocalizations but considerable variation was seen between the calls of different animals. It was found that call parameters tended to covary with dominance but differences between call parameters of dominant versus subordinate groups generally did not reach significance and there was considerable overlap between the groups. The data did not support the proposed existence of regional dialects in this species as the average pulse rate for the San Nicolas colony was 1.36, very close to values found on all other islands in recent years. The second study was conducted during both the 1978-1979 and 1979-1980 breeding seasons and was designed to document the stability of individual vocal styles in San Nicolas Bulls. During 1978-1979, an attempt was made to identify individual bulls across the breeding season on the basis of distinctive physical features such as scars but this was not generally successful. During the 1979-1980 season bulls were marked with a solution of peroxide and hair dye so that they could be reliably re-identified. For 16 bulls calls were recorded on more than one day. While some variability was noted, bulls were generally quite consistent in the use of a particular call pattern. It was concluded that adult animals have consistent individual vocal patterns and that differences in these patterns between animals may function to facilitate recognition within the male dominance hierarchy. The third study was conducted during the 1978-1979 breeding season and during observation periods in the summer and fall of 1979. The purpose of this study was to observe the developmental sequence of threat vocalizations. The calls of 79 juvenile bulls were studied in detail. It was found that the calls of juveniles are, on average, much more variable than those of adults and that they contain call elements not generally found in the calls of adults. This developmental effect did not appear to be a passive reflection of physical maturation since some juveniles of all ages were observed to emit calls that closely resembled those of adults.

polygyny/breeding biology/vocalization/dominance/Northern elephant seal/Mirounga angustirostris/marine mammal/San Nicolas Island/psychology/ psychobiology.

3593. Stolz JF, Chang SR, Kirschvink JL. Occurrence of magnetotactic bacteria and ultrafine grained magnetite in surface sediments from the Santa Barbara Basin. AGU 1985 fall meeting. Eos, -Transactions, -American-Geophysical-Union. 1985;66(46):p.867 Calif. Inst. Technol., Div. Geol. and Planet. Sci., Pasadena, CA, United-States American Geophysical Union; 1985 fall meeting, San Francisco, CA, Dec. 9-13, 1985 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). California/stratigraphy/Quaternary/paleomagnetism/sediments/properties/magnetic properties/Santa Barbara Basin/Pacific Coast/Western U.S./United States/geochemistry/bacteria/magnetotactic bacteria/magnetite/oxides/magnetic minerals/TEM data/depositional remanent magnetization/remanent magnetization/GEOREF.

3594. Greene HG, Wong FL, Blubaugh B, Carter A, Collot JY, Crawford A, Dadisman S., Exon NF, Fisher M, Goodfellow G et al. Hydrocarbon potential of an island arc summit basin, New Hebrides

Arc, Southwest Pacific. Proceedings Offshore Technology Conference. 1986;18(2):p.261-266

U. S. Geol. Surv., Menlo Park, CA, United-States; Univ. N.S.W., Australia; ORSTOM, New-Caledonia; Univ. Tasmania, Australia; Bur. Miner. Resour., Australia; Vanuatu Geol. Surv., Vanuatu; James Cook Univ., Australia; Br. Geol. Surv., United-Kingdom; Univ. N. Engl., Australia; ProVideo, United-States; San Francisco Chron., United-States; N.Z. Geol. Surv., Australia Offshore technology conference; eighteenth annual meeting, Houston, TX, May 5-8, 1986 Analytic; Serial; Conference publication B; Bibliography and Index of Geology (1969-present).

Vanuatu/geophysical surveys/seismic surveys/economic geology/petroleum/Vanikolo Basin/New Hebrides Arc/Melanesia/island arcs/reflection/refraction/exploration/Torres Island/Santa Cruz Island/sedimentary basins/GEOREF.

3595. Sim CJ, Bakus GJ. Marine sponges of Santa Catalina Island, California, USA. Allan Hancock Found. Occas. Pap. (New Ser.) 1986;0(5):1-23 Address: DEP. BIOL., HAN NAM UNIV., TAEJON, KOREA.

Forty-five species of marine sponges are described from Santa Catalina Island, California. Three of the species are new to science, including *Oxeostilon fernaldi*, *Cyamon koltuni*, and *Cyamon catalina*. New distribution records include *Callyspongia californica*, *Rhizochalina oleracea*, *Adocia ambrosia*, *Hymedesmia cf. levis*, *Cliona viridis*, *Axinella mexicana*, and *Geodia gibberosa*. new species/new

record/distribution/taxonomy/morphology/description/biogeography/zoogeography sponges/*Oxeostilon fernaldi*/*Cyamon koltuni*/*Cyamon catalina*/*Callyspongia californica*/*Rhizochalina oleracea*/*Adocia ambrosia*/*Hymedesmia cf. levis*/*Cliona viridis*/*Axinella mexicana*/*Geodia gibberosa*/Santa Catalina Island/marine biology.

3596. Orr WL. Sulfur and sulfur isotope ratios in Monterey oils of the Santa Maria Basin and Santa Barbara Channel area. Society of Economic Paleontologists and Mineralogists First annual midyear meeting. Abstracts-Society-of-Economic-Paleontologists-and-Mineralogists,-Annual-Midyear -Meeting. 1984;1:p.62

Mobil Resour. and Dev. Corp., Dallas, TX, United-States Society of Economic Paleontologists and Mineralogists First annual midyear meeting, San Jose, CA, Aug. 10-13, 1984 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).

California/geochemistry/sulfur/organic materials/isotopes/S 34/S 32/Santa Barbara County/San Luis Obispo County/Santa Barbara Channel/Santa Maria Basin/Pacific Coast/Western U.S./United States/petroleum/nitrogen/stable isotopes/Monterey/kerogen/deposition/reduction/ratios/GEOREF.

3597. Skupniewicz CE, Schacher GE. Measured plume dispersion parameters over water. Volume 1. Final report, Oct 83-Oct 84. : Naval Postgraduate School, Monterey, CA. NPS-61-84-012; 1984. 108.

The Minerals Management Service sponsored a series of four atmospheric tracer experiments at California coastal locations over a two-year span, 1980-1982. These experiments were designed to assess air pollution impact from proposed oil exploration and drilling activities along the continental shelf. Two experiments (winter and summer) at each of two sites (open coast and Santa Barbara Channel) were funded in order to investigate air quality impact under a range of meteorological conditions and sites. The basic designs of all four experiments were similar. A tracer gas, 100% SF₆, was continuously released from a stationary, sea surface

platform located, for the majority of the experiments approximately 3 miles from shore. During parts of the last experiment, the platform was moved to distances up to 5 miles from shore. This volume analyzes the collected data. The tracer plume is characterized by a variety of parameters, including the conventional hourly averaged sigma-y and sigma-z values widely used in Gaussian plume dispersion formulae. Gaseous dispersion is parameterized for the over-water case by classifying the tracer results by stability in a Pasquill-Gifford equivalent scheme, and analytically describing horizontal and vertical plume growth as a function of plume travel distance. Several other over-water data sets are used in this parameterization. Comparisons are made to the over land case.

Environmental impact/Air pollution/Plumes/Tracer studies/Sulfur compounds/Fluorides/Offshore drilling/Oil fields/Meteorological phenomena/Coastal regions/Dispersions/Air quality/Continental shelves/Trace gases/open coast/Santa Barbara Channel/air pollution/petroleum/mechanical/industrial/civil/marine/engineering.

3598. Schrader H, Muehlhausen L. Carbonate dissolution in an euxinic slope depositional environment; Gulf of California; a foraminiferal study. The Geological Society of America, 97th annual meeting.

Abstracts-with-Programs-Geological-Society-of-America. 1984;16(6):p.648 Oreg. State Univ., Coll. Oceanogr., Corvallis, OR, United-States The Geological Society of America, 97th annual meeting, Reno, NV, November 5-8, 1984 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).

sedimentation/deposition/slope environment/California/oceanography/foraminifers/ecology/euxinic environment/carbonate rocks/solution/Gulf of California/North American Pacific/Pacific Ocean/Pacific Coast/Western U.S./United States/foraminifera/microfossils/Protista/benthonic taxa/sediment water interface/planktonic taxa/oxygen minimum zone/Santa Barbara Basin/GEOREF.

3599. Skupniewicz CE, Borrmann S, Fellbaum C, Shaw WJ, Vaucher CA. Shipboard observations of mean and turbulent atmospheric surface layer quantities. SCCAMP (South Central Coast Cooperative Monitoring Program) Data Report, Part 1. Rept. for Jul 85-Jan 86. : Naval Postgraduate School, Monterey, CA.. NPS-61-86-012; 1986. 71.

Address: Naval Postgrad. Sch., Monterey, CA.
3 Weeks of aerometric observations from a shipboard platform are described and analyzed to obtain surface layer quantities relevant to the dispersion of pollutants from offshore oil operations. Momentum, heat, and moisture flux were estimated with two different methods: the dissipation technique and bulk parameterizations. Diffusion scale turbulence was measured with bivane anemometers and estimates of ship motion contributions to these measurements were performed.

Turbulence/Wind/Aeronomy/Diffusion/Dissipation/Estimates/Flux(Rate)/Layers/Mean /Moisture/Momentum/Observation/Offshore/Operation/Platforms/Quantity/Scale/Ship motion/Shipboard/Surfaces/Heat flux/North pacific ocean/Santa Barbara islands/Measurement/Shipboard/Ground level/Atmospheric surface layer/momentum transfer/heat exchange/moisture transfer/turbulent diffusion/oceanic boundary layer/Santa Barbara Channel/physical oceanography/meteorology/atmospheric sciences/engineering/air pollution/petroleum.

3600. Molina CA. Oceanografía de la boca de el Golfo de California durante el Cuaternario tardío; la conexión de los polycistinos. Translated title: Oceanography of the mouth of the Gulf of California during the late Quaternary; the polycistine connection. Memorias Congreso Latinoamericano de Geología. 1985;6(1):p.444-445
Univ. Nac. Auton. Mex., Inst. Cienc. Mar. y Limnol., Mexico City, Mexico Memorias; VI Congreso Latinoamericano de Geología, Bogota, Oct. 9-12, 1985 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).
Gulf of California/oceanography/ocean circulation/stratigraphy/Quaternary/North American Pacific/Pacific Ocean/water/California Current/Baja California/upwelling/paleo oceanography/upper Quaternary/GEOREF.

3601. Smith AW, Skilling DE, Latham AB. Isolation and identification of five new serotypes of calicivirus from marine mammals. J. Veterinary Research 1981;42(4):693-694
Address: California Univ., Oakland. Naval Biosciences Lab Report Number: UC-NBL-941.
San Miguel sea lion.
serology/viruses/serotypes/vesicular lesions/San Miguel sea lion virus/MSV/Calicivirus/San Miguel sea lion/marine mammals/Pribilof/Islands of Alaska/Southern California/marine biology/mammalogy/parasitology.

3602. Smith CR, Jumars PA. Megafaunal sediment mounds are zones of rapid bioturbation and infaunal colonization at the deep sea floor. Anonymous. AGU/ASLO 1986 ocean sciences meeting. Eos, Transactions, American Geophysical Union. 1985;66(51):p.1315
Univ. Wash., Sch. Oceanogr., Seattle, WA, United States American Geophysical Union and American Society of Limnology and Oceanography, 1986 ocean sciences meeting, New Orleans, LA, Jan. 13-17, 1986 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). Pacific Ocean/oceanography/sedimentation/processes/bioclastic sedimentation/ecology/invertebrates/deep sea environment/sedimentary structures/biogenic structures/bioturbation/North American Pacific/Santa Catalina Basin/mounds/bedding plane irregularities/communities/GEOREF.

3603. Smith AW, Latham AB. Prevalence of vesicular exanthema of swine antibodies among feral mammals associated with the southern California coastal zones. Am. J. Vet. Res. 1978;39(2):291-296
Address: Nav. Biosci. Lab., Nav. Supply Cent., Oakland, CA 94625.
Serum-neutralizing antibodies to both vesicular exanthema of swine virus (VESV) and San Miguel sea lion virus (SMSV) were found in a number of animal species having an association with the southern California coastal zones. California sea lions (*Zalophus californianus*) had antibodies to 9 VESV types (A48, C52, D53, E54, F54, G55, I55, J56, and K56). Fur seals (*Callorhinus ursinus*) and elephant seal pups (*Mirounga angustirostris*) were tested for antibodies to 6 VESV types and all were negative. California gray whales (*Eschrichtius robustus*) were tested for antibodies to 9 VESV types, and sperm whale (*Physeter catodon*), finback whale (*Balaenoptera physalus*), and sei whale (*Balaenoptera borealis*) were tested for 6 VESV types. Among the last 4 species, antibodies were present for each VESV type except C52, and all species were positive for antibodies to 2 or more VESV types. Feral swine from both Santa Cruz Island and Santa Catalina Island were tested and antibodies were present for 8

of. 9 VESV types and all SMSV types except SMSV-4. One donkey from San Miguel Island was positive for VESV I55 and 2 were positive for SMSV-2. vesicular exanthema virus/antibody/incidence/serum-neutralizing antibodies/California sea lions/Zalophus californianus/fur seals/Callorhinus ursinus/elephant seal/Mirounga angustirostris/California gray whales/Eschrichtus robustus/sperm whale/Physeter catodon/Balaenoptera physalus/finback whale/sei whale/Balaenoptera borealis/feral swine feral pigs/donkey/swine virus/VESV/San Miguel/sea lion virus/SMSV/Santa Cruz Island/Santa Catalina Island/San Miguel Island/Santa Barbara Channel marine biology/mammalogy/virology/parasitology/terrestrial biology/pathology.

3604. Mullineaux L. Settlement of organisms onto manganese nodules. Anonymous. AGU/ASLO 1986 ocean sciences meeting. Eos, -Transactions, -American-Geophysical-Union. 1985;66(51):p.1314-1315 Scripps Inst. Oceanogr., La Jolla, CA, United-States American Geophysical Union and American Society of Limnology and Oceanography, 1986 ocean sciences meeting, New Orleans, LA, Jan. 13-17, 1986 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). Pacific Ocean/oceanography/nodules/manganese composition/observations/foraminifers/ecology/deep sea environment/invertebrates/sedimentation/processes/bioclastic sedimentation/North American Pacific/Santa Catalina Basin/microfossils/benthonic taxa/experimental studies/simulation/substrates/GEOREF.

3605. Smith AW, Skilling DE, Latham AB. Isolation and identification of five new serotypes of calicivirus from marine mammals. Am. J. Vet. Res. 1981;42(4):693-694
Address: Sch. Vet. Med., Oregon State Univ., Corvallis, OR 97331, USA. San Miguel sea lion virus (SMSV)-8 and SMSV-10 were recovered from vesicular lesions on the flippers of northern fur seals (Callorhinus ursinus}) in the Pribilof Islands of Alaska. Serotype SMSV-9 was isolated from a sea lion in southern California, and SMSV-11 was isolated from 2 northern fur seal pups in southern California. Serotype SMSV-12 was also isolated in southern California from sea lion and fur seal pups.
viral diseases/serology/infection Callorhinus ursinus/northern fur seals/Zalophus californianus/California sea lion/sea lion virus/viruses/picornavirus/southern California/Pribilof/Islands of Alaska/marine biology/mammalogy/pathology/parasitology.

3606. Smith RC, Bidigare RR, Prezelin BB, Baker KS, Brooks JM. Optical characterization of primary productivity across a coastal front. Mar. Biol 1987;96:563-574
primary productivity/optical characterization/photosynthesis/optics/Santa Barbara Channel/marine biology/oceanography.

3607. Weinheimer AL. Radiolarian indicators of El Nino and anti El Nino events in Holocene sediments of Santa Barbara Basin. Anonymous. 1986 AAPG Pacific Section convention; abstracts. AAPG-Bulletin. 1986;70(4):p.482 Union Oil Calif., Houston, TX, United-States American Association of Petroleum Geologists, Pacific Section 1986 annual meeting, Bakersfield, CA, Apr. 16-19, 1986 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).
California/stratigraphy/Holocene/radiolarians/paleoecology/Pacific Coast/Western U.S./United States/Quaternary/microfossils/paleo oceanography/El Nino/paleocirculation/paleocurrents/Santa Barbara

Basin/North American Pacific/Pacific Ocean/upwelling/California
Countercurrent/thermal circulation/GEOREF.

3608. Sollen R. The federal threat to the California Coast.
Cry California 1981;16(4):2
Petroleum industry/Offshore drilling/Santa Barbara
Channel/policy/petroleum.

3609. Kraemer SMC. Morphology, acoustic characteristics, and
late Quaternary growth of Conception Fan, Santa Barbara Basin,
California. Anonymous. 1986 AAPG Pacific Section convention;
abstracts. AAPG-Bulletin. 1986;70(4):p.470-471
Calif. State Univ., Northridge, CA, United-States American
Association of Petroleum Geologists, Pacific Section 1986 annual
meeting, Bakersfield, CA, Apr. 16-19, 1986 Analytic; Serial;
Conference publication; Abstract B; Bibliography and Index of
Geology (1969-present).
California/stratigraphy/Quaternary/sedimentation/environment/cont
inental margin/geophysical surveys/seismic surveys/Pacific
Coast/Western U.S./United States/Santa Barbara Basin/submarine
fans/Flandrian/Holocene/Conception Fan/Point Conception/Gaviota
Canyon/Sacate Canyon/GEOREF.

3610. Sollen R. Channel Islands National Park: Protected
haven or developed concession? Not Man Apart 1982;12(10):9
Channel Islands National Park/Reagan administration/National park
development/marine biology/policy.

3611. Domack CR. Reconstruction of California Current at 5,
8, and 10 Ma using radiolarian indicators. Anonymous. 1986 AAPG
Pacific Section convention; abstracts. AAPG-Bulletin.
1986;70(4):p.467
Hamilton Coll., Clinton, NY, United-States American Association
of Petroleum Geologists, Pacific Section 1986 annual meeting,
Bakersfield, CA, Apr. 16-19, 1986 Analytic; Serial; Conference
publication; Abstract B; Bibliography and Index of Geology (1969-
present).
California/stratigraphy/Cenozoic/radiolarians/paleoecology/Pacific
Coast/Western U.S./United States/microfossils/California
Current/paleo oceanography/North American Pacific/Pacific
Ocean/species
diversity/Neogene/Tertiary/Quaternary/GEOREF.

3612. Sollen RH. Opening the Channel Islands. Defenders
1979;54(1):20 Nature Conservancy/Wildlife preservation/Endangered
species/California Channel Islands/conservation/resource
management.

3613. Cleveland MN, Casey RE. Radiolarian indices of
physical and chemical oceanographic phenomena in Recent sediments
of Southern California continental borderland. Anonymous. 1986 AAPG
Pacific Section convention; abstracts. AAPG-Bulletin.
1986;70(4):p.465
Occident. Colombia, Bogota, Colombia; Univ. San Diego, United-
States American Association of Petroleum Geologists, Pacific
Section 1986 annual meeting, Bakersfield, CA, Apr. 16-19, 1986
Analytic; Serial; Conference publication; Abstract B; Bibliography
and Index of Geology (1969-present).
California/oceanography/continental
margin/radiolarians/ecology/Holocene/marine environment/Pacific
Coast/Western U.S./United
States/microfossils/Quaternary/California Continental
Borderland/marine sediments/species diversity/anaerobic

environment/California Current/North American Pacific/Pacific Ocean/ocean circulation/biocenoses/GEOREF.

3614. Sorensen S. Petrologic evidence for Jurassic, island-arc-like basement rocks in the southwestern Transverse Ranges and California continental borderland. Geological Society of America Bulletin 1985;96(8):997-1006 Address: Univ. Calif., Dep. Earth and Space Sci., Los Angeles, CA. intrusions/metamorphism/metamorphic rocks/rare earths/geochemistry/plutons/grade/trace elements/emplacement/low-grade metamorphism/Willows Plutonic Complex/Santa Cruz Island Schist/Santa Monica Formation/Jurassic/Mesozoic/petrology/island arcs/basement/minor elements/major elements/metaigneous rocks/metasedimentary rocks/greenschist facies/gabbros/P-T conditions/amphibolite facies/Santa Barbara County/Los Angeles County/Ventura County/California Channel Islands/Santa Monica Mountains/Transverse Ranges/geochemistry/igneous petrology/metamorphic petrology/chemistry/geology/.

3615. Casey RE, Carson TL, Weinheimer AL. Modern California current system and radiolarian responses to 'normal' (anti El Nino) conditions. Anonymous. 1986 AAPG Pacific Section convention; abstracts. AAPG-Bulletin. 1986;70(4):p.464-465 Univ. San Diego, San Diego, CA, United-States; Rice Univ., United-States; Union Oil, United-States American Association of Petroleum Geologists, Pacific Section 1986 annual meeting, Bakersfield, CA, Apr. 16-19, 1986 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). California/oceanography/continental margin/radiolarians/ecology/Holocene/marine environment/Pacific Coast/Western U.S./United States/microfossils/Quaternary/California Current/ocean currents/thermohaline circulation/El Nino/California Continental Borderland/North American Pacific/Pacific Ocean/GEOREF.

3616. Casey RE. Phaeodarian radiolarians as potential indicators of thermal maturation. Anonymous. 1986 AAPG Pacific Section convention; abstracts. AAPG-Bulletin. 1986;70(4):p.464 Univ. San Diego, San Diego, CA, United-States American Association of Petroleum Geologists, Pacific Section 1986 annual meeting, Bakersfield, CA, Apr. 16-19, 1986 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). California/economic geology/petroleum/radiolarians/biochemistry/genesis/thermal history/maturity/microfossils/alteration/pyrolysis/Phaeodarina/Radiolaria/Monterey Formation/Santa Barbara Basin/Orca Basin/marine sediments/GEOREF.

3617. Carson TL. Radiolarian responses to 1983 California El Nino. Anonymous. 1986 AAPG Pacific Section convention; abstracts. AAPG-Bulletin. 1986;70(4):p.464 Kurz Assoc., West Bridgewater, MA, United-States American Association of Petroleum Geologists, Pacific Section 1986 annual meeting, Bakersfield, CA, Apr. 16-19, 1986 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). California/oceanography/continental margin/radiolarians/ecology/Holocene/marine environment/Pacific Coast/Western U.S./United States/microfossils/Quaternary/California Current/ocean currents/species diversity/El Nino/North American Pacific/Pacific Ocean/GEOREF.

3618. Sorensen SS. Petrology of basement rocks of the California Continental Borderland and the Los Angeles Basin. E.M. Gath, M.M. Bottoms. Geology of Santa Catalina Island. : South Coast Geol. Soc.; 1985. 30-38. Address: Univ. Calif. at Los Angeles, Los Angeles, CA Note: Abstracted from 1984 Master's thesis. metamorphic rocks/metamorphism/petrology/genesis/regional metamorphism/P-T conditions/guidebook/Catalina Schist/Santa Cruz Island Schist/Willows Plutonic Complex/Santa Monica Formation/California Continental Borderland/amphibolites/terrane/blueschist/greenschist/thrust faults/basement/metabasite/serpentine/melange/island arcs/saussurite/mineral assemblages/Santa Catalina Island/Los Angeles Basin/geology/igneous petrology/metamorphic petrology.

3619. Weinheimer AL, Carson TL, Wigley CR, Casey RE. Radiolarian responses to Recent and Neogene California El Nino and anti El Nino events. Socci, A. D. Cenozoic paleoceanography. Ohio Univ., Dep. Geol. Sci., Athens, OH, United-States. Palaeogeography, -Palaeoclimatology, -Palaeoecology. 1986;53(1):p.3 Rice Univ., Dep. Geol., Houston, TX, United-States; Ohio Univ., Dep. Geol. Sci., Athens, OH, United-States Society of Economic Paleontologists and Mineralogists, first annual midyear meeting, San Jose, CA, Aug. 1984 Analytic; Serial; Conference publication B; Bibliography and Index of Geology (1969-present). California/stratigraphy/Holocene/Neogene/radiolarians/biostratigraphy/Cenozoic/ paleoclimatology/paleoecology/Monterey Formation/El Nino/Santa Barbara Basin/Quaternary/Tertiary/Pacific Coast/Western U.S./United States/microfossils/paleo oceanography/GEOREF.

3620. Sorensen SS, Barton MD. Metasomatism and partial melting in a subduction complex: Catalina Schist, Southern California. Geology (Boulder) 1987;15(2):115-118 metasomatism/fluid inclusions/metamorphic rocks/environment/P-T conditions/subduction zones/terrane/Catalina Schist/amphibolitization/high pressure/paleosalinity/partial melting/mantle/amphibolites/eclogite/schists/migmatites/plate tectonics/geochemistry/California Channel Islands/Santa Catalina Island/geology/igneous petrology/metamorphic petrology/geochemistry/chemistry.

3621. Craven DB, Jahnke RA, Carlucci AF. Fine scale vertical distributions of microbial biomass and activity in California Borderland sediments. Deep Sea Research. Part A: Oceanographic Research Papers. 1986;33(3):p.379-390 Univ. Calif. San Diego, Inst. Mar. Resour., La Jolla, CA, United-States; Scripps Inst. Oceanogr., Geol. Res. Div., United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present). California/oceanography/continental shelf/sediments/geochemistry/organic materials/marine sediments/sedimentation/transport/marine transport/Pacific Coast/Western U.S./United States/porosity/organic carbon/proteins/adenosine triphosphate/organic acids/biomass/California Continental Borderland/San Pedro Basin/reduction/sulfates/San Clemente Basin/geochemical cycle/GEOREF.

3622. Sorensen SS. Metamorphic geology of the Catalina Schist; insights into Pelona Schist petrogenesis? The Geological Society of America, Cordilleran Section, 82nd annual meeting. Abstracts with Programs - Geological Society of America 18(2). ; 1986. 188. Address: Smithson. Inst., Natl. Mus. Nat. Hist., Dep. Miner. Sci.,

Washington, DC, Conference: The Geological Society of America, Cordilleran Section, 82nd annual meeting. Los Angeles, CA, Mar. 25-28, 1986.

metamorphic rocks/petrology/composition/Catalina Schist/Pelona Schist/metamorphism/P-T conditions/greenschist/schists/blueschist/amphibolites/protoliths /genesis/Santa Catalina Island/geology/igneous petrology/metamorphic petrology.

3623. Casey RE, Carson TL, Weinheimer AL, Wigley CR. El Nino Gringo effects on microplankton and a search for similar effects in the Monterey Formation. Anonymous. Society of Economic Paleontologists and Mineralogists; first annual midyear meeting. Abstracts-Society-of-Economic-Paleontologists-and-Mineralogists,-Annual-Midyear -Meeting. 1984;1:p.18-19
Rice Univ., Geol. Dep., Houston, TX, United-States Society of Economic Paleontologists and Mineralogists; first annual midyear meeting, San Jose, CA, Aug. 10-13, 1984 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).
California/oceanography/ocean circulation/ecology/foraminifers/marine environment/Monterey Formation/Southern California/Pacific Coast/Western U.S./United States/Santa Barbara Basin/El Nino Gringo/plankton/radiolarians/microfossils/ocean currents/microplankton/diatoms/algae/dinoflagellates/GEOREF.

3624. Sozier WB. Water budget computer model to investigate the effectiveness of evaporation control on Thompson Reservoir, Santa Catalina Island, California [dissertation]. : University of Arizona; 1984. 161. hydrology/reservoir/evaporation control/Santa Catalina Island/Thompson Reservoir/hydrology/geology.

3625. Spero HJ, Parker SL. Photosynthesis in the symbiotic planktonic foraminifer *Orbulina universa*, and its potential contribution to oceanic primary productivity. J.H. Lipps. Biology and paleobiology of planktonic foraminifera. Journal of Foraminiferal Research 15(4). ; 1985. 273-281.
Address: Univ. Calif., Dep. Biol., Santa Barbara, CA Note: Catalina Mar. Sci. Cent.; Contrib. No. 103.
ecology/paleontology/symbiosis/photosynthesis/morphology/primary productivity/planktonic taxa/electron microscopy data/oligotrophic environment/biochemistry algae/foraminifera/Globigerinacea/*Orbulina universa*/Santa Catalina Island/invertebrate paleontology.

3626. Bailey EH. Generalized geologic map of Santa Catalina Island, California. Gath EM, Bottoms MM. Geology of Santa Catalina Island. Leighton & Assoc., Irvine, CA, United-States. ; 1985. p. p.82.
U. S. Geol. Surv., United-States; Leighton & Assoc., Irvine, CA, United-States South Coast Geol. Soc., Santa Ana, CA Analytic; Book; Map B; Bibliography and Index of Geology (1969-present).
California/areal geology/Santa Catalina Island/maps/Los Angeles County/Catalina Schist/Pacific Coast/Western U.S./United States/guidebook/geologic maps/Mesozoic/Cenozoic/thrust faults/faults/GEOREF.

3627. Spies RB. Effects of Natural Petroleum Seeps. : Lawrence Livermore National Lab., CA. UCID-19071; 1981. 28. ((Sponsored by Department of Energy, Washington, DC.)).
Note: ERA citation 07:003258.
This paper summarizes what has been learned about how petroleum affects biological processes in the oceans. Unless otherwise

indicated, all references are to seeps near Coal Oil Point in the Santa Barbara channel. Also, to make this summary as timely as possible, some unpublished information will be discussed. Petroleum/Anoxia/Aquatic organisms/Bacteria/Benthos/Biological accumulation/Biological adaptation/Biological availability/Biological effects/Communities/Hydrocarbons/Seawater/Sediments/Seeps/Toxicity/Weathering/bioaccumulation/oil pollution/oil seeps/Santa Barbara Channel/Coal Oil Point/marine biology/environmental biology/petroleum/water pollution/geology/resource management.

3628. Cann LR. Slide mudflow, Fishermans Cove area, Santa Catalina Island. Gath EM, Bottoms MM. Geology of Santa Catalina Island. Leighton & Assoc., Irvine, CA, United-States. ; 1985. p. p.73-81. Leighton & Assoc., Irvine, CA, United-States South Coast Geol. Soc., Santa Ana, CA Analytic; Book B; Bibliography and Index of Geology (1969-present). California/geomorphology/mass movements/landslides/Los Angeles County/Pacific Coast/Western U.S./United States/mudflows/Santa Catalina Island/guidebook/Fishermans Cove/morphometry/schists/rhyolite/rhyolites/volcanic rocks/andesite/andesites/breccia/clastic rocks/colluvium/clastic sediments/alluvium/slumping/GEOREF.

3629. Spies RB, Davis PH. The infaunal benthos of a natural oil seep in the Santa Barbara Channel. Marine Biology 1979;50(3):227-237
Address: California Univ., Livermore. Lawrence Livermore Lab. A diverse infaunal benthic community that exists in the fine sand sediments of a shallow natural oil seep near Santa Barbara, California was studied. The study area and sampling methods are described in this introductory paper. Data presented indicate the adequacy of sampling in revealing horizontal patchiness and vertical faunal distributions. The infauna of the seep and of a nearby comparison area, without seepage but of similar depth and sediment type, are compared. The data indicate a consistently larger but fluctuating density of organisms at the seep station. However, Shannon-Weaver diversity, Peilou's evenness, and measures of dominance-diversity with estimates of graphical skewness and kurtosis are all similar for the two stations. The rank correlation of common species at the stations is significant according to Spearman's rho. Species common to both stations account for 85 to 95% of the individuals, further indicating the high degree of similarity between stations. Denser populations of oligochaetes and the maldanid polychaete *Praxillella affinis pacifica* suggest some advantages for deposit feeders at the seep station. Mats of the bacterium *Beggiatoa* sp. are associated with localized intense oil seepage. Hypotheses suggesting trophic enrichment and biochemical adaptation at the seep are presented. (Deal-EIS).
Oil/Toxicity/Benthic fauna/Diversity/Diversity indices/Bioaccumulation/Biological communities/Aquatic populations/Oil pollution/Organic compounds/Statistical methods/Adaptation/Methane/Aromatic compounds/Bottom sediments/Chemical analysis/spatial distribution/infauna/petroleum/marine organisms/natural oil seep trophic enrichment/Shannon-Weaver diversity/feeding/interstitial environment/vertical distribution/sediment analysis/hydrocarbons/community composition/population density/oil seepages/mats/bacterium/*Beggiatoa*/Polychaetes/maldanid polychaete - *Praxillella affinis pacifica*/Oligochaetes/Santa Barbara Channel/marine biology/petroleum/water quality/pollution/resource

management.

3630. Spies RB, Felton JS, Dillard L. Hepatic mixed-function oxidases in California flatfishes are increased in contaminated environments and by oil and PCB ingestion. Marine Biology 1982;70(2):117-127
Address: Lawrence Livermore National Lab., CA. Note: DOE contract W-7405-Eng-48 and EPA contract EPA-IAG-D6-E681-CF.

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Hepatic mixed-function oxidases (MFOs) were measured in the bothid flatfishes *Citharichthys sordidus* and *C. stigmaeus* from relatively uncontaminated and from polluted coastal populations of California, USA, at various times of the year during 1979-1980 and in individuals fed crude oil and polychlorinated biphenyl-augmented food in the laboratory. For *C. sordidus*, aryl hydrocarbon hydroxylase (AHH) specific activity was generally highest around the Los Angeles County sewage outfall on the Palos Verdes Shelf, intermediate near the 7-mile Hyperion sewage outfall in Santa Monica Bay and around a petroleum seep in the Santa Barbara Channel, the lowest in relatively unpolluted Monterey Bay. For *C. stigmaeus*, which had about ten times less specific activity than the foregoing species, specimens from the Santa Barbara petroleum seep had significantly greater AHH specific activity than those from Monterey Bay. Fishes from contaminated environments also showed increases of microsomal proteins with molecular weights of 56, 54, 57, and 46 x 10 to the 3rd; moreover, the content of cytochrome P-450 was elevated in specimens of *C. sordidus* from such environments. Augmentation of food with seep oil or polychlorinated biphenyls (PCBs) induced significant increases in the specific activity of AHH and amounts of microsomal proteins in *C. stigmaeus*. Thus, these two species of flatfishes are good candidates for monitoring biologically meaningful levels of petroleum and polychlorinated biphenyls in contaminated environments. Moreover, the mixed function oxidase pattern in fish populations from the Santa Barbara petroleum seep is evidently a functional adaptation to chronic intake of petroleum hydrocarbons. (Author's abstract).
Oil pollution/Polychlorinated biphenyls Monitoring/Mixed-function oxidases/Water pollution effects/Adaptation/Coastal areas/Enzymes/Effluents/Fish/bothid flatfish/*Citharichthys sordidus*/*Citharichthys stigmaeus*/Palos Verdes Shelf/Hyperion sewage outfall in Santa Monica Bay/Santa Barbara Channel/petroleum/marine biology/pollution/water quality/resource management.

3631. Pouncey HD. Geology of metallic mineral deposits, Santa Catalina Island, California. Gath EM, Bottoms MM. Geology of Santa Catalina Island. Leighton & Assoc., Irvine, CA, United-States. ; 1985. p. p. 47-59. Calif. State Univ., Los Angeles, CA, United-States; Leighton & Assoc., Irvine, CA, United-States South Coast Geol. Soc., Santa Ana, CA Analytic; Book Abstracted from 1984 Master's thesis. B; Bibliography and Index of Geology (1969-present). California/economic geology/metal ores/mineral deposits/genesis/hydrothermal processes/Los Angeles County/Pacific Coast/Western U.S./United States/Santa Catalina Island/guidebook/gold ores/silver ores/lead zinc deposits/California Continental Borderland/Catalina Schist/terrane/subduction zones/metasedimentary rocks/metamorphic rocks/quartz diorite porphyry/P T conditions/veins/mineral deposits, genesis/structural controls/mineralization/GEOREF.

3632. Probert A. Mining history, Santa Catalina Island, Los Angeles County, California. Gath EM, Bottoms MM. Geology of Santa Catalina Island. Leighton & Assoc., Irvine, CA, United-States. ;

1985. p. p. 39-46.

3277 North San Amadeo, Laguna Hills, CA, United-States; Leighton & Assoc., Irvine, CA, United-States South Coast Geol. Soc., Santa Ana, CA Analytic; Book Reprinted from ''Geology and mineral wealth of the California Transverse Ranges''. B; Bibliography and Index of Geology (1969-present).
California/economic geology/metal ores/mining geology/history/practice/Los Angeles County/Catalina Schist/Pacific Coast/Western U.S./United States/silver ores/gold ores/lead zinc deposits/production/Santa Catalina Island/guidebook/basement/recovery/GEOREF.

3633. Spies RB, Des Marais DJ. Natural isotope study of trophic enrichment of marine benthic communities by petroleum seepage. Mar. Biol. (Berl.) 1983;73(1):67-72
The isotopic ratios of S and C in the tissues of infaunal organisms collected from a natural petroleum seep in the Santa Barbara Channel, California, USA were examined to see if petroleum is utilized by the benthic community. S isotope data were consistent with a pathway of petroleum energy from sulfate reducers .fwdarw. H₂S .fwdarw. *Beggiatoa* sp. .fwdarw. nematodes and other infauna. The C of infaunal organisms was isotopically lighter at the seep than at a comparison station; the mean $\delta^{13}\text{C}$ for 12 spp. [*Axiothella rubrocincta*, *Beggiatoa* sp., *Praxillella affinis pacifica*, *Mediomastus californiensis*, *Tellina modesta*, *Tharyx tessellata*, *Pista disjuncta*, *Nereis procera*, *Paraphoxus* spp. *Nephtys caecoides*, *Glycera* branchiopoda on a hemichordate] was -1.32 ‰ towards the petroleum $\delta^{13}\text{C}$ value. The shifts were largest in 2 spp. of deep-feeding malidanid polychaetes. The tissues of 1 of the species, *P. a. pacifica*, were also analyzed for ^{14}C content and $\delta^{14}\text{S}$, and the biomass produced by the populations over 26 mo. was estimated. For the seep population it was estimated that there was 15.6% more fossil C, chemoautotrophic bacteria contributed 13.6% more C and 19% more C was produced by the population over 26 mo. In spite of the possible sources of error, these values are in reasonable agreement. Although petroleum utilization by the benthic food web proceeds both directly through heterotrophs and indirectly.
chemoautotroph/carbon 14/biomass/petroleum seepage/oil seepages/zoobenthos/food webs/sulfur isotopes/*Beggiatoa*/*Praxillella affinis*/Santa Barbara Channel.

3634. Sorensen SS. Petrology of basement rocks of the California Continental Borderland and the Los Angeles Basin. Gath EM, Bottoms MM. Geology of Santa Catalina Island. Leighton & Assoc., Irvine, CA, United-States. ; 1985. p. p. 30-38.
Univ. Calif. at Los Angeles, Los Angeles, CA, United-States; Leighton & Assoc., Irvine, CA, United-States South Coast Geol. Soc., Santa Ana, CA Analytic; Book Abstracted from 1984 Master's thesis. B; Bibliography and Index of Geology (1969-present).
California/petrology/metamorphic rocks/genesis/P T conditions/metamorphism/regional metamorphism/Los Angeles County/Catalina Schist/Santa Cruz Island Schist/Willows Plutonic Complex/Santa Monica Formation/Pacific Coast/Western U.S./United States/Santa Catalina Island/guidebook/California Continental Borderland/Los Angeles Basin/amphibolites/terrane/blueschist/schists/greenschist/thrust faults/faults/basement/metabasite/metaigneous rocks/serpentine/metasomatic rocks/melange/island arcs/saussurite/mineral assemblages/GEOREF.

3635. Stebbins TD. Density distribution and feeding of the marine snail *Norrisia norrisi* (Mollusca: Gastropoda) on the kelp

Macrocyrtis pyriferu (Phaeophyta: Laminariales. Bull. South. Calif. Acad. Sci. 1986;85(2):69-73 Address: DEP. BIOL. SCI., UNIV. SOUTHERN CALIF., LOS ANGELES, CALIF. 90089. Grazing by the snail *Norrisia norrisi* on *Macrocyrtis pyriferu* was studied off Santa Catalina Island, California [USA]. Snails occurred on all parts of *M. pyriferu* plants and averaged 8.7 individuals/plant. Laboratory feeding experiments indicated that *N. norrisi* consumed significantly more sporophyll tissue (53%) than either mature (23%) or apical (24%) laminae. Snails consumed approximately 1-3% of the estimated daily *M. pyriferu* production. Consequently, grazing by these snails may not be significant under normal conditions. However, the strong preference for sporophyll tissue suggests that *N. norrisi* could have significant effects on the reproductive capacity of *M. pyriferu*, especially in kelp beds damaged by storms or other disturbances.
sporophyll consumption/kelp population reduction/kelp snail/*Norrisia norrisi*/giant kelp/*Macrocyrtis pyriferu*/Santa Catalina Island/marine biology/malacology.

3636. Gath EM. Brief overview of the tectonic origin of the southern California Continental Borderland. Gath EM, Bottoms MM. Geology of Santa Catalina Island. Leighton & Assoc., Irvine, CA, United-States. ; 1985. p. p.9-15. Leighton & Assoc., Irvine, CA, United-States; Leighton & Assoc., Irvine, CA, United-States South Coast Geol. Soc., Santa Ana, CA Analytic; Book B; Bibliography and Index of Geology (1969-present).
California/structural geology/tectonics/sedimentation/controls/tectonic controls/Los Angeles County/Franciscan Formation/Great Valley Sequence/Pacific Coast/Western U.S./United States/Southern California/California Continental Borderland/Santa Catalina Island/guidebook/subsidence/transform faults/faults/volcanism/uplifts/rifting/subduction/continental margin/Mesozoic/Cenozoic/East Santa Cruz Fault/right lateral faults/paleomagnetism/block structures/plate rotation/GEOREF.

3637. Steer BL, Abbott PL. Paleohydrology of the Eocene Ballena River, Sonora to San Diego. The Geological Society of America, Cordilleran Section, 77th annual meeting, international meeting. Abstracts with Programs - Geological Society of America 1981;13(2):108
Address: Amoco Prod. Co., Denver, CO, USA; San Diego State Univ. Conference: The Geological Society of America, Cordilleran Section, 77th annual meeting, international meeting. Hermosillo, Mexico, March 25-27, 1981. paleogeography/sedimentary rocks/stratigraphy/Eocene/clastic rocks/provenance/Poway Conglomerate/Jolla Vieja Formation/Ballena Gravels/Peninsular Ranges/continental borderland/Paleogene/Tertiary/paleohydrology/Imuris Volcanics/alluvium/clastic sediments/alluvial fans/submarine fans/channel geometry/grain size/stream transport/velocity/floods/reconstruction San Diego County/San Diego/Santa Cruz/Sonora/Ballena River/Santa Cruz Island/stratigraphy/historical geology.

3638. Gath EM. Introduction to Santa Catalina Island. Gath EM, Bottoms MM. Geology of Santa Catalina Island. Leighton & Assoc., Irvine, CA, United-States. ; 1985. p. p.2-3. Leighton & Assoc., Irvine, CA, United-States; Leighton & Assoc., Irvine, CA, United-States South Coast Geol. Soc., Santa Ana, CA Analytic; Book B; Bibliography and Index of Geology (1969-present).
California/areal geology/Santa Catalina Island/Los Angeles

County/Catalina Schist/Pacific Coast/Western U.S./United States/guidebook/history/lead zinc deposits/metal ores/gold ores/silver ores/marine terraces/GEOREF.

3639. Steer BL, Abbott PL. Paleohydrology of the Eocene Ballena Gravels, San Diego County, California. Fluvial sedimentation and related tectonic framework, western North America. Sedimentary Geology 1984;38(1-4):181-216 Address: Amoco Prod. Co., Denver, CO, USA; San Diego State Univ., Dep. Geol. Sci., USA.

The Ballena Gravels are remnants of a river system that flowed westward across the ancestral Peninsular Ranges during medial and late Eocene time. The gravels (actually conglomerate) are channelized fluvial deposits that built westward as alluvial fan (Poway Group), submarine canyon (Scripps Formation) and submarine fan (Jolla Vieja Formation) depositional systems. Because the integrated sedimentary system contains distinctive Poway rhyolite clasts of limited geographic and temporal extent the now separated component formations are recognizable on the San Diego coastal plain and on the Channel Islands. Paleogeographic reconstructions suggest a transport distance of about 315 km. Multiple techniques analysis suggests the channel gradient in the San Diego area was $12-18 \text{ m km}^{-1}$. Stream velocity, based on a competent particle size of 52 cm, ranges from 2.5 to 4 m s^{-1} . Eight equations based on slope and velocity generated estimates of channel depth at flood stage that vary from 2.5 to 4.5 m.--Modified journal abstract.

sedimentation/sedimentary rocks/paleogeography/stratigraphy/Eocene/environment/clastic rocks/fluvial environment/conglomerate/San Diego County/Ballena Gravels/Scripps Formation/Poway Group/Jolla Vieja Formation/Paleogene/Tertiary/Nueces River/atmospheric precipitation/hydrology/granulometry/tectonic controls/San Diego County/Nueces River/California Channel Islands/geology/sedimentary petrology.

3640. Gath EM, Bottoms MM. Geology of Santa Catalina Island. 82. ; 1985. Leighton & Assoc., Irvine, CA, United-States South Coast Geol. Soc., Santa Ana, CA Monographic; Book; Map Publ. in conjunction with South Coast Geol. Soc. 13th annual field trip, Nov. 7-8, 1985; individual papers are cited separately. B; Bibliography and Index of Geology (1969-present). California/areal geology/Santa Catalina Island/maps/Los Angeles County/Pacific Coast/Western U.S./United States/San Pedro Basin/guidebook/tectonics/basement/geomorphology/metal ores/mining geology/geologic maps/GEOREF.

3641. Stein JL, Herder M, Miller K. Birth of a northern fur seal on the mainland California coast. Calif. Fish Game 1986;72(3):179-181 Address: Moss Landing Mar. Lab., P.O. Box 223, Moss Landing, CA 95039, USA. The known breeding rookeries of the northern fur seal, *Callorhinus ursinus*, are the Pribilof Islands of Alaska; the Commander Islands, Robben Island, and the Kurile Islands, U.S.S.R.; San Miguel Island, California; and a recently discovered rookery on Bogoslof Island, Alaska. Incidences of pupping away from known rookeries are unusual. Although Fiscus (1978) reports that a northern fur seal was born on the Washington coast in 1959, the birth recorded herein is the first known for the mainland coast of California. birth/new records/breeding sites/viviparity/pups/pupping/population studies/rookeries *Callorhinus ursinus*/northern fur seal/Pribilof Islands/Alaska/Commander Islands/Robben Island/Kurile Islands/U.S.S.R./San Miguel Island/Bogoslof Island/mainland coast

of California/marine biology/mammalogy.

3642. Field ME, Edwards BD, Kenyon NH, Somers ML. Side scan sonar maps of the entire Southern California borderland and adjacent seamount province. The Geological Society of America, 97th annual meeting.

Abstracts-with-Programs-Geological-Society-of-America. 1984;16(6):p.508 U. S. Geol. Surv., Menlo Park, CA, United-States; Inst. Oceanogr. Sci., United-States The Geological Society of America, 97th annual meeting, Reno, NV, November 5-8, 1984 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). California/oceanography/ocean floors/geophysical methods/acoustical methods/sonar methods/side scanning methods/maps/Southern California/Pacific Coast/Western U.S./United States/seamounts/GEOREF.

3643. Steinberg M, Bigler E, Tug S, Bonnot-Courtois C, Desprairies, A., Lallier-Verges E, Riviere M, Marcoux J. Comparaison des caracteristiques texturales et geochemiques de quelques concretions ferro-manganesiferes recentes et fossiles - Comparison of textural and geochemical characteristics of some Recent ferromanganesian concretions and fossils. L. Leclaire. Les archives de l'ocean - The archives of the ocean. Bulletin de la Societe Geologique de France 26(1). ; 1984. 15-23. Address: Univ. Paris Sud, lab. geochim. roches sediment., Orsay 91405, FRA Conference: Societe geologique de France; Seance specialisee ; Les archives de l'ocean. Paris, France, Dec. 13-14, 1982.

nodules/manganese/iron/diagenesis/ferromanganese composition/geochemistry/processes/textures/early diagenesis/major elements/minor elements/Holocene/Quaternary/Eocene/Paleogene/Tertiary/Triassic/Maeastrichtian/Senonian/Upper Cretaceous/Cretaceous/Tithonian/Portlandian/Upper Jurassic/Jurassic/genesis/North American Pacific/Pacific Ocean/North Atlantic/Atlantic Ocean/Mozambique Channel/Mexico/Baja California/Greek Aegean Islands/Taunus/oceanography/Indian Ocean/Greece/Southern Europe/Europe/Tilos Island/marine geology/oceanography.

3644. Casey RE, Carson TL, Weinheimer AL, Wigley CR. Recent and fossil microplanktonic and sedimentologic records of Californian El Ninos. The Geological Society of America, 97th annual meeting.

Abstracts-with-Programs-Geological-Society-of-America. 1984;16(6):p.465 Rice Univ., Dep. Geol., Houston, TX, United-States The Geological Society of America, 97th annual meeting, Reno, NV, November 5-8, 1984 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). California/oceanography/ocean circulation/sedimentation/environment/marine environment/Pacific Ocean/Monterey Formation/Pacific Coast/Western U.S./United States/Southern California/El Nino/Santa Barbara Basin/anti El Nino/temperature/plankton/planktonic taxa/phytoplankton/foraminifers/microfossils/radiolarians/diatom flora/dinoflagellates/Miocene/Neogene/Tertiary/Pliocene/atmospheric precipitation/GEOREF.

3645. Steinmetz RL. Earthquake-resistant design of offshore structures. Proceedings, seismic risk and heavy industrial facilities conference. : Lawrence Livermore Natl. Lab.; 1983. 4-6. Address: Exxon Prod. Res. Co., Houston, TX Conference: Seismic

risk and heavy industrial facilities conference. San Francisco, CA, May 11-13, 1983 Note: Presented at conference by Vayas, Yogesh. earthquakes/marine installations/design/offshore/seismic risk/marine platforms/epicenters/Cook Inlet/Santa Barbara Channel/Asia/Bohai Bay/Indian Ocean/Aegian Sea/engineering/geology/environmental geology.

3646. McCulloch DS, Gardner JV, Eittreim SL, Masson DG. GLORIA survey of the morphology of the mid California continental margin out to 200 n.mi. American Geophysical Union, 1984 Fall Meeting.

Eos,-Transactions,-American-Geophysical-Union. 1984;65(45):p.1083 U. S. Geol. Surv., Menlo Park, CA, United-States; Inst. Oceanogr. Sci., United-Kingdom American Geophysical Union, 1984 Fall meeting, San Francisco, CA, Dec. 3-7 1984 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).

California/geophysical surveys/acoustical surveys/Pacific Ocean/oceanography/continental margin/Pacific Coast/Western U.S./United States/ocean floors/Santa Lucia Bank/Murray fracture zone/Arguello Canyon/Santa Barbara Channel/Monterey Fan/Delgada Fan/GEOREF.

3647. Steritz JW. The southern termination of the Hosgri fault zone, offshore south-central California [dissertation]. Santa Barbara, CA: University of California; 1986. 78.

faults/geophysical surveys/displacements/continental shelf seismic surveys/active faults/Hosgri fault zone/reverse faults/right-slip faults/rotation/Transverse Ranges/Cenozoic boundary/structural provinces/Santa Barbara Channel/Point Conception/Purisima Point/structural geology/marine geology/oceanography.

3648. Booth JS, Dahl AG. A note on the relationships between organic matter and some geotechnical properties of a marine sediment. Marine Geotechnology. 1986;6(3):p.281-297

U. S. Geol. Surv., Woods Hole, MA, United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present).

An analysis of the relationship between organic matter and liquid and plastic limits, and grain-specific gravity of a marine sediment was accomplished by making a stepwise adjustment in the organic content of that sediment. The sample used was from Santa Barbara Basin (off Southern California) and is typical of fine-grained marine sediments; it is a clayey silt with a common suite of minerals and other constituents. Liquid limit, plastic limit, and plasticity index all increased with increasing organic content over the range studied (0.57-3.20% organic carbon). Comparing the results of regression analyses from this and several similar studies shows that although there is good qualitative agreement, there are quantitative inconsistencies. The increase in liquid limit as organic carbon increased by 1% sediment dry weight ranged from 9 to 28% water content; in the plastic limit the range was from 4 to 18%.--Modified journal abstract.

Pacific Ocean/oceanography/sediments/marine sediments/organic materials/soil mechanics/materials/properties/Santa Barbara Basin/regression analysis/statistical analysis/plasticity/C 14/textures/GEOREF.

3649. Steritz JW, Luyendyk BP. Hosgri fault zone, offshore Santa Maria Basin, California. Geological Society of America, Cordilleran Section, 83rd annual meeting. Abstracts with Programs - Geological Society of America 19(6). ; 1987. 454-455.

Address: Univ. Calif., Dep. Geol. Sci., Santa Barbara, CA
Conference: Geological Society of America, Cordilleran Section,

83rd annual meeting; with the Paleontological Society of America, Pacific Coast Section. Hilo, HI May 20-22, 1987.
faults/Hosgri fault zone/Transverse Ranges/upper
Miocene/Miocene/Neogene/Tertiary/offshore/right-lateral
faults/displacements Pacific Coast/Western U.S./Central
California/Santa Barbara County/Point Sal/Point Conception/Santa
Barbara Channel/structural geology.

3650. Crandall GJ, Luyendyk BP, Reichle MS, Prothero WA. A marine seismic refraction study of the Santa Barbara Channel, California. Marine Geophysical Researches. 1983;6(1):p.15-37
Univ. Calif., Dep. Geol. Sci., Santa Barbara, CA 93106, United-
States Analytic; Serial B; Bibliography and Index of Geology
(1969-present). California/geophysical surveys/seismic
surveys/tectonophysics/mantle/refraction methods/marine
methods/Pacific Coast/Western U.S./United States/Santa Barbara
Channel/North American Pacific/Pacific Ocean/elastic waves/P
waves/body waves/velocity structure/traveltime/oceanic
crust/crust/upper mantle/plate tectonics/GEOREF.

3651. Stevens TA, Shields JD. Reproductive resource allocation in *Cancer anthonyi*. Am. Zool. 1987;27:57A, #292
Reproductive biology/resource allocation/*Cancer anthonyi*/yellow
crab/Santa Barbara Channel/marine biology.

3652. Novikova NN, Sidorenko TV. The long range BG precursor for seven regions of the world. Computational Seismology: Earthquake Prediction and the Structure of the Earth. 1984;17:p.6-12
Analytic; Serial B; Bibliography and Index of Geology (1969-present). seismology/earthquakes/prediction/precursors/global/BG precursor/Circum Pacific region/South America/Vanuatu/Melanesia/Santa Cruz Island/Solomon Islands/aftershocks/swarms/main shocks/magnitude/Chile/Peru/Columbia/China/Far East/Asia/GEOREF.

3653. Stewart B. The Guadalupe fur seal *Arctocephalus townsendi* on San Nicolas Island, California, USA. Bull. South. Calif. Acad. Sci. 1982;80(3):134-136 Address: HUBBS-SEA WORLD RESEARCH INST., 1700 SOUTH SHORES ROAD, MISSION BAY, SAN DIEGO, CALIF. 92109.
territorial defense/Otariidae/Guadalupe fur seal/*Arctocephalus townsendi*/San Nicolas Island/marine biology/mammalogy.

3654. Lichtman GS, Shiller GI, Pierson LJ. Geophysical evaluation of submerged post Wisconsin potential archaeological sites, Santa Barbara Channel, California. Anonymous. Abstracts of papers presented at the 54th annual international SEG meeting. Geophysics. 1985;50(2):p.289
Nekton, United-States; Underwater Archaeol. Consult., United-States Society of Exploration Geophysicists, 54th annual international meeting, Atlanta, GA, Dec. 2-6, 1984 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).
California/stratigraphy/archaeology/geophysical surveys/surveys/Pacific Coast/Western U.S./United States/Santa Barbara Channel/marine methods/marine environment/archaeological sites/estuarine environment/lagoonal environment/continental shelf/Holocene/Quaternary/transgression/underwater archaeology/applications/Wisconsinan/upper Pleistocene/Pleistocene/GEOREF.

3655. Stewart BS. Diurnal hauling patterns of harbor seals

at San Miguel Island, California. J. Wildl. Manage.
1984;48(4):1459-1461

Address: Hubbs-Sea World Res. Inst., 1700 South Shores Rd, San
Diego, CA 92109, USA.

The author tested the null hypothesis that maximum number of seals
hauled-out each day at San Miguel Island, California, was
independent of time of day. He monitored harbor seal (*Phoca hispida*
richardsi) populations at San Miguel Island, California (34 degree
N, 120 degree W), from December 1978 through September 1981 using
biweekly ground counts supplemented with periodic aerial surveys.
The major hauling areas are sandy beaches and are accessible at all
tide heights except occasionally during winter storms. Hauling
patterns were recorded at two major hauling sites using time-lapse
photography for 272 days from 19 January 1979 through 9 June 1980.
diurnal variations/activity patterns/hauling areas/haul-out
behavior/hauling patterns/circadian rhythms/diurnal
rhythms/population dynamics/*Phoca hispida richardsi*/*Phoca*
vitulina/harbor seal/San Miguel Island/marine biology/mammalogy.

3656. Stewart BS, Kovach SD. Northern elephant seals and
California sea lions: New hosts for cattle egrets. Condor
1982;84(2):243

Address: Hubbs/Sea World Res. Inst., 1700 South Shores Rd., San
Diego, CA 92109, USA.

The colonization and range expansion of the Cattle Egret (*Bubulcus*
ibis) along the Pacific coast of the United States during the last
two decades is well documented. The species has established several
breeding colonies in California, including one at the Salton Sea
where several thousand birds now breed annually. Since the late
1970's, egrets have also been regular winter visitors on the
southern California Channel Islands. The authors report here on
interactions observed between foraging Cattle Egrets and northern
elephant seals (*Mirounga angustirostris*) and California sea lions
(*Zalophus californianus*) on San Nicolas Island, California.
feeding behavior/symbiosis/hosts/new records/reproductive
biology/sexual reproduction/breeding sites/population biology/new
records/geographic distribution/population growth/*Mirounga*
angustirostris/northern elephant seals/*Zalophus*
californianus/California sea lions/*Bubulcus ibis*/Cattle
Egret/southern/California Channel Islands/San Nicolas Island/Salton
Sea/terrestrial biology/marine biology/mammalogy/ornithology.

3657. Keller B, Prothero W. Western Transverse Ranges
crustal model. AGU 1984 Fall meeting. Eos, -Transactions, -American-
Geophysical-Union. 1984;65(45):p.996

Univ. Calif., Dep. Geol. Sci., Santa Barbara, CA, United States
American Geophysical Union, 1984 Fall meeting, San Francisco, CA,
Dec. 3-7, 1984 Analytic; Serial; Conference publication; Abstract
B; Bibliography and Index of Geology (1969-present).
California/seismology/crust/velocity structure/Pacific
Coast/Western U.S./United States/Transverse Ranges/reflection/Santa
Barbara/Borderland/Coast Ranges/Santa Barbara Channel/Santa Cruz
Island fault/East Pacific Rise/GEOREF.

3658. Stewart BS, Yochem PK. Seasonal abundance of pinnipeds
at San Nicolas Island, California, USA, 1980-1982. Bull. South,
Calif. Acad. Sci. 1984;83(3):121-132

Address: HUBBS-SEA WORLD RES. INST., 1700 SOUTH SHORES RD., SAN
DIEGO, CALIF. 92109.

Seasonal cycles in abundance of northern elephant seals [*Mirounga*
angustirostris], California sea lions [*Zalophus californianus*],
harbor seals [*Phoca vitulina richardsi*], and Gaudalupe fur seals
[*Arctocephalus townsendi*] at San Nicolas Island, California, were

monitored by frequent ground and aerial surveys from Feb. 1980-Sept 1982. Northern elephant seals were abundant in late Jan. and early Feb. during the height of their breeding season and again in late April-early May when juveniles and adult females hauled out to molt. Sea lions were most abundant in late June to early July during the height of their breeding season and were least abundant in winter and early spring. Harbor seals were in greatest abundance in late May-early June when they were molting and numbers were lowest in winter. Guadalupe fur seals were present from June-Sept. during their breeding season. Seasonal populations and pup production of elephant seals, sea lions and harbor seals increased each year.

abundance/population biology/seasonal cycles/molting/breeding biology/breeding season/seasonal variations/abundance/population dynamics/aerial survey/marine mammals/census/northern elephant seals/Mirounga angustirostris/California sea lions/Zalophus californianus/harbor seals/Phoca vitulina richardsi/Gaudalupe fur seals/Arctocephalus townsendi/San Nicolas Island marine biology/mammalogy.

3659. Prothero W, Keller B. Santa Barbara channel earthquake locations, 1979-1982. AGU 1984 Fall meeting. Eos, -Transactions, -American-Geophysical-Union. 1984;65(45):p.996 Univ. Calif., Dep. Geol. Sci., Santa Barbara, CA, United-States American Geophysical Union, 1984 Fall meeting, San Francisco, CA, Dec. 3-7, 1984 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). California/seismology/earthquakes/faults/Pacific Coast/Western U.S./United States/Pitas Point Fault/Oak Ridge Fault/Santa Barbara/Mesa Fault/Arroyo Parida Fault/thrust faults/displacements/GEOREF.

3660. etewart BS, Yochem PK. Entanglement of pinnipeds in synthetic debris and fishing net and line fragments at San Nicolas and San Miguel islands, California, 1978-1986. Mar. Poll. Bull. 1987;18(6B):336-339 Address: Sea World Res. Inst., Hubbs Mar. Res. Cent., 1700 S. Shores Rd., San Diego, CA 92109, USA Conference: Plastics in the Sea: Sixth International Ocean Disposal Symposium Pacific Grove, CA (USA) 21-25 Apr 1986. Edited by D.A. Wolfe. Trends in abundance of pinnipeds in Southern California have apparently not been significantly influenced by entanglement of individuals in marine debris. Juveniles may be the most susceptible to entanglement in debris and the effect of any recent declines in survival of younger age classes on trends in annual numbers of births may not be detectable for several years. Further studies are needed to document trends in debris-related entanglement and the effects of this entanglement on juvenile survival and subsequent recruitment. marine pollution/pollution effects/plastics/fishing nets/marine mammals/mortality causes/entanglement/synthetic debris/fishing line/fragments/population dynamics/entanglement Mammalia/pinnipeds/Pinnipedia/California Channel Islands/San Nicolas Island/San Miguel Island/marine biology/mammalogy/pollution/plastics.

3661. Cushing J, Daily M, Noble E, Roth VL, Wenner A. Fossil mammoths from Santa Cruz Island, California. Quaternary Research (New York). 1984;21(3):p.376-384 Univ. Calif., Dep. Biol. Sci., Santa Barbara, CA, United-States; Santa Barbara Mus. Nat. Hist., United-States; Smithson. Inst., Div. Mammals, United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present). California/paleontology/Mammalia/Elephantoidea/Pleistocene/mammot hs/Santa Cruz Island/Pacific Coast/Western U.S./United

States/Proboscidea/Christy Ranch/Sauces Canyon/Pozo Canyon/GEOREF.

3662. Stewart BS, Yochem PK, DeLong RL, Antonelis Jr. GA. Interactions between Guadalupe fur seals and California sea lions at San Nicolas and San Miguel Islands, California, USA. International Symposium and Workshop on the Status, Biology, and Ecology of Fur Seals. NOAA Teck. Rep. MNFS Circ. 1987;0(51):103-106 Address: HUBBS MAR. RES. CENT., 1700 S. SHORES RD., SAN DIEGO, CALIF. 92109 Presented: CAMBRIDGE, ENGLAND, UK, APRIL 23-27. territoriality/breeding/population/Guadalupe fur seal/Arctocephalus townsendi/California sea lion/Zalophus californianus/San Nicolas Island/San Miguel Island/marine biology/mammalogy.

3663. Miller PL. Late Cretaceous coccolith biostratigraphy of San Miguel Island, California. Anonymous. Alaskan and West Coast geology, energy, and mineral resources. AAPG-Bulletin. 1985;69(4):p.670 Chevron USA, Concord, CA, United-States AAPG-SEPM-SEG Pacific sections, annual meeting ; Alaskan and West Coast geology, energy, and mineral resources, Anchorage, AK, May 22-24, 1985 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). California/stratigraphy/Cretaceous/algal flora/coccoliths/Santa Barbara County/Mirounga Formation/Pacific Coast/Western U.S./United States/San Miguel Island/Upper Cretaceous/biostratigraphy/zoning/microfossils/GEOREF.

3664. Stewart BS, Yochem PK, Schreiber RW. Pelagic red crabs as food for gulls: A possible benefit of El Nino. Condor 1984;86(3):341-342 Swarms of live pelagic red crabs (*Pleuroncodes planipes*) began appearing in the surf and on beaches at San Nicolas Island. (SNI), off southern California, in late December 1982. Although these crustaceans have occurred as far north as Monterey, their distribution is centered off the western coast of Baja California and they occur only rarely in the Southern California Bight. From late December 1982 to early January 1983, the number of roosting Herring Gulls (*Larus argentatus*) also increased at several areas at SNI. This species is generally uncommon at and around the Southern California Channel Islands in winter although adults have been reported to be fairly common further offshore at that season. These birds fed on live red crabs in the surf, or occasionally on those recently washed ashore. food organisms/food sources/*Larus argentatus*/Herring Gulls/*Pleuroncodes planipes*/red crabs/San Nicolas Island/marine biology/ornithology/terrestrial biology.

3665. Webster FL, Burdick DJ, Griggs DG, Yenne KA. Geologic report, proposed Southern California planning area; OCS lease sale No. 95. 1985 Monographic; Report; Map B; Bibliography and Index of Geology (1969-present) U. S. Dep. Interior, Miner. Manage. Serv., Los Angeles, CA, United States. California/economic geology/fuel resources/oceanography/continental shelf/Pacific Coast/Western U.S./United States/Southern California/OCS lease sale 95/Santa Maria Basin/Santa Barbara Channel/basement/reservoir rocks/source rocks/structural traps/traps/stratigraphic traps/resources/GEOREF.

3666. Stonier JC. A study in prechamber treatment of cerebral air embolism patients by a first provider at Santa Catalina Island. Undersea Biomed. Res. 1985;12(1):58 Address: Rescue Vessel Baywatch Isthmus Los Angeles Cty. Lifeguard Serv., P.O. Box 1566, Avalon, CA 90704, USA Conference: 1985 Joint

Conference of the Undersea Medical Society Annual Scientific Meeting and 10. Annual Conference on Clinical Application of Hyperbaric Oxygen. Long Beach, CA (USA). 11-14 Jun 1985. Since 1975, the Los Angeles County lifeguard rescue boats at Catalina Island, "Baywatch Avalon and Isthmus" have responded and treated 58 cerebral air embolism victims. Emergency treatment during transport and results are discussed. diving accidents/brain/therapy/decompression sickness/prechamber treatment/cerebral air embolism/hyperbaric chamber/oxygen/metabolic drug/lactated ringers solution/diving/SCUBA/Homo sapiens/Santa Catalina Island/medicine/human physiology/public health.

3667. Leslie B, Hammond DE, Lund S, Hamilton M. Diagenesis of iron and sulfur in sediments from the California Borderland. AGU 1984 fall meeting. Eos, -Transactions, -American-Geophysical-Union. 1984;65(45):p.957 Univ. South. Calif., Los Angeles, CA, United-States American Geophysical Union, 1984 Fall meeting, San Francisco, CA, Dec. 3-7, 1984 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). California/oceanography/diagenesis/sediments/pore water/iron/geochemistry/sulfur/Pacific Coast/Western U.S./United States/continental borderland/Southern California/sedimentation/rates/San Pedro/Santa Catalina Island/San Nicolas/magnetite/oxides/GEOREF.

3668. Stouder DJ,vdLK, Kuris AM. Preferences for shell size and shape by three species of intertidal hermit crabs from California. Bull. of the Ecological Soc. of America 1980;61:136 preferences/shell size/shell shape/hermit crabs/Santa Barbara Channel/marine biology.

3669. Muhs DR, Kennedy GL. An evaluation of uranium series dating of fossil echinoids from Southern California Pleistocene marine terraces. Marine Geology. 1985;69(1-2):p.187-193 U. S. Geol. Surv., Denver, CO, United-States Analytic; Serial Letter. B; Bibliography and Index of Geology (1969-present). California/geochronology/Pleistocene/geomorphology/shore features/marine terraces/echinoderms/echinoids/absolute age/dates/Los Angeles County/Ventura County/Pacific Coast/Western U.S./United States/Southern California/Quaternary/experimental studies/uranium disequilibrium/Strongylocentrotus/San Clemente Island/San Nicolas Island/biostratigraphy/errors/GEOREF.

3670. Straughan D, Hadley D. Experiments with Littorina species to determine the relevancy of oil spill data from Southern California to the Gulf of Alaska. Marine Environmental Research 1978;1(2):135-163
Address: University of Southern California, Los Angeles. Inst. for. Marine and Coastal Studies.
Littorina scutulata were collected from Alaska, Canada and southern California and L. sitkana were collected from Alaska and Canada. These animals were exposed to a range of petroleum at a range of temperatures. Gasoline was the most toxic of all compounds tested. Six degrees C and 29C temperatures both during and prior to experiments had a greater influence on survival and attachment rates a week after exposure to petroleum than did the different types of petroleum. The temperature influence can be related to both zoogeographical distribution and seasonal temperatures. Data obtained in the Santa Barbara Channel can be extrapolated to the Gulf of Alaska when differences such as temperature tolerance and type of oil are considered for the same and closely related species.

Attachment rates and mortality rates changed after the animals were removed from petroleum. This suggests a weakness in standard toxicity testing procedures when mortality rates are compared immediately after removal from test solutions. (Sinha - OEIS).

Oil spills/Toxicity/Mortality/Water pollution effects/Outer Continental Shelf/Environmental effects/Alaska/Canada/California/Laboratory tests/Temperature/Petroleum/Gasoline/survival/oil pollution/toxicity tests/temperature effects/temperature variations/petroleum/environmental impact Mollusca/Gastropoda/Littorina scutulata/Littorina sitkana Alaska/Canada/Southern California/Santa Barbara Channel/marine biology/petroleum/pollution/water quality/resource management.

3671. Grant DF, Eastwood D. Infrared spectrometry field method for identification of natural seep oils. *Talanta* (Oxford). 1983;30(11):p.825-830 Stockton State Coll., Pomona, NJ 08240, United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present). California/geochemistry/oil seeps/chemical analysis/methods/infrared spectroscopy/spectroscopy/field methods/petroleum/offshore/Santa Barbara Channel/Pacific Coast/Western U.S./United States/North American Pacific/Pacific Ocean/GEOREF.

3672. Strong DR,, Szyska LA, Simberloff DS. Tests of community wide character displacement against null hypotheses. *Evolution* 1979;33(3):897-913 Address: DEP. BIOL. SCI., FLA. STATE UNIV., TALLAHASSEE, FLA. 32306. Community-wide character displacement, a general tendency for sympatric species to be unusually distinct morphologically, has been inferred by several authors. The notion was tested by comparing contiguous morphological ratios between actual and null communities of birds, of 3 avifaunas. Contiguous ratios are those between adjacent species in rankings by size. Null communities are formed by random assembly, by computer, of populations from source faunas. The hypothesis of community-wide character displacement would be supported by actual ratios that were larger than ratios from null communities. Contiguous bill and wing ratios in actual communities are not statistically distinct from those in null communities, for birds of the Tres Marias [Mexico] and California [USA] Channel Islands. An analysis of the Galapagos [Ecuador] finches gives similar results. The actual finch communities of some of the islands depart from expected, but in the direction of character convergence. Community-wide character displacement was not detected in any of these 3 avifaunas. The results were compared to other theories from the literature. bird bill/wing/character convergence/character displacement/sympatric species/Aves/Passeriformes/Tres Marias, Mexico/California Channel Islands/terrestrial biology/ornithology/evolution.

3673. Kamerling MJ, Luyendyk BP. Paleomagnetism and Neogene tectonics of the northern Channel Islands, California. *JGR. Journal of Geophysical Research. B.* 1985;90(14):p.12,845-12,502 Univ. Calif., Dep. Geol.Sci., Santa Barbara, CA, United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present). California/tectonophysics/plate tectonics/structural geology/neotectonics/paleomagnetism/Neogene/stratigraphy/Santa Barbara County/sedimentary rocks/Anacapa Island/Santa Cruz Island/Santa Rosa Island/San Miguel Island/block structures/Channel

Islands/Tertiary/Pacific Coast/Western U.S./United States/Southern California/GEOREF.

3674. Sunada JS. Growth and reproduction of spot prawns in the Santa Barbara Channel. California Fish and Game 1986;72(2):83
Reproduction/Pandalus platyceros/spot prawns/Santa Barbara Channel/marine biology/fisheries/resource management.

3675. Senecal JE, Mulhern ME. Monterey Formation analysis; state of the art interpretation of lithology and identification of fractures and fluid type in fine grained, mineralogically variable rocks. Worthington, P. F. Transactions-of-the-SPWLA-Annual-Logging-Symposium. 1985;26(2):p.KKK1-KKK16 Schlumberger Offshore Serv., Ventura, CA, United-States SPWLA twenty-sixth annual logging symposium, Dallas, Tx, June 17-20, 1985 Analytic; Serial; Conference publication B; Bibliography and Index of Geology (1969-present). California/geophysical surveys/well logging/radioactivity/gamma ray methods/data processing/Monterey Formation/Pacific Coast/Western U.S./United States/models/production/fractures/Santa Barbara Basin/Santa Maria Basin/porosity/computer programs/GLOBAL/reservoir rocks/GEOREF.

3676. Susuki T, Stadum CJ. A neogene section, Northeastern San Clemente Island, California, USA. Nat. Hist. Mus. Los Ang. Cty. Contrib. Sci. 1978;299:1-24 Address: NAT. HIST. MUS. LOS ANG. CTY., LOS ANGELES, CALIF. A discontinuous section of Miocene, Pliocene, Pleistocene and Recent sediments overlies rhyolite 0.9-2.5 km south of the Naval Ordinance Test Station Pier in the area of Randall Blockhouse, northeastern San Clemente Island, Los Angeles County, California [USA]. Poorly consolidated orange sandstone containing the Miocene mollusk (*Amussiopecten*) *lompocensis* Arnold and marine limestone lenses, grades upward into diatomaceous shale equivalent to the Miocene Monterey Formation. Unconformably overlying the Miocene units are Pliocene bioclastic sediments containing the mollusks *Pecten* (*Pecten*) *bellus* (Conrad) and *P.* (*Patinopecten*) *healeyi* *sanclementensis* ssp. nov. Isolated outcrops of Pleistocene sand, containing a molluscan fauna, correlate with the Palos Verdes Sand of the Los Angeles Basin. An occurrence of a desmostylid tooth is reported and illustrated. new subspecies/stratigraphy/biostratigraphy/Neogene/assemblages/Monterey Formation/Tertiary/Cenozoic/lithostratigraphy/sandstone/clastic rocks/faunal list/Mollusca/Miocene mollusks/*Pecten* (*Amussiopecten*) *lompocensis*/*Pecten* (*Pecten*) *bellus*/*Pecten* (*Patinopecten*) *healeyi* *sanclementensis* ssp. nov./Mammalia/Desmostylia/Chondrichthyes/Pisces/Osteichthyes/Northeastern San Clemente Island/Randall Blockhouse/Naval Ordinance Test Station Pier/paleozoology/paleontology/stratigraphy/historical geology.

3677. Lagoe MB. Depositional processes and environments in continental borderland basins; a Miocene example from California. The Geological Society of America, 95th annual meeting. Abstracts-with-Programs-Geological-Society-of-America. 1982;14(7):p. 539 Stanford Univ., Dep. Geol., Stanford, CA, United-States The Geological Society of America, 95th annual meeting, New Orleans, LA, Oct. 18-21, 1982 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). California/stratigraphy/Miocene/sedimentation/environment/marine environment/foraminifers/biostratigraphy/paleogeography/Monterey Formation/Pacific Coast/Western U.S./United States/Neogene/Tertiary/processes/patterns/Southern California/continental margin/Cuyama Basin/Santa Barbara

Basin/Santa Maria Basin/paleo
oceanography/lithofacies/microfossils/biofacies/submarine
fans/shale/clastic rocks/carbonate
rocks/diatomite/laminations/planar bedding structures/sedimentary
structures/sedimentation rates/GEOREF.

3678. Sweet WA. Short-range local forecasting of coastal
summer stratus by statistical techniques - a pilot study. Final
rept. : Naval Environmental Prediction Research Facility, Monterey,
CA. NEPRF-TR-83-06; 1983. 55. Two different regression techniques
applied to short range (24 hr or less) forecasting are examined at
four naval air stations on the California coast. Regression
estimates of event probabilities (REEP) was compared to logistic
regression (LR) in forecasting summer stratus at Moffett NAS; REEP
also was evaluated operationally at Moffett during the summer of
1982. The skill of the LR technique was examined at North Island,
Miramar, and San Nicolas NAS in Southern California for the
stratus ceiling forecast. The results of these evaluations
indicated equal skills for REEP and LR. The REEP operational
evaluation at Moffett NAS showed a level of skill equivalent to
that possessed by the most experienced forecasters. Either of these
techniques would provide valuable forecasting capability for
certain forecast parameters when applied to remote areas where
archived data are available but little or no local forecasting
experience exists. Weather forecasting/Stratus clouds/Coastal
regions/Naval shore facilities/Mathematical prediction/Regression
analysis/REEP(Regression Estimate of Event Probability)/LR(Logistic
Regression) California/North Island/Miramar/San Nicolas
Island/meteorology/atmospheric sciences/.

3679. Legg MR, Luyendyk BP. Seabeam survey of an active
strike slip fault in the Southern California continental
borderland. Anonymous. American Geophysical Union; 1982 fall
meeting. Eos,-Transactions,-American-Geophysical-Union.
1982;63(45):p.1107
Univ. Calif. at Santa Barbara, Dep. Geol. Sci., Santa Barbara, CA,
United-States American Geophysical Union, 1982 fall meeting, San
Francisco, CA, Dec. 7-15, 1982 Analytic; Serial; Conference
publication; Abstract B; Bibliography and Index of Geology (1969-
present).
California/oceanography/continental margin/geophysical
surveys/acoustical surveys/Pacific Coast/Western U.S./United
States/continental slope/Seabeam/echo sounding/strike slip
faults/faults/active faults/Southern California/San Clemente
Fault/Agua Blanca Fault/Fortymile Bank/scarps/bottom features/San
Isidro Fault/North American Pacific/Pacific Ocean/marine
methods/GEOREF.

3680. Tamar H. Mesodinium species II at Santa Catalina
Island, California, USA. J. Protozool. 1984;31(4):21A
Address: DEP. LIFE SCIENCES, INDIANA STATE UNIV., TERRE HAUTE, IN
47809. cirri/membranelles/tentacles/Mesodinium spp.
biology/protozoology.

3681. Probert A. Mining history, Santa Catalina Island, Los
Angeles County, California. Fife DL, Minch JA. Geology and mineral
wealth of the California Transverse Ranges; Mason Hill volume. ;
1982. p. p. 485-493. 3277 North San Amadeo, Laguna Hills, CA,
United-States South Coast Geol. Soc. Analytic; Book B;
Bibliography and Index of Geology (1969-present).
California/economic geology/base metals/construction materials/Los
Angeles County/Pacific Coast/Western U.S./United States/Southern
California/Transverse Ranges/mines/history/Santa Catalina

Island/Channel Islands/metal ores/GEOREF.

3682. Taylor GT. Trophic interactions of cultured ciliates and microzooplankton (10 - 203 UM) from nearshore Southern California waters with bacterioplankton and dissolved organic matter [dissertation]. California, USA: University of Southern California; 1983. Unknown.
trophic interactions/microzooplankton/bacterioplankton/dissolved organic matter/plankton/nutrient cycling/prey availability/Bactivorous ciliates/microzooplankton/bacterioplankton/Los Angeles Harbor/Mugu Lagoon/Big Fisherman's Cove/Santa Catalina Island/marine biology/biological oceanography.

3683. Kies RP, Abbott PL. Sedimentology and paleogeography of lower Paleogene conglomerates, Southern California continental borderland. Fife DL, Minch JA. Geology and mineral wealth of the California Transverse Ranges; Mason Hill volume. ; 1982. p. p.337-349.
Union Oil Co., Anchorage, AK, United-States; San Diego State Univ., United-States South Coast Geol. Soc. Analytic; Book B; Bibliography and Index of Geology (1969-present).
paleogeography/Paleogene/California/sedimentary rocks/clastic rocks/conglomerate/stratigraphy/Tertiary/lower Paleogene/Southern California/Pacific Coast/Western U.S./United States/Transverse Ranges/Channel Islands/rhyolite/rhyolites/volcanic rocks/clasts/Santa Ana Mountains/Valle de Las Palmas/San Miguel Island/Santa Cruz Island/sedimentary petrology/lithostratigraphy/correlation/GEOREF.

3684. Taylor PR, Littler MM. Roles of compensatory mortality, physical disturbance and substrate retention in the development and organization of a sand influenced rocky intertidal community. Ecology 1982;63(1):135-146 Address: DEP. ECOL. EVOL. BIOL., UNIV. CALIF. IRVINE, IRVINE, CALIF. 92717. Manipulative experiments (using fenced exclosures, fence controls and unmanipulated controls) and successional and community structure studies were performed near Dutch Harbor, San Nicolas Island, California [USA] to examine the importance of the anemone *Anthopleura elegantissima*, the sand tube worm *Phragmatopoma californica*, and macroalgae in the structure and development of a sand-influenced community. Following the removal of *A. elegantissima*, the cover of opportunistic algae such as *Cladophora columbiana*, *Chaetomorpha linum*, and *Ralfsiaceae* increased during the first 6 mo., whereas *Corallina vancouveriensis* and *Hydrolithon decipiens* suffered bleaching and decreased in abundance as a result of aerial exposure. The density of grazing mollusks (*Tegula funebris*, littorines, limpets and chitons) also increased during the 1st 6mo. then declined markedly, coincident with the recruitment and growth of the sand tube building polychaete, *P. californica*. In the upper-intertidal area (above +1.1 m relative to mean lower low water), *P. californica* showed little recruitment (< 1% cover after 25 mo) after removal of *A. elegantissima*. Investigations of secondary succession following total biota removal revealed that *A. elegantissima* achieved preremoval cover after 2 yr. In the mid-zone (+0.7 to +1.0 m), experimental anemone removal resulted in recruitment and domination by *P. californica* (> 70% cover after 20 mo). *A. elegantissima* again regained preremoval abundance (26% cover) in the successional studies after 2 yr. At low levels (below +0.5 m) where sand burial did not occur, *P. californica* persisted even when contiguous with *A. elegantissima* aggregations. Successional data indicated that *P. californica* achieved preremoval levels in < 12 mo; *A. elegantissima* was

unsuccessful at recruiting into these regions. The stress of exposure to air (desiccating and thermal effects) and of heavy sand inundation, and differential abilities to sequester and dominate available free space, probably are responsible for the developmental and structural patterns in this community. At desiccated and thermally stressed upper-intertidal levels, *A. elegantissima* facilitates colonization and subsequent survival of coralline algae and small *P. californica* aggregations, while simultaneously inhibiting the recruitment of opportunistic macroalgae. *P. californica* can rapidly colonize and retain newly available free space in low- to mid-intertidal regions with reduced aerial exposure stress. At mid-levels, the upper-intertidal patterns prevail but, when released from *A. elegantissima* inhibition by disturbance, *P. californica* colonies show extensive development. However, in mid-intertidal regions, compensatory mortality of *P. californica* caused by sand deposition prevents these large aggregations from persisting and *A. elegantissima* becomes dominant. In the low-intertidal zones, with little sand-related stress, *P. californica* inhibits both *A. elegantissima* and macroalgae, while it may enhance recruitment and survival of its own juvenile stages in a self-facilitating strategy larval selectivity. The importance of *A. elegantissima* depends on compensatory mortality of the superior competitor *P. californica* caused by periodic stresses (e.g., exposure to air and sand inundation) and physical disturbance.

macroalgae/succession/community structure/thermal stress/desiccation/competition/compensatory mortality/superior competitor/physical disturbance/*Anthopleura elegantissima*/sand tube worm/*Phragmatopoma californica*/*Cladophora columbiana*/*Chaetomorpha linum*/*Ralfsiaceae*/*Corallina vancouveriensis*/*Hydrolithon decipiens*/*Tegula funebris*/*Littorines*/*limpets*/*chitons*/Dutch Harbor/San Nicolas Island/marine biology/ecology.

3685. Taylor PR. Physical disturbance, environmental stress and herbivory in the ecology of rocky-intertidal communities [dissertation]. Irvine, California, USA: University of California; 1981. 146.

This dissertation is composed of separate but related facets separated into chapters. Abstracts of these studies are as follows: Chapters 1&2. Manipulative experiments (using fenced exclosures, fenced controls and unmanipulated controls), as well as successional and community structure studies were performed near Dutch Harbor, San Nicolas Island, California to examine the importance of the anemone *Anthopleura elegantissima*, the sand tube worm *Phragmatopoma californica* and macroalgae, in the structure and development of a sand-influenced community. The patterns of community development and structure vary drastically depending on an interplay of species' adaptive characteristics, environmental tolerances and the degree of environmental stress and disturbance. These mechanisms of variable successional roles and an intraspecific-facilitating strategy of larval selectivity must be considered in a dynamic theory of community development. Chapter 3. In intertidal pools on San Nicolas Island, California, both abalone, *Haliotis cracherodii* and sea urchins *Strongylocentrotus* spp., maintain algal communities dominated by crustose taxa. Removal of these two herbivores yielded a community dominated by erect, articulated coralline algae; little influx of fleshy algal species occurred and no initial species were excluded following the manipulation of herbivore abundances. The presence of one grazer species stabilizes the algal community in the event of the other species' loss, supporting

the hypothesis that consumer diversity can enhance community stability through compensatory shifts in grazer pressure. Further evidence from temperate and tropical systems is also discussed. Chapter 4. The juveniles of the sea urchin, *Strongylocentrotus purpuratus*, are often strongly associated with conspecific adults. This has led to the concept of a nursery effect. However, field experimentation has shown that urchin recruitment success is not dependent upon the presence of adults. On the contrary, experiments have documented a negative correlation between juvenile success and the abundance of adults. It is suggested that the hypothetical nursery effect may be due to space limitation in some intertidal populations.

succession/community structure/herbivory/*Anthopleura elegantissima*/*Phragmatopoma californica*/*Haliotis cracherodii*/*Strongylocentrotus* spp./ San Nicolas Island/Dutch Harbor/marine biology/marine ecology.

3686. Spero HJ, Parker SL. Photosynthesis in the symbiotic planktonic foraminifer *Orbulina universa*, and its potential contribution to oceanic primary productivity. Lipps, J. H. Biology and paleobiology of planktonic foraminifera. Univ. Calif., Dep. Geol., Davis, CA, United-States. *Journal-of-Foraminiferal-Research*. 1985;15(4):p.273 Univ. Calif., Dep. Biol., Santa Barbara, CA, United-States; Univ. Calif., Dep. Geol., Davis, CA, United-States Analytic; Serial Catalina Mar. Sci. Cent.; Contrib. No. 103. B; Bibliography and Index of Geology (1969-present). algae/ecology/symbiosis/foraminifera/*Globigerinacea*/photosynthesis/Pacific Ocean/paleontology/California/*Orbulina universa*/*Orbulina*/*Globigerinidae*/*Rotaliina*/morphology/microfossils/thallophytes /primary productivity/planktonic taxa/Santa Catalina Island/Pacific Coast/Western U.S./United States/electron microscopy data/Protista/oligotrophic environment/biochemistry/GEOREF.

3687. Tegner MJ, Butler RA. Drift-tube study of the dispersal potential of green abalone (*Haliotis fulgens*) larvae in the southern California Bight: Implications for recovery of depleted populations. *Mar. Ecol. Prog. Ser.*;26(1-2):73-84 Address: Scripps Inst. Oceanogr., A-001, La Jolla, CA 92093, USA. Drift tubes were released over the major past and present green abalone (*Haliotis fulgens*) beds in southern California, USA, to investigate the dispersal potential of this species' relatively short-lived larvae. Of the 1225 drift tubes released at the Channel Islands only 0.4% were found within a time span appropriate for green abalone larval life. The present status of mainland stocks suggests that recolonization by larvae originating elsewhere will be uncommon. Thus, in the absence of local brood stock, the present fishery closure is not likely to promote recovery of mainland populations of *H. fulgens* in the near future. DE- molluscan larvae; biological drift. molluscan larvae/biological drift/recruitment/depleted stocks/green abalone/*Haliotis fulgens*/California Channel Islands/marine biology.

3688. Tegner MJ, Butler RA. A drift tube study of the dispersal potential of green abalone (*Haliotis fulgens*) larvae in the southern California bight: implications for recovery of depleted populations. *Mar. Ecol. Prog. Ser.* 1985;26:73-84 Drift tubes were released over the major past and present hreen abalone beds in southern CA to investigate the dispersal potential of this species' relatively short-lived larvae. From the data collected, the authors conclude that, in the absence of local brood stock, the present fishery closure is not lekly to promote recovery

of mainland populations of *H. fulgens* in the near future. These results underscore the importance of local current patterns and details of larval life histories to the understanding of patterns of distribution in any area. larval dispersal/depleted populations/*Haliotis fulgens*/green abalone/Santa Cruz Island/Santa Barbara Island/Santa Catalina Island/San Clemente Island/Southern California beaches/Northern Los Angeles County/Palos Verdes Peninsula/Orange County/San Diego County/marine biology/fisheries/resource management.

3689. Normark WR. Local morphologic controls and effects of basin geometry on flow processes in deep marine basins. Zuffa, G. G. Provenance of arenites. Univ. Calabria, Dep. Earth Sci., Cosenza, Italy.
NATO-Advanced-Study-Institutes-Series.-Series-C;-Mathematical-and-Physical-Sciences. 1985;148:p.47
U. S. Geol. Surv., Menlo Park, CA, United-States; Univ. Calabria, Dep. Earth Sci., Cosenza, Italy NATO Advanced Study Institute on Provenance from arenites, Cetraro, Cosenza, June 3-11, 1984
Analytic; Serial; Conference publication B; Bibliography and Index of Geology (1969-present).
sedimentation/transport/marine transport/Pacific Ocean/oceanography/ocean floors/sedimentary rocks/clastic rocks/turbidite/morphology/California/Pacific Coast/Western U.S./United States/provenance/deep sea environment/Mississippi/Southern U.S./Holocene/Quaternary/changes of level/deposition/Monterey Fan/Navy Fan/San Clemente Basin/Southern California Borderland/submarine fans/Gulf Coastal Plain/North America/turbidity current structures/sedimentary structures/channels/Mississippi Fan/GEOREF.

3690. Tegner MJ, Levin LA. Spiny lobsters and sea urchins: analysis of a predator-prey interaction. J. Exp. Mar. Biol. Ecol. 1983;73:125-150 Spiny lobsters are important predators of red and purple sea urchins, which are major herbivores in S. CA kelp forest communities. This paper examines the implications of this predator-prey interaction for urchin size distribution, and discusses the implications of heavy fishing pressure on spiny lobsters for urchin population sizes.
predation/predator-prey interaction/*Panulirus interruptus*/spiny lobster/*Strongylocentrotus*/sea urchin/California Channel Islands/marine biology.

3691. Murchey BL. Biostratigraphy and lithostratigraphy of chert in the Franciscan Complex, Marin Headlands, California. Blake, M. C., Jr. Franciscan geology of Northern California. U. S. Geol. Surv., Menlo Park, CA, United-States. Field-Trip-Guidebook-Pacific-Section, -Society-of-Economic-Paleontologists-and-Mineralogists. 1984;43:p.51-70
U. S. Geol. Surv., Menlo Park, CA, United-States; U. S. Geol. Surv., Menlo Park, CA, United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present).
California/stratigraphy/Jurassic/Cretaceous/radiolarians/biostratigraphy/Franciscan Formation/Pacific Coast/Western U.S./United States/Pliensbachian/middle Liassic/Lower Jurassic/Albian/Lower Cretaceous/microfossils/Canutus rock fisheries/chert/chemically precipitated rocks/Marin Headlands/paleoenvironment/Ventura Basin/Santa Barbara Basin/Northern California/GEOREF.

3692. Temte JL. Photoperiod and delayed implantation in the northern fur seal *Callorhinus ursinus*. J. Reprod. Fertil. 1985;73(1):127-132 Address: UNIV. WISCONSIN MED. SCH., MSC 4285,

1300 UNIVERSITY AVENUE, MADISON, WIS. 53706.

An equation for determination of the photoperiod at any given latitude for any given date is presented and used in an analysis of reproductive timing in the northern fur seal in which there is an obligatory delay of implantation. Fur seals breeding on San Miguel Island, California [USA] (33.degree. N) displayed a mean date of parturition that was 14 days earlier ($P < 0.001$) than that of the parent stock on the Pribilof Islands, Alaska (57.degree. N). Previous studies have shown that changes occur in the corpus luteum, in follicles in the ovary containing the corpus luteum, in concentrations of plasma progesterone and estradiol-17.beta., and in the uterine lining when there is a mean photoperiod of 12.5 h/day. This photoperiod occurs at both locations at 62 days after the mean dates of parturition and may act as a cue for the initiation of implantation in these seals.
progesterone/estradiol/17/beta/corpus luteum/photoperiod/northern fur seal/Callorhinus ursinus/San Miguel Island/marine biology/mammalogy.

3693. McNeilan TW, Bugno WT. Jackup rig performance in predominantly silty soils, offshore California. Williams, L. M. Proceedings-Offshore-Technology-Conference. 17 (Vol. 1). 1985:p.395-402 McClelland Eng., San Francisco, CA, United-States; Chevron U.S.A., United-States 1985 offshore technology conference, Houston, TX, May 6-9, 1985 Analytic; Serial; Conference publication OTC 5082. B; Bibliography and Index of Geology (1969-present).

In uniform deposits of nonplastic, very silty fine sand or sandy silt, the observed spud can penetrations are small and can be predicted using conventional procedures for sand, assuming fully drained conditions. In contrast, where the subsurface materials are predominantly clayey silts of medium plasticity, the spud can penetrations are larger and can be predicted using conventional procedures for the undrained behavior of clay. For silt deposits that are neither very sandy nor very clayey, observed spud can penetrations suggest that these deposits are partially drained during spud can penetration. For silt deposits of intermediate permeability, the spud can penetrations may depend not only on spud can geometry, leg loads, detailed soil layering, and soil properties, but also on the rate at which the spud cans are loaded. Thus, because of partial drainage effects, computational procedures and experience based on undrained or drained behavior should be used with caution when a site is underlain by silt.--Modified abstract. California/engineering geology/foundations/Pacific Coast/Western U.S./United States/silt/clastic sediments/soils/case studies/jackup rigs/offshore/Santa Maria Basin/Southern California/sand/permeability/continental shelf/Le Tourneau/Santa Barbara Channel/GEOREF.

3694. Tennesen M. Life in the lion's den. National Wildlife 1982;20(4):29 Animal behavior/Wildlife/Zalophys californianus/California sea lion/California Channel Islands/marine biology.

3695. Shiller AM. Particulate matter in the Santa Barbara Basin, California; influence of the biota. Anonymous. American Geophysical Union; 1981 spring meeting. Eos,-Transactions,-American-Geophysical-Union. 1981;62(17):p.301 Scripps Inst. Oceanogr., La Jolla, CA, United-States American Geophysical Union; 1981 spring meeting, Baltimore, MD, May 25-29, 1981 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).
California/oceanography/sediments/geochemistry/metals/Pacific

Coast/Western U.S./United States/Santa Barbara Basin/suspended materials/biogenic effects/aluminum/titanium/iron/potassium/calcium/manganese/GEOREF.

3696. Theis CL. Photosynthetic compensation relative to depth in three species of the green alga *Codium* from Santa Catalina Island [dissertation]. Fullerton, California, USA: California State University; 1985. 76. phycology/pigments/subtidal green algae/Chlorophyta/*Codium*/Santa Catalina Island/marine biology/botany/phycology.

3697. Isaacs CM. Abundance versus rates of accumulation in fine grained strata of the Miocene Santa Barbara Basin, California. Gorsline, D. S. Origins, transport, and deposition of fine-grained sediments; 1984 SEPM Research conference, Part II. Univ. South. Calif., Los Angeles, CA, United-States. Geo-Marine-Letters. 1985;5(1):p.25-30

U. S. Geol. Surv., Menlo Park, CA, United-States; Univ. South. Calif., Los Angeles, CA, United-States Origins, transport, and deposition of the fine-grained sediments; 1984 SEPM research conference, Part II, San Jose, CA, Aug. 6-9, 1984 Analytic; Serial; Conference publication B; Bibliography and Index of Geology (1969-present).

Pacific Ocean/oceanography/sedimentation/California/sedimentary petrology/sedimentation rates/basins/sedimentary rocks/composition/lithofacies/Santa Barbara County/Ventura County/Monterey Formation/Rincon Shale/Sisquoc Formation/Santa Barbara Basin/Pacific Coast/Western U.S./United States/Ventura Basin/Miocene/Neogene/Tertiary/terrigenous materials/carbonate rocks/organic materials/fines/GEOREF.

3698. Thompson SD, Ono KA, Oftedal OT, Boness DJ. Thermoregulation and resting metabolic rate of California sea lion *Zalophus californianus* pups. *Physiol. Zool.* 1987;60(6):730-736 Resting metabolic rate and body temperature of California sea lion pups (*Zalophus californianus*: Otariidae) were measured for 39 animals (12,000 g, mean body mass) captured from breeding areas on San Nicolas Island, California [USA]. These 3-5-wk-old pups had a mean specific resting metabolic rate of 0.780 \pm .010 ml O₂ g⁻¹ h⁻¹, which is 2.380 times the value predicted by Kleiber for adult mammals with similar body mass; mean body temperature was 37.8 \pm .08 C. This level of metabolism is similar to those reported for young seals (Phocidae). The heat-transfer coefficient (h) was 2-4.6 times that predicted from body mass, and it appeared that some individuals were on the verge of hypothermia at ambient air temperatures below 19 C. Although high metabolic rates are typically associated with high growth rates in terrestrial mammals, high heat loss associated with relatively poor insulation in sea lion pups may required allocation of relatively large amounts of energy to thermoregulation (= maintenance), thus limiting the amount of energy available for growth. growth/bioenergetics/hypothermia/ambient air temperature/Phocidae/Otariidae/California sea lion/*Zalophus californianus*/San Nicolas Island/marine biology/mammalogy.

3699. Sorensen SS. Petrologic evidence for Jurassic, island arc like basement rocks in the southwestern Transverse Ranges and California continental borderland. *Geological Society of America Bulletin.* 1985;96(8):p.997 Univ. Calif., Dep. Earth and Space Sci., Los Angeles, CA, United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present). California/geochemistry/trace elements/intrusions/plutons/emplacement/metamorphism/grade/low grade metamorphism/metamorphic rocks/rare earths/Santa Barbara

County/Los Angeles County/Ventura County/Willows Plutonic Complex/Santa Cruz Island Schist/Santa Monica Formation/Pacific Coast/Western U.S./United States/Southern California/Channel Islands/Santa Monica Mountains/Transverse Ranges/Jurassic/petrology/island arcs/basement/minor elements/major elements/metaigneous rocks/metasedimentary rocks/greenschist facies/gabbros/P T conditions/amphibolite facies/GEOREF.

3700. Tisdale LA. The amount and nutritive value of particulate algal detritus settling onto a kelp forest and Santa Catalina Island, California [dissertation]. Long Beach: California State University; 1985. 64. sediment/nutrients/giant kelp/Macrocytis pyrifera/Santa Catalina Island/marine biology/botany/phyecology.

3701. Anderson JG. The September 4, 1981 Santa Barbara Island, California, earthquake; interpretation of strong motion data. Anonymous. American Geophysical Union; 1982 fall meeting. Eos,-Transactions,-American-Geophysical-Union. 1982;63(45):p.1038 Scripps Inst. Oceanogr., Inst. Geophys. and Planet. Phys., La Jolla, CA, United-States American Geophysical Union, 1982 fall meeting, San Francisco, CA, Dec. 7-15, 1982 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). California/engineering geology/earthquakes/Pacific Coast/geologic hazards/Western U.S./United States/strong motion/Santa Barbara Island earthquake, 1981/acceleration/accelerograms/S waves/body waves/elastic waves/stress drops/seismic moment/seismic sources/amplitude/spectral analysis/GEOREF.

3702. Tissot BN. Morphological variation along intertidal gradients in a population of black abalone, *Haliotis cracherodii* Leach 1914. J. Exp. Mar. Biol. Ecol. 1988;117:71-90 Temporal patterns of morphological variation in multivariate size and shape in a population of black abalone in an intertidal boulder field in southern CA was examined. The results of this study support the hypogthesis that shore-level gradients in morphology result from movement and differential growth and are a dynamic response of individuals to temporal changes in physical stresses and predation which vary along intertidal gradients. morphological variation/principal component analysis/shore-level gradient *Haliotis cracherodii*/black abalone/Laguna Beach/Santa Cruz Island/Ano Nuevo Island/marine biology.

3703. Keller B, Prothero W, Trehu A, Stierman D. 1982 Santa Barbara, California, land sea seismic refraction experiment. Anonymous. American Geophysical Union; 1982 fall meeting. Eos,-Transactions,-American-Geophysical-Union. 1982;63(45):p.1037 Univ. Calif. Santa Barbara, Dep. Geol. Sci., Santa Barbara, CA, United-States; U. S. Geol. Surv., United-States; Univ. Calif. Riverside, Dep. Earth Sci., United-States American Geophysical Union, 1982 fall meeting, San Francisco, CA, Dec. 7-15, 1982 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). California/structural geology/tectonics/geophysical surveys/seismic surveys/Pacific Coast/Western U.S./United States/North American Pacific/Pacific Ocean/Santa Barbara Channel/Santa Cruz Island Fault/Anacapa Passage/traveltime/refraction methods/ocean bottom seismographs/Mid Channel Fault/Diablo Arch/Pn waves/body waves/elastic waves/San Rafael Mountains/Santa Ynez Mountains/Santa Ynez Fault/GEOREF.

3704. Tissot BN. Multivariate analysis. M. McKinney.

Heterochrony in evolution: a multidisciplinary approach. New York: Plenum Press; 1988. 35-52. This chapter focuses on the multivariate analysis of morphological variation resulting from heterochrony, or changes in the timing of developmental events during ontogeny.

multivariate analysis/morphological variation/heterochrony/development/ontogeny/Haliotis cracherodii/black abalone/Santa Cruz Island/marine biology.

3705. Honjo S, Asper V. Deep water marine snow concentrations in two oceans. Anonymous. American Geophysical Union; 1982 fall meeting. Eos,-Transactions,-American-Geophysical-Union. 1982;63(45):p.1016 Woods Hole Oceanogr. Inst., Woods Hole, MA, United-States American Geophysical Union, 1982 fall meeting, San Francisco, CA, Dec. 7-15, 1982 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).

Pacific Ocean/oceanography/sea water/composition/suspended materials/Atlantic Ocean/sedimentation/environment/deep sea environment/Sargasso Sea/California Current/automated analysis/photogeology/amorphous materials/marine sediments/North American Atlantic/North Atlantic/North American Pacific/63/GEOREF.

3706. Trent JD, Orzech JK. The use of a USA Navy deep-diving system for marine biological research. Memorial Univ. Newfoundland Occas. Pap. Biol. 1984;0(9):35-44

Address: SCRIPPS INST. OCEANOGR., LA JOLLA, CALIF. 92093 SELECTED PAPERS ON DIVERS, SUBMERSIBLES AND MARINE SCIENCE PRESENTED TO THE JOINT OCEANOGRAPHIC ASSEMBLY OF THE SCIENTIFIC COMMITTEE ON OCEANIC RESEARCH, HALIFAX, NOVA SCOTIA, CANADA, AUG. 1982. zooplankton/diatoms/San Clemente Island/marine biology.

3707. Thor DR. Eustatic and structural control of submarine fan sedimentation, Conception Fan, Santa Barbara Basin, California. AAPG annual convention with divisions; SEPM/EMD/DPA. AAPG-Bulletin. 1984;68(4) Exxon Prod. Res. Co., Houston, TX, United-States AAPG annual convention with divisions; SEPM/EMD/DPA, San Antonio, TX, May 20-23, 1984 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).

California/sedimentary petrology/sedimentation/environment/submarine fans/Pacific Coast/Western U.S./United States/Santa Barbara Basin/Conception Fan/Pleistocene/Quaternary/Holocene/tectonic controls/eustacy/diagenesis/GEOREF.

3708. Tricas TC. Courtship and mating-related behaviors in myliobatid rays. Copeia 1980;3:553-556

Address: Univ. of Hawaii, Dept. of Zoology, Honolulu, HI 96822. Probable mating-related behaviors were observed in 2 species of rays in their natural habitat. A trio of spotted eagle rays, *Aetobatis narinari*, was observed moving in a clockwise pattern from a pier at the southwest end of Enewetak Island in the west Pacific. The 2 males would dash forward and nip at the anterior margin of the female's pectoral fins. The female in response would raise her back out of the water and slap her wings on the surface. In another observation, a male was noted to gouge the dorsal surface of a female in repeated attempts at mounting. In brief observations of bat rays, *Mylobatis californica*, near Santa Catalina Island, California, the smaller male was positioned ventrally to the female with the tail flexed dorsally at 90deg and right clasper erected at 45deg. The male repeatedly bumped the female's underside in an attempt to insert the clasper into her cloaca. Topics discussed include the similarity of copulation

between rays and small skates, and the similarity in courtship behaviors between groups of elasmobranch fish.

Mating behavior/Males/Females/reproductive behavior/courtship behavior/Chondrichthyes/elasmobranch fish/Myliobatidae/Aetobatis narinari/spotted eagle rays/Mylobatis californica/bat rays/Santa Catalina Island/Enewetak Island/marine biology/ichthyology.

3709. Jahnke RA, Weiss RF, Reimers CE, Bender ML, Heggie DT, Emerson SR, McCOrkle DC. Exchange of bioreactive elements across the sediment water interface in a deep coastal basin; in situ measurements. American Geophysical Union; 1985 spring meeting. Eos,-Transactions,-American-Geophysical-Union. 1985;66(18):p.286 Univ. Calif., Scripps Inst. Oceanogr., La Jolla, CA, United-States; Univ. R.I., United-States; Univ. Wash., United-States American Geophysical Union; 1985 spring meeting, Baltimore, MD, May 27-29, 1985 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). California/geochemistry/sea water/sediments/sediment water interface/MANOP/San Clemente Basin/Pacific Coast/Western U.S./United States/ocean basins/nitrates/silicon/dissolved materials/trace metals/pore water/carbon/nitrogen/bottom water/continental borderland/oxygen/Pacific Ocean/GEOREF.

3710. Tricas TC. Relationships of the blue shark *Prionace glauca* and its prey species near Santa Catalina Island, California, USA. U.S. Natl. Mar. Fish. Serv. Fish. Bull. 1979;77(1):175-182 Address: DEP. ZOOL., UNIV. HAWAII MANOA, HONOLULU, HAWAII 96822. Small fish and cephalopods associated with pelagic and inshore habitats composed the major prey for the blue shark, *P. glauca*, near Santa Catalina Island, California [USA]. The northern anchovy, *Engraulis mordax*, was the predominant prey for sharks in the immediate study area, while at least 13 spp. of pelagic cephalopods constituted major prey for sharks in more distant oceanic waters. Inshore species taken by sharks included pipefish, *Syngnathus californiensis*; jack mackerel, *Trachurus symmetricus*; and blacksmith, *Chromis punctipinnis*. In addition, sharks moved inshore to feed on winter spawning schools of market squid, *Loligo opalescens*. Digestive rate studies and telemetric monitoring of activity patterns indicate that sharks forage in waters near the surface from near midnight through dawn. Diel activities of prey species show that most prey dispersed in the upper water column at night and refuged during the day by schooling (anchovies and jack mackerel) or by retreating to deeper waters (pelagic cephalopods). Field observations of shark feeding behavior indicate that predatory modes vary in response to prey behavior. inshore habitats/digestive rate/telemetric monitoring/diel activities/feeding/predation/fish behavior/feeding habits/diet/predators/prey species/food organisms/prey species/food preferences/predatory behavior/circadian rhythms/Chondrichthyes/blue shark/*Prionace glauca*/Santa Catalina Island/marine biology/ichthyology.

3711. Trizna DB, Bogle RW, Moore JC, Howe CM. Observation by HF radar of the Phillips resonance mechanism for generation of wind waves. Interim rept. : Naval Research Lab., Washington, DC. NRL-8386; AD-E000 426; 1980. 41. Measurements are reported of directional ocean wave spectra made over 80 deg of viewing angle by an HF radar, operating in the surface wave mode in an area 22.5 km north of San Clemente Island, California. Ten azimuths from 280 to 360 deg true bearing were simultaneously measured for ten wave frequencies ranging from 0.14 Hz (75-m waves) to 0.35 Hz (13-m waves). A Waverider buoy was used to measure omnidirectional energy in the region, and first-order radar Bragg lines were used

to determine the spreading of wave energy with angle. Data are presented in which a bimodal spectrum was present: an attenuated spectrum with wave components to 0.10 Hz from a storm at sea at 270 deg bearing; and a transient local wind spectrum, stronger in amplitude at the higher frequencies, with wave cutoff near 0.14 Hz, and running from 315 deg bearing. Just after the onset of local winds, the westerly spectrum fit a cosine squared spread at the lowest measured frequencies. With the development of local wind which blew at a 12 to 14 knot speed for a period of 12 h, the wave spectrum spread about the wind direction as cosine thirty-second at the lowest frequencies measured, 0.14 Hz, and cosine sixty-fourth at the highest frequencies measured, 0.35 Hz. For 0.28 Hz waves, the Phillips resonance mechanism for wave generation is proposed to explain the twin peaks in amplitude observed, equally spaced either side of the wind direction. These were dominant for the earliest measurement period, and still major contributions for later measurement periods.

Ocean waves/Meteorological radar/High frequency/Surface waves/Wind direction/Storms/Oceanographic radar/Remote sensing/Surface wave radar/Ionospheric radar/Phillips resonance/Bragg lines/Omnidirectional energy/San Clemente Island/meteorology/Earth Sciences/Oceanography.

3712. Hein FJ. Fine grained slope and basin deposits, California continental borderland; facies, depositional mechanisms and geotechnical properties. Marine Geology. 1985;67(3-4):p.237-262 Univ. Alberta, Dep. Geol., Edmonton, AB, Canada Analytic; Serial B; Bibliography and Index of Geology (1969-present). Surficial sediments from slopes and slope-aprons in Santa Barbara, Santa Cruz and San Nicolas basins (California borderland) are dominantly silts and clays. Facies are defined and interpreted on the basis of sedimentary structures as follows: (1) disorganized beds - mudflow or debris flow deposits; (2) beds with deformation features, micro-faults or bowl-shaped dislocations - slump deposits; (3) beds with fluid escape structures - partly fluidized or liquefied beds; (4) graded beds with Bouma sequences - turbidites; (5) ripple cross-bedded silts with mud interlaminae - traction current deposits; (6) horizontally laminated silty clay - suspensate or nepheloid flow deposits; and (7) bioturbated beds. Plasticity indices and water contents vary with texture; both are higher with increasing clay content and organic carbon content. Individual facies are also an influencing factor. For example, beds which were sufficiently consolidated to develop microfaults have lower values than the other facies. Facies distributions correlate with sedimentation rates. Proximal basins ($>50 \text{ mg/cm}^{-2} \text{ yr}^{-1}$) have more mudflow, debris flow and slump deposits while distal basins ($<10 \text{ mg/cm}^{-2} \text{ yr}^{-1}$) have more turbidites and laminated deposits. Mudflow deposits are more common in intermediate slope areas, especially in those areas undergoing creep and syn-sedimentary gravity-faulting in Santa Barbara Basin.--Modified journal abstract.

California/engineering geology/geologic hazards/Pacific Ocean/oceanography/sediments/marine sediments/lithofacies/soil mechanics/materials/properties/sedimentary structures/environmental analysis/marine environment/sedimentation/processes/marine sedimentation/Pacific Coast/Western U.S./United States/North American Pacific/Santa Barbara Basin/Santa Cruz Basin/San Nicolas Basin/textures/materials, properties/fine grained materials/continental borderland/continental margin/marginal basins/slumping/turbidite/graded bedding/turbidity current structures/engineering properties/mechanical properties/slope stability/pore water/plasticity/debris flows/mudflows/GEOREF.

3713. Trusty GL, Cosden TH. Aerosol measurements at an optical propagation site on the Outer Hebrides. Interim rept. Oct 78-Sep 79. : Naval Research Lab., Washington, DC. NRL-8800; 1984. 52.

Measurements of aerosol particle-size distributions and meteorological parameters at a land-based optical propagation site in the Outer Hebrides are compared with identical measurements in the open sea and on San Nicolas Island, California. Calculated extinctions due to aerosols are also compared. A brief discussion of the logistics of operating at the site is included.

Aerosols/Particle size/Meteorological data/Measurement/Wave propagation/Oceans/Coastal regions/Computations/Extinction Outer Hebrides/San Nicolas Island/atmospheric sciences/meteorology.

3714. Edwards BD. Bioturbation in a dysaerobic, bathyal basin; California borderland. Curran, H. A. Biogenic structures; their use in interpreting depositional environments. Smith Coll., Dep. Geol., Northampton, MA, United-States. Special-Publication-Society-of-Economic-Paleontologists-and-Mineralogists. 1985;35:p.309-331

U. S. Geol. Surv., Menlo Park, CA, United-States; Smith Coll., Dep. Geol., Northampton, MA, United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present).

sedimentary structures/biogenic structures/bioturbation/sedimentation/environment/anaerobic environment/California/oceanography/Santa Cruz Basin/California Continental Borderland/ichnofossils/lebensspuren/echinoderms/bathyal sedimentation/asteroids/echinoids/basins/Polychaetia/worms/feeding strategy/life habit/benthonic taxa/GEOREF.

3715. U.S. Dep. Commerce NOaAA. Channel Islands National Marine Sanctuary management plan. ; 1983. 69. ((Prepared for U. S. Natl. Ocean. and Atmos. Admin., Sanctuary Prog. Div.)).

environmental geology/conservation/California Channel Islands/land use/management/fisheries/vertebrates/Sutil Island/San Miguel Island/Santa Rosa Island/Anacapa Island/engineering/environmental geology/fisheries/management/marine biology/resource management.

3716. Pipkin BW, Ploessel M. Submarine geologic investigation for liquefied natural gas facility, Southern California borderland. Bulletin of the Association of Engineering Geologists. 1985;22(2):p.193

Univ. South. Calif., Dep. Geol. Sci., Los Angeles, CA, United-States; McClelland Eng., United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present). California/engineering geology/marine installations/slope stability/geophysical surveys/seismic surveys/Pacific Coast/Western U.S./United States/Southern California/liquefied natural gas/exploration/bathymetry/Santa Ynez Mountains/faults/mass movements/high resolution methods/continental borderland/GEOREF.

3717. Uchikura DE. Oil industry/commercial fishing industry joint committee negotiations from oil industry representative's perspective. J.D. Nyhart. Coastal Zone and Continental Shelf Conflict Resolution: Improving Ocean Use and Resource Dispute Management. Rep. Mass. Inst. Technol. Sea Grant Program. ; 1985. 107-110.

Address: Chevron U.S.A., Inc., Ventura, CA 93006, USA.

The following is an oil industry representative's perspective on the efforts of the Central Coast (California) commercial fishing industry and the offshore oil and gas industry to address the

inherent conflicts resulting from co-use of the marine environment. The Santa Barbara Channel/Santa Maria Basin, offshore California is well known for its substantial oil and gas resources. Major discoveries in the federal Outer Continental Shelf (OCS) have been announced within the last three years. Knowing this, the local commercial fishing industry envisioned an intensification of previous conflicts. They also feared being excluded from fishing grounds due to the presence of offshore oil and gas facilities. oil industry/gas industry/commercial fishing/disputes/outer continental shelf/Santa Barbara Channel/Santa Maria Basin/petroleum/fisheries/resource management.

3718. Kallman RE, Wheeler ED. Coastal crude in a sea of conflict [dissertation]. ; 1984. Blake Printery & Publ. Co., San Luis Obispo, CA Monographic; Book B; Bibliography and Index of Geology (1969-present). 136 p.5 Refs. Pacific Ocean/environmental geology/pollution/California/economic geology/fuel resources/Pacific Coast/Western U.S./United States/offshore/oil spills/Southern California/Santa Barbara Basin/Santa Barbara Channel/GEOREF.

3719. Ucock H. Reservoir modeling to verify geologic and petrophysical data: a case study. Swanson GS. Proceedings, 1988 California regional meeting: the engineering challenge of today's economics. Proceedings - Society of Petroleum Engineers of AIME. California Regional Meeting 1988. ; 1988. 337-347. Address: Unocal Corp., USA. reservoir rocks/models/case studies/porosity/wells Pacific Coast/Western U.S./Upper Repetto Reservoir/Santa Barbara Channel/petroleum engineering.

3720. Goebel VW. On the Miocene vulcanism of Providencia Island, Colombia, western Caribbean. Anonymous. The Geological Society of America, South-Central Section, 19th annual meeting. Abstracts-with-Programs-Geological-Society-of-America. 1985;17(3):p.159 Stephen F. Austin State Univ., Dep. Geol., Nacogdoches, TX, United-States The Geological Society of America, South-Central Section, 19th annual meeting, Fayetteville, AR, April 14-16, 1985 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). Colombia/petrology/volcanism/Caribbean region/absolute age/dates/basalts/volcanology/Miocene/South America/Providencia Island/Santa Catalina Island/western Caribbean region/Nicaraguan Rise/San Andres Island/Neogene/Tertiary/pillow basalts/hawaiite/alkali basalts/volcanic rocks/andesite/andesites/dacite/dacites/rhyolite/rhyolites/K/Ar/G EOREF.

3721. United States Supreme Court. United States vs. State of California - California has dominion over submerged islands and water within the area surrounding Santa Barbara Islands in the Channel Islands National Monument. : 98 S. Ct. 1662-70; 1978. Plaintiff United States government brought this action seeking a determination of whether plaintiff or defendant state of California had dominion over the submerged islands and water within the one-mile belts surrounding Santa Barbara and Anacapa Islands within the Channel Islands National Monument. In 1949 the Monument was enlarged by Presidential Proclamation to encompass areas within one nautical mile of the shorelines of these islands. The submerged lands and waters within the one-mile belts was deemed to be under federal dominion as a result of a 1947 United States Supreme Court decision. Both plaintiff and

defendant concentrated their arguments on the issue of Presidential intent in the use of the word 'areas' in the proclamation. However in this case, the United States Supreme Court, having original jurisdiction, concluded that this issue was irrelevant. After a consideration of the history of the controversy, the Court concluded that, regardless of past litigation, the dominion over the area at issue was vested in the defendant state by the 1953 Submerged Lands Act, one purpose of which was to undo the Court's earlier (1947) opinion. Federal-state water rights conflicts/Submerged lands act/Parks/State governments/United States/Federal government/Islands/Navigable waters/Shores/National monuments/Water Resources Planning/Water Law/Water Institutions/California Channel Islands/Santa Barbara Channel/Santa Barbara Island/Anacapa Island/.

3722. United States., National Park Service., Denver Service Center. Channel Islands National Park, California draft general management plan supplement, environmental assessment. ; 1984. 166. ((NPS 2197)). National parks and reserves/Channel Islands National Park/management plan/social sciences/resource management/policy.

3723. Coale KH, Bruland KW. Th 234:U 238 disequilibria within the California Current. Limnology and Oceanography. 1985;30(1):p.22-33 Univ. Calif., Cent. Mar. Stud., Santa Cruz, CA, United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present). California/oceanography/sea water/isotopes/radioactive tracers/geochemistry/uranium/U 238/Th 234/thorium/Pacific Ocean/Th 234/U 238/Pacific Coast/Western U.S./United States/California Current/residence time/rates/models/particulate fluxes/GEOREF.

3724. Vainik PM, Gilmartin WG, Neill VM. Salmonella in feral pinnipeds off the Southern California Coast. Journal of Wildlife Diseases 1979;15(4):511 Salmonella/disease/Chlamydia/Rickettsia/Salmonella/bacteria/Pinnipedia/Zalophus californianus/California Sea lion/Callorhinus ursinus/Northern fur seal/San Miguel Island/marine biology/mammalogy/parasitology.

3725. Brandsma D, Soon KC, Lund SP, Douglas R, Henyey T. Secular variation as a magnetostratigraphic dating and correlation tool in the recovery of a high resolution, Holocene paleo climatic/oceanographic record from Santa Catalina Basin, California continental borderland. Anonymous. American Geophysical Union; 1984 fall meeting abstracts. Eos,-Transactions,-American-Geophysical-Union. 1984;65(45):p.869 Univ. South. Calif., Los Angeles, CA, United-States American Geophysical Union; 1984 fall meeting, San Francisco, CA, Dec. 3-7, 1984 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). California/stratigraphy/Holocene/paleomagnetism/paleoclimatology/Pacific Coast/Western U.S./United States/Quaternary/magnetostratigraphy/Santa Catalina Basin/continental borderland/paleo oceanography/secular variations/GEOREF.

3726. Valentine MK. An investigation of the sequential occupation of Anacapa Island, Ventura Couant, California [dissertation]. Stanislaus, California: California State University; 1989. 139. This thesis looks at the environmental and cultural impacts of Native American sealers and commercial fishermen, sheepherders,

Coast Guard, and the National Park Service on Anacapa Island.
Chumash/sealers/sheepherders/Coastguard/National Park
Service/Anacapa Island/anthropology/Archaeology/Geology.

3727. Shiller AM, Gieskes JM, Price NB. Particulate iron and manganese in the Santa Barbara Basin, California. *Geochimica et Cosmochimica Acta*. 1985;49(5):p.1239
Scripps Inst. Oceanogr., La Jolla, CA, United-States; Univ. Edinburgh, United-Kingdom Analytic; Serial B; Bibliography and Index of Geology (1969-present).
Pacific Ocean/oceanography/sea water/geochemistry/suspended materials/iron/manganese/Santa Barbara Basin/particulate materials/chemical composition/SEM data/geochemical profiles/GEOREF.

3728. Valka WA, Fox SA. The design and analysis of a TLP 9 5/8-in. threaded connection. *Proc. Offshore Technol. Conf. 1985 Proceedings 1985;3:231-240 Conference: 17. Annual Offshore Technology Conference Houston, TX (USA) 6-9 May 1985 Report ID = OTC 4984.*
The design of a 9-5/8 inch threaded connection for long-term production applications is presented. The threaded connection was designed for joining sections of 9-5/8 inch production riser for a tension leg platform in 1,600 feet of water for the Santa Barbara Channel. The connection utilizes a tapered thread profile, a preloaded external shoulder and a primary metal-to-metal pressure seal at the nose of the pin. The following items were evaluated for the threaded connection using finite element analysis and the results are presented: the ability to transmit the applied static loads, the ability to survive the applied cyclic loads and the ability to maintain a seal under all load conditions. riser pipes/connectors/design/reliability/tension leg platforms/Santa Barbara Channel/petroleum.

3729. Winter A. Distribution of living coccolithophores in the California current system, Southern California borderland. Dingle, R. V. Progress reports for the year 1984. Univ. Cape Town, Dep. Geol., Cape Town, South-Africa. Technical-Report-Marine-Geoscience-Unit, -Joint-Geological-Survey/University-of-Cape-Town. 1985;15:p.35
Univ. Cape Town, Dep. Geol., Cape Town, South-Africa; Univ. Cape Town, Dep. Geol., Cape Town, South-Africa Analytic; Serial B; Bibliography and Index of Geology (1969-present).
California/paleobotany/algae/Pacific Ocean/Coccolithophoraceae/Holocene/Pacific Coast/Western U.S./United States/microfossils/thallophytes/Quaternary/Southern California/California current system/Emiliana huxleyi/Umbilicosphaera sibogae/Gephyrocapsa oceanica/Rhabdosphaera longistylis/species diversity/ocean circulation/assemblages/ecology/currents/distribution/morphology/continental borderland/GEOREF.

3730. van der Laan K, Kuris AM, Stouder DJ. Hermit crabs: An experimental field study of interspecific competition and shell availability. *Bull. of Ecological Soc. of America* 1980;61:136
competition/shell availability/hermit crabs/Santa Barbara Channel/marine biology.

3731. Crouch JK, Bachman S. Regional post late Miocene thrust faulting in offshore central California; implications for wrench style tectonics. Anonymous. 1984 AAPG annual convention with divisions; SEPM/EMD/DPA. *AAPG-Bulletin*. 1984;68(4):p.467
Nekton, San Diego, CA, United-States AAPG annual convention with

divisions; SEPM/EMD/DPA, San Antonio, TX, May 20-23, 1984
Analytic; Serial; Conference publication; Abstract B; Bibliography
and Index of Geology (1969-present). California/structural
geology/tectonics/geophysical surveys/seismic surveys/Pacific
Coast/Western U.S./United States/Central
California/Miocene/Neogene/Tertiary/faults/thrust faults/wrench
faults/offshore/Point Conception/Santa Maria Basin/Santa Barbara
Channel/basins/Hosgri Fault/folds/compression/GEOREF.

3732. Crouch JK, Bachman S. Seismic reflection profiles from
offshore central California; evidence for post Miocene imbricate
thrust faulting. Anonymous. 1984 AAPG annual convention with
divisions; SEPM/EMD/DPA. AAPG-Bulletin. 1984;68(4):p.467
Nekton, San Diego, CA, United-States AAPG annual convention with
divisions; SEPM/EMD/DPA, San Antonio, TX, May 20-23, 1984
Analytic; Serial; Conference publication; Abstract B; Bibliography
and Index of Geology (1969-present). California/economic
geology/petroleum/Pacific Ocean/geophysical surveys/seismic
surveys/Pacific Coast/Western U.S./United
States/offshore/exploration/Central
California/Miocene/Neogene/Tertiary/thrust
faults/faults/imbrication/planar bedding structures/sedimentary
structures/Santa Maria Basin/Santa Barbara Channel/Point
Conception/tectonics/neotectonics/San Andreas
Fault/discoveries/anticlines/folds/wrench faults/structural
traps/traps/geophysical profiles/GEOREF.

3733. Vance RR. A mutualistic interaction between a sessile
marine clam and its epibionts. Ecology 1978;59:679-685
mutualism/Chama/clam/Santa Catalina Island/Bird Rock/marine
biology/ecology.

3734. Masters PM. California coastal evolution and the La
Jollans. Oceanus (Woods Hole). 1985;28(1):p.27-34
Scripps Inst. Oceanogr., La Jolla, CA, United-States Analytic;
Serial B; Bibliography and Index of Geology (1969-present).
California/stratigraphy/Quaternary/changes of
level/paleoecology/fossil man/geomorphology/shore
features/coastlines/paleogeography/occurrence/archaeology/San Diego
County/Pacific Coast/Western U.S./United States/Southern
California/artifacts/La Jolla/Point Loma/Santa Rosa
Island/Holocene/Pleistocene/GEOREF.

3735. Vance RR. Effects of grazing by the sea urchin,
Centrostephanus coronatus, on prey community composition. Ecology
1979;60:537-546 grazing/herbivores/community
ecology/*Centrostephanus coronatus*/sea urchin/Santa Catalina
Island/Bird Rock/marine biology/ecology.

3736. Sigalove JJ. Geochemical identification of resource
potential. Oil and Gas Journal. 1985;83(11):p.164
InterOcean Ind., San Diego, CA, United-States Analytic; Serial B;
Bibliography and Index of Geology (1969-present).
fuel resources/resources/indicators/exploration/geochemical
methods/offshore/dissolved materials/propane/alkanes/aliphatic
hydrocarbons/hydrocarbons/organic
materials/butane/methane/condensates/Brazil/South America/Gulf of
Mexico/North American Atlantic/North Atlantic/Atlantic Ocean/Gulf
of California/North American Pacific/Pacific Ocean/Santa Maria
Basin/Arguello/California/Pacific Coast/Western U.S./United
States/economic geology/Santa Barbara Channel/GEOREF.

3737. dVance RR. Ecological succession and the climax

community on a marine subtidal rock wall. Mar. Ecol. Prog. Ser. 1988;48:125-136

Persistence and development of an epibiotic community occupying a temperate marine subtidal rock wall was studied for 4.5 yr. Composition and abundance of the biota of unmanipulated control quadrats remained remarkably constant. Fleshy red algae fluctuated seasonally, and other taxa fluctuated aperiodically, but abundances of all taxa remained within rather narrow limits. To determine the repeatability of succession, quadrats were cleared of all residents in summer and in winter in each of 2 yr. The encrusting bryozoans and annelids that occur commonly in other areas heavily grazed by sea urchins quickly colonized the cleared quadrats but within 1 to 3 yr have way to the assemblage that characterizes uncleared areas. With minor variations, all quadrats had nearly converged quantitatively to the control condition by about 3 yr after clearing. A third set of quadrats was caged to exclude all macropredators (1 starfish and 3 grazing fishes). Density of the epibiotic mat increased and some changes in the growth forms of some organisms occurred, but no major, lasting changes in abundances were observed over 3 yr. These and other observations suggest that the high local taxonomic diversity here must arise mainly not from external disturbances but from interactions between the sessile epibiotic species themselves.
Santa Catalina Island/marine biology/ecology.

3738. Estes JE, Crippen RE, Star JL. Natural oil seep detection in the Santa Barbara Channel, California, with Shuttle imaging radar. Geology (Boulder). 1985;13(4):p.282-284
Univ. Calif., Remote Sensing Res. Unit, Santa Barbara, CA, United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present). California/geophysical surveys/remote sensing/Pacific Ocean/economic geology/petroleum/Pacific Coast/Western U.S./United States/offshore/North American Pacific/Santa Barbara Channel/satellite methods/radar methods/detection/pollution/imagery/oil seeps/GEOREF.

3739. Vance RR, Schmitt RJ. The effect of the predator-avoidance behavior of the sea urchin, *Centrostephanus coronatus*, on the breadth of its diet. Oecologia 1979;44:21-25
predation/predator-avoidance behavior/diet/*Centrostephanus coronatus*/sea urchin/Santa Catalina Island/Bird Rock/marine biology/ecology.

3740. Channel Islands National Marine Sanctuary management plan. Prep. for U. S. Natl. Ocean. and Atmos. Admin., Sanctuary Prog. Div. ; 1983. 69 p. James Dobbin Associates, United-States U. S. Dep. Commerce, Natl. Oceanogr. and Atmos. Admin., Washington, DC Monographic; Book B; Bibliography and Index of Geology (1969-present).
California/environmental geology/conservation/Pacific Ocean/Pacific Ocean Islands/Pacific Coast/Western U.S./United States/Channel Islands/land use/management/fisheries/vertebrates/Sutil Island/San Miguel Island/Santa Rosa Island/Anacapa Island/GEOREF.

3741. Varoujean DH, Baltz DM, Allen B, Power D, Schroeder D. Seabird-Oil Spill Behavior Study. Volume 1. Executive Summary. Final rept. : Nero and Associates, Inc., Portland, OR. MMS-YN-TE-83-007; 1983. 21. ((Sponsored by Minerals Management Service, Reston, VA.)).
Note: See also PB84-179548. Also available in set of 3 reports PC E99, PB84-179522.

This volume contains a summary of findings of a two year (1980-1982) study on the behavior of seabirds encountering oil-

contaminated water. An information survey, undertaken in the study, indicated that out of nearly 300 references to seabird/oil research only 12 articles addressed the topic of seabird behavior in the presence of oil. Available evidence does, however, indicate that seabirds avoid or try to avoid making contact with petroleum oil. Field observations and experiments conducted in the study areas of natural oil seeps in the Santa Barbara Channel California, revealed that: (1) abundance of seabirds in the study area was relatively low when compared to that in oil-free areas of the Channel; (2) the age and/or the residency status of Brown Pelicans (*Pelecanus occidentalis*), Western Gulls (*Larus occidentalis*) and Heermann's Gulls (*Larus heermanni*) were related to the frequency of interaction of these birds with oil.

Birds/Animal behavior/Oil pollution/Fuel oil/Toxicity/Abundance
Crude oil/Responses/Age/Surveys/California Seabirds/Oil
spills/Water pollution effects (Animals) seabirds/Brown
Pelicans/*Pelecanus occidentalis*/Western Gulls/*Larus
occidentalis*/Heermann's Gulls/*Larus heermanni*/Santa Barbara
Channel/terrestrial biology/ornithology/petroleum.

3742. Ogle BA. Significant new developments in the Santa Maria/Santa Barbara area, offshore California; the geology and economic potential. Moss, J. R. New ideas, new methods, new developments.

Exploration-and-Economics-of-the-Petroleum-Industry. 1984;22:p.23

Ogle Resour., Santa Barbara, CA, United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present).

California/economic geology/fuel

resources/stratigraphy/Tertiary/Cretaceous/Monterey

Formation/Pacific Coast/Western U.S./United States/Santa

Maria/Santa Barbara/offshore/Santa Barbara Channel/Los Angeles

Basin/Point Conception/correlation/basement/petroleum/natural

gas/structural traps/traps/reservoir rocks/Point Arguello Field/oil

and gas fields/production/exploration/San Miguel Field/Molino

Field/Sockeye Field/GEOREF.

3743. Varoujean DH, Baltz DM, Allen B, Power D, Schroeder D.

Seabird Oil spill behavior study. Volume 2. Technical Report.

Final rept. : Nero and Associates, Inc., Portland, OR. MMS-YN-

TE-83-008; 1983. 71. ((Sponsored by Minerals Management Service,

Reston, VA.)).

Note: See also Volume 1, PB84-179530 and Volume 3, PB84-179555.

This volume provides a technical discussion of a two year

(1980-1982) study on the behavior of seabirds encountering oil-

contaminated water. An information survey, undertaken in this

study, indicated that out of nearly 300 references to seabird/oil

research only 12 articles addressed the topic of seabird behavior

in the presence of oil. Available evidence does, however, indicate

that seabirds avoid or try to avoid making contract with petroleum

oil. Field observations and experiments conducted in the study

areas of natural oil seeps in the Santa Barbara Channel,

California, revealed that (1) abundance of seabirds in the study

area was relatively low when compared to that in oil-free areas of

the Channel; (2) the age and/or the residency status of Brown

Pelicans (*Pelecanus occidentalis*), Western Gulls (*Larus*

occidentalis) and Heerman's Gulls (*Larus heermanni*) were related to

the frequency of interaction of these birds with oil.

Birds/Animal behavior/Oil pollution/Fuel

oil/Abundance/Toxicity/Crude oil/Responses/Surveys/Seabirds/Oil

spills/Water pollution

effects/Animals/seabirds/Brown Pelicans/*Pelecanus*

occidentalis/Western Gulls/*Larus occidentalis*/Heerman's Gulls/*Larus*

heermanni/Santa Barbara

Channel/ornithology/terrestrial biology/pollution/petroleum/.

3744. Richter KE, Bennett JC, Smith KLJ. Bottom moored acoustic array to monitor density and vertical movement of deep sea benthopelagic animals. IEEE Journal of Oceanic Engineering. 1985;10(1):p.32

Scripps Inst. Oceanogr., La Jolla, CA, United-States; SEACO, United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present). A bottom-moored vehicle, employing a 36-kHz acoustic array, is described. Its purpose is to census benthopelagic populations at abyssal depths and detect vertical movement of these animals. It is argued that an acoustic census offers particular advantages over traditional sampling methods, and when used in conjunction with these methods, offers powerful insight into abyssal community dynamics.--Modified journal abstract.

geophysical methods/acoustical methods/marine methods/Pacific Ocean/oceanography/ocean floors/automatic data processing/engineering geology/methods/instruments/data acquisition/Coryphaenoides armatus/Eurythenes gryllus/San Clemente Island/Santa Catalina Island/GEOREF.

3745. Veal R, Caire W. Peromyscus eremicus. Mamm. Species 1979;118:6 Address: Cent. St. Univ., Biol. Dep., Edmond, Okla., USA.

biogeography/paleontology/Cenozoic/Tertiary/jaws/skulls/Pleistocene/Quaternary/ upper Pleistocene/Phanerozoic/morphology/Mammalia/Rodentia/Bexar County/Santa Barbara County/Friesenhahn Cave/Santa Rosa Island/vertebrate paleontology.

3746. Isaacs CM. Hemipelagic deposits in a Miocene basin, California; toward a model of lithologic variation and sequence. Stow, D. A. V., Piper, D. J. W. Fine-grained sediments; deep-water processes and facies. Univ. Edinburgh, Grant Inst. Geol., Edinburgh, United-Kingdom. Geological-Society-Special-Publications. 1984;15:p.481-496

U. S. Geol. Surv., Menlo Park, CA, United-States; Univ. Edinburgh, Grant Inst. Geol., Edinburgh, United-Kingdom; Geol. Surv. Can., Atlantic Geosci. Cent., Canada International workshop on fine-grained sediments; deep-water processes and facies, Halifax, NS, Aug. 1982 Analytic; Serial; Conference publication B; Bibliography and Index of Geology (1969-present). California/sedimentary petrology/sedimentary rocks/lithostratigraphy/Miocene/sedimentation/environment/hemipelagic environment/Vaqueros Formation/Rincon Shale/Monterey Formation/Sisquoc Formation/Pacific Coast/Western U.S./United States/Neogene/Tertiary/basins/continental margin/Santa Barbara Basin/organic residues/terrigenous materials/diatoms/algae/bottom water/organic materials/laminations/planar bedding structures/sedimentary structures/diatomaceous earth/clastic rocks/paleogeography/Delmontian/Mohnian/Luisian/middle Miocene/Relizian/Saucesian/lower Miocene/rates/deposition/fines/GEOREF.

3747. Vedder JG, Howell PG, Forman JA. Miocene strata and their relation to other rocks, Santa Catalina Island, California. J.M. Armentrout, M.R. Cole, H. TerBest J. Cenozoic paleogeography of the western United States. Pac. Coast Paleogeogr. Symp. 3. ; 1979. 239-256.

Address: U.S. Geol. Surv., Menlo Park, Calif., USA; Mobil Oil, Dallas, Tex., USA Conference: Pacific Coast paleogeography symposium 3; Cenozoic paleogeography of the western United States.

Anaheim, Calif., March 15-16, 1979. metamorphic rocks/paleogeography/stratigraphy/Miocene/lithostratigraphy/Catalina Schist/Fishermans Cove Sequence/sedimentary rocks/ichnofossils/biogenic structures/sedimentary structures/igneous rocks/schist breccia/andesite/andesite-rhyolite family/basalt/basalt family/intrusions/lava flows/shelf environment/Pliocene/Neogene/Tertiary/Cenozoic/Perdiron Caves/foraminifera/Gastropoda/Mollusca/Bivalvia/Brachiopoda/Echinoidea/Echinozoa/Echinodermata/Polychaeta/Santa Catalina Island/Mount Banning/ Cottonwood Canyon/Cactus Peak/historical geology/stratigraphy.

3748. Thornton SE. Basin model for hemipelagic sedimentation in a tectonically active continental margin; Santa Barbara Basin, California continental borderland. Stow, D. A. V., Piper, D. J. W. Fine-grained sediments; deep-water processes and facies. Univ. Edinburgh, Grant Inst. Geol., Edinburgh, United-Kingdom. Geological-Society-Special-Publications. 1984;15:p.377 Univ. So. Calif., Dep. Geol. Sci., Los Angeles, CA, United-States; Univ. Edinburgh, Grant Inst. Geol., Edinburgh, United-Kingdom; Geol. Surv. Can., Atlantic Geosci. Cent., Canada International workshop on fine-grained sediments; deep-water processes and facies, Halifax, NS, Aug. 1982 Analytic; Serial; Conference publication B; Bibliography and Index of Geology (1969-present). California/oceanography/continental margin/sedimentation/transport/turbidity currents/Pacific Coast/Western U.S./United States/Santa Barbara Basin/Holocene/Quaternary/models/hemipelagic sedimentation/terrigenous materials/mass movements/mudflows/Hueneme Sill/Santa Clara River/Ventura River/foraminifers/microfossils/provenance/absolute age/varves/planar bedding structures/sedimentary structures/fines/active margins/continental slope/continental borderland/GEOREF.

3749. Vedros NA, Quinlivan J, Cranford R. Bacterial and fungal flora of wild northern fur seals *Callorhinus ursinus*. J. Wilds. Dis. 1982;18(4):447-456 Address: NAVAL BIOSCIENCES LAB. SCH. PUBLIC HEALTH, UNIV. CALIFORNIA, BERKELEY, CALIF. 94720. Tissues from healthy subadult and moribund newborn northern fur seals (*C. ursinus*) on St. Paul Island, Pribilof Islands, Alaska [USA], and from healthy pups and yearlings on San Miguel Island, California [USA], were sampled for bacteria and fungi, *Corynebacterium* spp. and *Staphylococcus* spp. were more frequently present in tissues from animals on St. Paul Island; *Pseudomonas* spp. were frequently isolated on San Miguel Island. Approximately half of the blood samples were positive for bacteria. *Salmonella* spp. were isolated from rectal swabs of animals only on San Miguel Island. Fungi were isolated from the hair and skin of subadult males. rectal swabs/blood/hair/skin/northern fur seals/*Callorhinus ursinus*/*Corynebacterium* spp. *Staphylococcus* spp./*Pseudomonas* spp./*Salmonella* spp./fungi/St. Paul Island/Pribilof Islands/Alaska/San Miguel Island/marine biology/mammalogy/parasitology.

3750. Kamerling MJ, Luyendyk BP, Powell TS, Terres RR. Tectonic rotation of the northern Channel Islands of the Southern California borderland. Anonymous. American Geophysical Union; 1980 fall meeting. Eos, -Transactions, -American-Geophysical-Union. 1980;61(46):p.1125 Univ. Calif., Dep. Geol. Sci., Santa Barbara, CA, United-States

American Geophysical Union; 1980 fall meeting, San Francisco, CA, Dec. 8-12, 1980 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).
California/tectonophysics/plate tectonics/Pacific Coast/Western U.S./United States/Southern California/Channel Islands/northern Channel Islands/Santa Monica Mountains/Anacapa Island/San Miguel Island/Santa Cruz Island/Santa Rosa Island/Miocene/Neogene/Tertiary/Eocene/Paleogene/Transverse Ranges/western Transverse Ranges/fractures/faults/East Pacific Rise/North American Plate/GEOREF.

3751. Vesecky JF, Hsiao SV, Teague CC, Shemdin OH, Pawka SS. Radar observations of wave transformations in the vicinity of islands. J. Geophys. Res. 1980;85(C9):4977-4986
Address: Stanford Cent. Radar Astron., Stanford Univ., Stanford, CA 94305, USA. During the West Coast Experiment both in situ measurements and remote observations were made to study the effects of offshore islands on the near-shore wave climate. The radar results reported here concern March 25, 1977, a day of moderate winds blowing out of the west at approx 7 m/s. The Torrey Pines near-shore pressure array indicated that the dominant wave period was 7 s arriving with a bimodal directional distribution centered approximately on west and northwest. The overall picture, which emerges from these observations of 7 s period waves, shows a broad, deep-ocean directional distribution arriving out of the west, being significantly modified as it propagates coastward passing San Clemente and Santa Catalina islands. The salient features introduced by the islands are a window between the islands, where an enhanced wave energy level is observed traveling eastward toward the southern California coast and a large shadow region extending some 50 km east of San Clemente Island in which eastward propagating wave energy is reduced by a factor of about 3. Although reduced in energy level, there are in fact eastward propagating waves in the shadow region where one would expect no eastward traveling waves at all based on geometric arguments. Estimates of the eastward moving wave energy introduced into the shadow region by reflection, refraction, diffraction, and wind generation processes show that none of these mechanisms can account for the observed wave energy. SAR observations reveal a significant directional component traveling approximately transverse to the shadow region (parallel to the long dimension of the island).
wave climate/topographic effects/wind measurement/wind profiles/remote sensing/wave propagation/in situ measurements/wave periods/wave energy/wave transformation/radar observations/Torrey Pines/San Clemente Island/Santa Catalina Island/oceanography/meteorology/atmospheric science.

3752. Legg MR. Present day microplate tectonics in the Southern California continental borderland. Anonymous. American Geophysical Union; 1980 fall meeting. Eos,-Transactions,-American-Geophysical-Union. 1980;61(46):p.1124-1125 Scripps Inst. Oceanogr., Geol. Res. Div., La Jolla, CA, United-States American Geophysical Union; 1980 fall meeting, San Francisco, CA, Dec. 8-12, 1980 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).
California/seismology/earthquakes/focal mechanism/tectonophysics/plate tectonics/Pacific Coast/Western U.S./United States/Southern California/North American Plate/Pacific Plate/San Andreas Fault/strike slip faults/faults/dip slip faults/Transverse Ranges/normal faults/magnitude/models/San Clemente Island/Fortymile Bank/GEOREF.

3753. Wagner A. Catalina's life-saving marine laboratory.

Sea Front. 1982;28(3):153-156

The Catalina Marine Science Center on Catalina Island, 26 miles across the San Pedro channel from Los Angeles, operates the only hyperbaric chamber in southern California that is available to the public year-round, 24 hours a day. The unit is staffed by trained members of the laboratory's personnel and qualified volunteers with a diving/medical background. Their training includes an intensive week-long course and a 30-day internship to learn decompression treatment theory, equipment operation, and medical emergency procedures.

health and safety/decompression chambers/hyperbaric chamber/Santa Catalina Island/Catalina Marine Science Center health and safety/medicine/human physiology/public health.

3754. Olson DJ. Surface and subsurface geology of the Santa Barbara Goleta metropolitan area, Santa Barbara County, California. The Geological Society of America, Rocky Mountain Section, 36th annual meeting; Cordilleran Section, 79th annual meeting. Abstracts-with-Programs-Geological-Society-of-America.

1983;15(5):p.418

Oreg. State Univ., Dep. Geol., Corvallis, OR, United-States The Geological Society of America 36th annual meeting, Rocky Mountain Section; 79th annual meeting, Cordilleran Section, Salt Lake City, UT, May 2-4, 1983 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). faults/displacements/reverse faults/California/structural geology/Santa Barbara County/Santa Barbara Formation/Vaqueras Formation/Pacific Coast/Western U.S./United States/Santa Barbara Goleta region/Santa Barbara Montecito Basin/Goleta Basin/Pleistocene/Quaternary/folds/Cameros Fault/Goleta Fault/Modoc Fault/disharmonic folds/More Ranch Fault/Coal Oil Point Fault/Mesa Fault/Lavigia Fault/San Jose Fault/Elwood Field/La Goleta Field/Santa Ynez Mountains/Rincon Creek Fault/GEOREF.

3755. Walker JM. Variation and systematic relationships of the San Pedro Martir whiptail lizard *Cnemidophorus martyris* (Teiidae). Southwest Nat. 1983;28(1):1-8

Address: DEP. ZOOL., UNIV. ARKANSAS, FAYETTEVILLE, AR 72701. The teiid lizard *C. martyris* Stejneger is endemic to Isla San Pedro Martir, a small island in the central region of the Gulf of California about midway between the coast of Sonora and the Peninsula of Baja California, Mexico. Small mesoptychial scales, granular postantibrachial scales, 4-4 or more supraocular scales, and paired frontoparietal scales align the San Pedro Martir whiptail with the *C. tigris* speciesgroup. A combination of small body size (snout vent length of 80 mm or less), distinctive melanistic dorsal and ventral color patterns, and a distinctive ensemble of scutellation characters is presented as strong presumptive evidence that the potential for reproductive isolation has evolved. *C. martyris* is treated here as 1 among 7 distinctive allospecies (allopatric species) in the superspecies *C. tigris*. *C. martyris* is most closely related to the whiptail populations of Islas San Pedro Nolasco (*C. bacatus*); Santa Catalina (*C. catalinensis*); San Lorenzo Sur, San Lorenzo Norte and Salsipuedes (*C. canus*); San Esteban (*C. estebanensis*); Smith (*Cnemidophorus* undescribed). Although these insular populations share a number of morphological similarities, each taxon is recognizable by a distinctive combination of color, pattern and scutellation characters.

body size/scale morphology/color/reproductive isolation/teiid lizards/*Cnemidophorus martyris*/Stejneger/Gulf of California/terrestrial biology/herpetology.

3756. Rowland SM. Geology of Santa Catalina Island. California Geology. 1984;37(11):p.239 Univ. Nev., Dep. Geosci., Las Vegas, NV, United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present). California/areal geology/Santa Catalina Island/Pacific Coast/Western U.S./United States/Catalina Schist/Farallon North American Subduction Zone/Southern California/Baja California/Franciscan Complex/graywacke/clastic rocks/greenstone/schists/structural geology/Miocene/Neogene/Tertiary/Cretaceous/paleogeography/volcanic rocks/sedimentary rocks/stratigraphy/GEOREF.

3757. Walker PL. A quantitative analysis of dental attrition rates in the Santa Barbara Channel area, California, USA. Am. J. Phys. Anthropol. 1978;48(1):101-106 Address: DEP. ANTHROPOLOGY, UNIV. CALIF., SANTA BARBARA, CALIF. 93106. The dentitions of individuals from archaeological sites located along the Santa Barbara Channel [California, USA] were analyzed using quantitative methods which allow the accurate assessment of attrition rates. Comparisons of molar wear gradients indicate that attrition rates have decreased significantly through time in the Santa Barbara Channel area. human archaeological sites/molar wear/gradient/Homo sapiens/Santa Barbara Channel/anthropology/archaeology.

3758. Chevron USA proposed pipeline installation, Santa Barbara Channel. ; 1979. California, Santa Barbara County, Department of Environmental Resources, Santa Barbara, CA, United-States; California Coastal Commission, San Francisco, CA, United-States; U. S. Geological Survey, Los Angeles, CA, United-States; U. S. Army Corps of Engineers, Los Angeles, CA, United-States Monographic; Report Environmental impact report/environmental assessment, in two volumes. B; Bibliography and Index of Geology (1969-present) U. S. Geol. Surv., Los Angeles, CA, United States. California/environmental geology/impact statements/Pacific Ocean/Pacific Coast/Western U.S./United States/Santa Barbara Channel/North American Pacific/pipelines/fuel resources/GEOREF.

3759. Walker PL. Osteological evidence of prehistoric temporal and spatial variation in nutrition and health on the Channel Islands and mainland coast of Southern California, USA. Am. J. Phys. Anthropol. 1982;57(2):239 Address: UNIV. CALIFORNIA, SANTA BARBARA CONFERENCE PAPER: 51ST ANNUAL MEETING OF THE AMERICAN ASSOCIATION OF PHYSICAL ANTHROPOLOGISTS, EUGENE, OREG., USA, APR. 1-3, 1982. arrested growth/nutritional status/infectious disease/dental carries/hypoplasia/pathology/traumatic injury/communication/Homo sapiens/California Channel Islands/physical anthropology.

3760. Grossman EL. Stable isotope fractionation in live benthic foraminifera from the Southern California Borderland. Palaeogeography, Palaeoclimatology, Palaeoecology. 1984;47(3-4):p.301-327 Texas A & M Univ., Dep. Geol., TX, United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present). California/geochemistry/isotopes/foraminifera/biochemistry/carbon/C13/C12/oxygen/O18/O16/stable isotopes/ecology/continental borderland/Southern California/benthic taxa/biological fractionation/dissolved inorganic carbon/microfossils/Pacific Coast/Western U.S./United States/paleontology/fractionation/sediments/marine sediments/aragonite/carbonates/calcite/Hoeglundina

elegans/Cassidulinen/Globogulmina/GEOREF.

3761. Walker PL. Porotic hyperostosis in a marine-dependent California USA Indian population. Am. J. Phys. Anthropol. 1986;69(3):345-354 Address: DEP. ANTHROPOL., UNIV. California, SANTA BARBARA, CALIF. 93106. A maize-based iron- and protein-deficient diet is commonly cited as the most important cause of porotic hyperostosis among American Indian agriculturalists. An alternative to this maize dependence hypothesis is suggested by the analysis of 432 crania from the nonagricultural, fish-dependent population of the Channel Island area of southern California, Cribra orbitalia, a form of porotic hyperostosis associated with iron deficiency anemia, is just as common among these fisherpeople, whose diet was rich in iron and essential amino acids, as it is among maize-dependent agriculturalists. Northern Channel Island crania have much more cribra orbitalia than those from the California mainland. The highest incidence is on San Miguel, a small geographically isolated island with a shortage of fresh water and terrestrial resources. The Indians who lived on Santa Cruz, the largest of the northern Channel Islands with the greatest diversity of terrestrial plants and animals, have less cribra orbitalia than those who lived on Santa Rosa or San Miguel Island. This geographical distribution appears to be explained by island-mainland and interisland differences in water contamination, exposure to fish-borne parasites, and nutritional adequacy of the diet. The prevalence of porotic hyperostosis in a population with a heavy dietary dependence on marine resources shows that among prehistoric American Indians, this condition is not always associated with an iron- and protein-deficient diet of cultigens. It seems likely that high nutrient losses associated with diarrheal disease are often more significant in the etiology of porotic hyperostosis than a low dietary intake of essential nutrients. Cribra orbitalia/anemia/diarrhea/iron/protein/malnutrition/paleopathology/porotic hyperostosis/Indians/Homo sapiens/California Channel Island/San Miguel Island/Santa Cruz Island/Santa Rosa Island/anthropology/paleopathology/paleontology.

3762. Gorsline DS, Nardin TR, Edwards BD, Drake DE, Thornton SE, Day PC. Influence of current scour on basin sills; Anacapa Passage, California borderland. The Geological Society of America, 95th annual meeting. Abstracts-with-Programs-Geological-Society-of-America. 1982;14(7):p.499-500 Univ. South. Calif., Dep. Geol. Sci., Los Angeles, CA, United-States; U. S. Geol. Surv., Pac.-Arct. Branch Mar. Geol., United-States; Shell Oil Co., United-States; Phillips Pet. Co., United-States The Geological Society of America, 95th annual meeting, New Orleans, LA, Oct. 18-21, 1982 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). California/oceanography/continental shelf/sedimentation/environment/marine environment/Pacific Coast/Western U.S./United States/Anacapa Passage/Pacific Ocean/Santa Barbara Basin/Santa Monica Basin/suspended materials/scour/currents/ocean circulation/Pliocene/Neogene/Tertiary/Pleistocene/Quaternary/submarine canyons/Santa Clara River/Ventura River/sand/clastic sediments/Hueneme Fan/remote sensing/Landsat/satellite methods/imagery/transmissometry/sills/intrusions/basin sills/GEOREF.

3763. Walker PL. Human biological evolution in the Santa Barbara Channel area, California USA: an evaluation of genetic and environmental influences on skeletal morphology. Am. J. Phys.

Anthropol 1983;60(2e):267 Address: UNIV. CALIF., SANTA BARBARA
CONFERENCE PAPER: 52ND ANNUAL MEETING OF THE AMERICAN ASSOCIATION
OF PHYSICAL ANTHROPOLOGISTS, INDIANAPOLIS, INDIANA, USA, APRIL 6-9,
1983.

archaeological/population/dentition/gene flow/diet/socio-
economics/temporal variation/morphometrics/American Indians/Homo
sapiens/Santa Barbara Channel/physical anthropology.

3764. Penland S, Suter JR. Process response models for Gulf
Coast barrier island breaching. White, B. R., Kier, R. Transactions
of the 34th annual meeting, Gulf Coast Association of Geological
Societies and thirty-first annual meeting of the Gulf Coast Section
of SEPM.

Transactions-Gulf-Coast-Association-of-Geological-Societies.
1984;34:p.397 La. Geol. Surv., Coastal Geol. Program, Baton Rouge,
LA, United-States Thirty-fourth annual meeting of the Gulf Coast
Association of Geological Societies and Thirty-first annual meeting
of the Gulf Coast Section of SEPM, Shreveport, LA, Oct. 24-26, 1984
Analytic; Serial; Conference publication B; Bibliography and Index
of Geology (1969-present).

Gulf Coastal Plain/geomorphology/shore features/barrier
islands/North
America/models/processes/shorelines/hurricanes/Florida/Southeastern
U.S./Eastern U.S./United States/Santa Rosa Island/Perdido
Key/Alabama/Southern U.S./Dauphin Island/Louisiana/Caminada
Bay/GEOREF.

3765. Walker PL, Craig S. Archaeological evidence concerning
the prehistoric occurrence of sea mammals at Point Bennett, San
Miguel Island, California, USA. Calif. Fish Game 1979;65(1):50-54
Address: DEP. ANTHROPOL., UNIV. CALIF., SANTA BARBARA, CALIF.
Faunal remains from an archaeological site at Point Bennett
(SMI-525) were analyzed to obtain information concerning
prehistoric distribution of sea mammals on San Miguel Island
[California, USA]. All of the pinniped species which presently
utilize the island were recovered in the archaeological material.
Although the sea otter *Enhydra lutris* does not currently inhabit
the island, its remains were frequently encountered in the site
material. In contrast to its current restricted distribution in the
vicinity of the Guadalupe Island, the Guadalupe fur seal
Arctocephalus townsendi was the most frequently encountered
pinniped in the deposit. The relative frequency of California sea
lion *Eumetopias jubata* remains indicates that its present position
as a marginal species on the island extends well into the
prehistory of the rookery.

distribution/marine mammals/Pinnipedia/sea otter/*Enhydra
lutris*/Guadalupe fur seal/*Arctocephalus townsendi*/California sea
lion/*Eumetopias jubata*/Point Bennett/San Miguel
Island/archaeology/marine mammalogy/marine biology/anthropology.

3766. Savrda CE, Bottjer DJ, Gorsline DS. Development of a
comprehensive oxygen deficient marine biofacies model; evidence
from Santa Monica, San Pedro, and Santa Barbara basins, California
continental borderland. AAPG Bulletin. 1984;68(9):p.1179

Univ. South. Calif., Dep. Geol. Sci., Los Angeles, CA, United-
States Analytic; Serial B; Bibliography and Index of Geology
(1969-present). Pacific Ocean/oceanography/marine
geology/ecology/echinoderms/dysaerobic
environment/California/Pacific Coast/Western U.S./United
States/Santa Monica Basin/San Pedro Basin/Santa Barbara
Basin/sedimentation/sedimentary petrology/biofacies/marine
environment/models/low oxygen environment/faunal
studies/assemblages/biogenic structures/sedimentary

structures/continental borderland/anaerobic
environment/oxygen/paleo oceanography/cores/GEOREF.

3767. Walker PL, Deniro MJ. Stable nitrogen and carbon isotope ratios in bone collagen as indices of prehistoric dietary dependence on marine and terrestrial resources in Southern California, USA. *Am. J. Phys. Anthropol.* 1986;71(1):51-62
Address: DEP. ANTHROPOLOGY, UNIV. CALIF., SANTA BARBARA, CALIF. 93106. The ratios of ^{15}N to ^{14}N and ^{13}C to ^{12}C tend to be higher in marine than in terrestrial organisms. The concentrations of these isotopes in human bone collagen consequently can be used to make inferences about the contribution of marine and terrestrial resources to prehistoric diets. The utility of studying $^{15}\text{N}/^{14}\text{N}$ and $^{13}\text{C}/^{12}\text{C}$ ratios in conjunction with each other is illustrated by our analysis of 40 human burials from archaeological sites in the Santa Barbara Channel area of southern California. The mean $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ values (in per mil) of collagen from these skeletons decrease progressively from the Channel Islands ($\delta^{13}\text{C} = -14.0$, $\delta^{15}\text{N} = +16.3$) to the mainland coast ($\delta^{13}\text{C} = -14.5$, $\delta^{15}\text{N} = +14.9$) to the interior ($\delta^{13}\text{C} = -17.2$, $\delta^{15}\text{N} = +10.9$). These data suggest that Indians living on the Channel Islands during the late prehistoric period were heavily dependent on marine resources. The inhabitants of the mainland interior, in contrast, had a diet composed largely of terrestrial foods. From their isotope ratios, it appears that the Indians who lived on the mainland coast consumed a mixed diet containing substantial quantities of both marine and terrestrial resources. Differences in $^{15}\text{N}/^{14}\text{N}$ and $^{13}\text{C}/^{12}\text{C}$ ratios of individuals from mainland sites dating from the early and late prehistoric periods show that the marine component of the diet increased substantially through time. These isotopic data are consistent with pathological, faunal, and artifactual evidence of increased marine resource exploitation during the late prehistoric period.
human nutrition/Homo sapiens/Native Americans/Indians/Santa Barbara Channel/anthropology/archaeology.

3768. Dainty ND, Woltz D. Oil and gas developments in West Coast in 1983. *AAPG Bulletin. World energy development, 1983* 1984;68(10):p.1297-1303 Chevron U.S.A., Concord, CA, United-States; Arco Explor., United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present). California/economic geology/energy sources/Oregon/Washington/Pacific Coast/Western U.S./United States/fuel resources/exploration/wells/Sacramento Valley/Santa Maria Basin/Santa Barbara Channel/offshore geothermal energy/GEOREF.

3769. Wall DA. Dinoflagellate cysts and acritarchs from California current surface sediments [dissertation]. Saskatchewan, Canada: University of Saskatchewan; 1986. Unknown. Three aspects of Recent dinoflagellate cyst and acritarch paleoecology in the California Current are examined in the present study: their biogeography from seventy surface sediment samples, yearly variations in cyst deposition in varved sediments, and their systematics. Six regions within the Current were studied; aquatic palynomorphs varied in peak abundance as follows (from greatest to smallest): Baja California, Southern California Bight, Gulf of California, Washington Shelf, San Juan Islands, Central California. The most important dinocyst group is the genus *Spiniferites*, with several species reaching dominance. *Lingulodinium machaerophorum* is the most abundant cyst in the Southern California Bight. Broad similarity is seen in assemblages from the six areas, with a general tendency to add species to the flora during the southward flow. To determine

whether distinctive dinocyst communities could be detected a TWINSPAN analysis of species and samples was run. This hierarchical clustering technique revealed interregional differences in community composition: e.g. the Washington shelf was characterized by a predominance of freshwater palynomorphs, the inshore Southern California Bight by *L. machaerophorum*, offshore Oregon by *Impagidinium* spp., and smaller subregions distinguished by subtler differences. Yearly variations in cyst abundance from Santa Barbara Basin varves representing the years 1925 to 1970 A.D. were compared to historical time series of blooms of cyst forming dinoflagellates and sea surface temperature (SST). *L. machaerophorum*, *Spiniferites* spp. and total cyst abundance apparently respond negatively to annual SST. In addition, some blooms of *Gonyaulax polyedra* follow peaks in deposition of its cyst. Sixty-four species of palynomorphs are described, including six new species and three new genera. Distribution maps of significant species are presented. cysts, acritarch/paleoecology/California Current/palynomorphs paleobotany/Holocene/microfossils/new taxa/acritarchs dinoflagellates/spiniferites/Lingulodinium machaerophorum/acritarchs/Southern California Bight/geology.

3770. Simila GW. Analysis of Rayleigh wave group velocity data for the Transverse Ranges and the Southern California borderland region. Anonymous. Eastern Section of the Seismological Society of America. Earthquake-Notes. 1984;55:p.24
Calif. State Univ., Dep. Geol. Sci., Northridge, CA, United-States
The Seismological Society of America, 1984 annual meeting, Anchorage, AK, May 30-June 1, 1984 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).
California/seismology/elastic waves/Rayleigh waves/Pacific Coast/Western U.S./United States/Transverse Ranges/crust/properties/velocity structure/tectonophysics/southern California/earthquakes/magnitude/P waves/body waves/refraction/Catalina Block/shear/phase velocity/surface waves/wave dispersion/GEOREF.

3771. Wallace GD. Vascular plants of the Channel Islands of Southern California, USA and Guadalupe Island, Baja California, Mexico. Contrib. Sci. (Los Angeles) 1985;0(365):1-136
Address: BOT. SECT., NATURAL HISTORY MUSEUM LOS ANGELES COUNTY, 900 EXPOSITION BOULEVARD, LOS ANGELES, CALIF. 90007.
Vascular plant taxa of the Channel Islands of southern California and Guadalupe Island, Mexico, are treated, to include their distribution among the islands, citation of verified specimens from several herbaria, and a detailed account of earlier synonymous taxa, misidentified specimens, and taxa incertae sedis based on herbarium specimens and literature citations. A total of 621 native vascular taxa include 137 endemics and 227 introduced taxa.
taxa
synonyms/identification/distribution/endemics/introductions/Vascular plant/taxa/California Channel Islands/Guadalupe Island/terrestrial biology/botany.

3772. Wojcik GL. Local seismograms from underwater explosions off San Clemente Island. Anonymous. Eastern Section of the Seismological Society of America. Earthquake-Notes. 1984;55:p.10
Weidlinger Assoc., Menlo Park, CA, United-States
The Seismological Society of America, 1984 annual meeting, Anchorage, AK, May 30-June 1, 1984 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).

California/seismology/explosions/chemical explosions/Pacific Coast/Western U.S./United States/San Clemente Island/underwater explosions/seismograms/shock waves/magnitude/seismographs/networks/Southern California Network/traveltime curves/accelerometers/elastic waves/mathematical methods/equations/velocity structure/GEOREF.

3773. Wallace TC, Helmberger DV, Ebel JE. A broadband study of the 13 August 1978 Santa Barbara earthquake. Bulletin of the Seismological Society of America 1981;71(16):1701-1718
Address: Calif. Technol., Seismol. Lab., Pasadena, CA Note: Calif. Inst. Technol., Seismol. Lab.; Contrib. No. 3404.
seismology/earthquakes/spectral analysis/broad-band spectra/body waves/focal mechanism/accelerograms/strong motion/seismic moment/Santa Barbara earthquake, 1978/Santa Barbara County/Santa Barbara Channel/seismology/geophysics/geology.

3774. Matthews WR. How to calculate pore pressures, gradients from well logs for the U. S. West Coast. Oil and Gas Journal. 1984;82(40):p.132 Consult., Humble, TX, United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present).
Pacific Coast/geophysical surveys/well logging/electrical logging/interpretation/California/Kings County/Western U.S./United States/pore pressure/conductivity/Santa Barbara Channel/accuracy/Los Angeles Basin/San Joaquin Valley/GEOREF.

3775. Wallerstein MC. An examination of the roles of predation and competition in determining the distributions of the ophiuroids *Ophiothrix spiculata* Le Conte, 1851 and *Ophiopterus papillosa* (Lyman, 19=875) in a shallow marine community [dissertation]. Los Angeles, California, USA: University of Southern California; 1982. Unknown.
The roles of predation and competition in determining the distributions of *Ophiopterus papillosa* and *Ophiothrix spiculata* were studied in a rocky bottom, shallow water, marine community at Santa Catalina Island, California. *Ophiopterus papillosa* and *Ophiothrix spiculata* were always found in under-rock and *Macrocystis pyrifera* holdfast crevices, which protected them from predators. Both species displayed several behavioral mechanisms which function in surviving predator attacks. *Ophiopterus papillosa* was found more abundantly under larger rocks and laboratory experiments showed a preference for narrow crevices with a larger area. They showed a clumped distribution in the field, but laboratory experiments showed no tendency to aggregate. This distribution may reflect habitat availability. Large and small *Ophiopterus papillosa* were found in under-rock crevices, whereas only small individuals were found in kelp holdfasts. *Ophiothrix spiculata* occurred almost exclusively in kelp holdfasts. Laboratory experiments showed no substrate preferences which would cause this pattern. Field experiments showed no evidence of competition between *Ophiopterus papillosa* and *Ophiothrix spiculata* which could produce the observed distribution. Quantitative laboratory and field observations showed that *Ophiothrix spiculata* has more of a tendency to climb upwards from under rocks to a feeding position where it is exposed to predators. However, individuals in holdfasts are provided with protection for the disc and an advantageous filter feeding position. *Ophiopterus papillosa* shows a greater tendency to deposit feed, a stronger negative phototaxis and a stronger thigmotaxis than *Ophiothrix spiculata* does. It remains under rocks where it is protected from predation. Although the preferred feeding methods of each species and

the tendency of *Ophiothrix spiculata* to climb upwards to filter feed do contribute to their distribution patterns, true habitat specialization does not appear to occur for these species. In the laboratory *Ophiothrix spiculata* was observed using both arm loop capture and deposit feeding methods. Under different levels of predation pressure individuals could employ less preferred feeding mechanisms to obtain the majority of their food requirements. In Monterey Bay, California, *Ophiothrix spiculata* occurs abundantly under rocks. Changes in predation pressure could allow changes in habitat utilization and feeding mechanisms employed, and possible changes in competitive interactions.

predation/competition/habitat preference/deposit feeding/filter feeding/ ophiuroids/*Ophiothrix spiculata*/*Ophiopertus papilloso*/Santa Catalina Island/marine biology.

3776. Sides DR, Denner WW, Breaker LC. Applications of remote sensing to the study of coastal physical processes and marine resource mapping. Wenzel JG. Proceedings Oceans '83; Effective use of the sea, an update, volumes 1-3. Lockheed Mar. Syst. Group, United-States. ; 1983. p. p. 361-367. Sci. Appl., Monterey, CA, United-States; Lockheed Mar. Syst. Group, United-States; Nav. Postgrad. Sch., Dep. Oceanogr., United-States Inst. Electr. and Electron. Eng., Piscataway, NJ Oceans '83, San Francisco, CA, Aug. 29-Sept. 1, 1983 Analytic; Book; Conference publication B; Bibliography and Index of Geology (1969-present). Pacific Ocean/geophysical surveys/remote sensing/applications/experimental studies/cartography/imagery/satellite methods/airborne methods/two dimensional models/models/California Current/high resolution methods/NESDIS/case studies/GEOREF.

3777. Wallis WS. Oil and gas exploration, offshore Southern California. M.T. Halbouty. Energy resources of the Pacific region. AAPG Studies in Geology 12. ; 1981. 383-389.

Address: Ogle Pet., Santa Barbara, CA Conference: Symposium on energy resources of the Pacific region. Honolulu, HI, July 30-Aug. 4, 1978.

well-logging/interpretation/fuel resources/lithostratigraphy/petroleum/natural gas/continental margin/San Diego Trough/sedimentary basins/Tertiary/Cenozoic/deformation/faults/anticlines/folds/possibilities/trap s/offshore Los Angeles Basin/Outer Banks Basin/Ventura Basin/Santa Barbara Channel/San Diego Trough/economic geology/energy sources/petroleum.

3778. Anderson JG, Hough SE. A model for the shape of the Fourier amplitude spectrum of acceleration at high frequencies. Bulletin of the Seismological Society of America.

1984;74(5):p.1969-1993

Scripps Inst. Oceanogr., Inst. Geophys. and Planet. Phys., La Jolla, CA, United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present).

At high frequencies f the spectrum of S-wave accelerations is characterized by a trend of exponential decay, $e(-\pi)\kappa f$. In our study, the spectral decay parameter κ increases gradually as the epicentral distance increases. For multiple recordings of the San Fernando earthquake, κ increases slowly with distance, and κ is smaller for sites on rock than for sites on alluvium. Under the assumption that the Fourier spectrum of acceleration at the source is constant above the corner frequency (an ω^{-2} source model), the exponential decay is consistent with an attenuation model in which Q increases rapidly with depth in the

shallow crustal layers.--Modified journal abstract.
California/engineering geology/earthquakes/seismology/elastic waves/ground motion/acceleration/models/spectral analysis/Fourier analysis/amplitude/S waves/body waves/spectral decay parameter/epicenters/San Fernando earthquake, 1971/alluvium/clastic sediments/attenuation/Q/crust/seismic sources/propagation/Santa Barbara Island earthquake, 1981/Pacific Coast/Western U.S./United States/GEOREF.

3779. Walmsley JL, Blanc TV. Computer-model results for the beach-escarpment-induced distortion of onshore wind flow at the northwest point of San Nicolas Island, California. Final rept. : Naval Research Lab., Washington, DC. NRL-8746; 1983. 22.
A computer model developed by the Atmospheric Environment Service of Canada concluded that the beach escarpment underlying the Naval Research Laboratory's micrometeorological tower facility at San Nicolas Island, California, induced wind-speed amplifications ranging from 1.00 to 1.25 and wind-direction perturbations ranging from -5 deg to +5 deg, depending upon the altitude and wind direction, for measurements made from the NRL tower. The altitudes considered ranged from 5 to 35 m above the beach for onshore winds ranging over a 180 deg arc centered about the prevailing northwest wind direction. The model calculations were based upon a high-resolution aerial survey of the island beach escarpment. The model assumes that the tide height is at mean level, the horizontal length scale is 50 m, the roughness length of both the sea and island is 0.01 m, and the atmosphere is neutrally stable. The model results are presented in graphic form, to illustrate a typical example, and in tabular form as a function of altitude and wind direction, to facilitate the use of the results as a correction algorithm for future air-sea interaction experiments at the coastal facility. Beaches/Cliffs/Wind/Computer aided diagnosis/Wind velocity/Wind direction/Distortion/Micrometeorology/Islands/Towers/Naval research/San Nicolas Island/atmospheric sciences/meteorology.

3780. Hein FJ, Longstaffe FJ. Controls on geotechnical properties of fine grained mass flow deposits, California borderland. International Congress on Sedimentology = Congres International de Sedimentologie. 1982;11:p.166 Univ. Alberta, Dep. Geol., Edmonton, AB, Canada Eleventh international congress on sedimentology, Hamilton, ON, Aug. 22-27, 1982 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). California/oceanography/continental slope/soil mechanics/materials/properties/marine sediments/organic materials/geochemistry/Pacific Coast/Western U.S./United States/materials, properties/X ray data/sedimentation/transport/mass movements/debris flows/silt/clastic sediments/clay/Santa Barbara Basin/Santa Cruz Basin/San Nicolas Basin/plasticity/Atterberg limits/smectite/clay minerals/sheet silicates/silicates/vermiculite/illite/chlorite/chlorite group/kaolinite/North American Pacific/Pacific Ocean/GEOREF.

3781. McClay PL, Slosson JE. Photographic evidence in forensic engineering and geology. Hannan, D. L. Engineering geology today and tomorrow. Converse Consult., Anaheim, CA, United-States. Program-Association-of-Engineering-Geologists,-National-Meeting. 1983;26:p.86 Slosson and Assoc., Van Nuys, CA, United-States; Converse Consult., Anaheim, CA, United-States Association of Engineering Geologists 26th annual meeting; Engineering geology today and tomorrow, San Diego, CA, Oct. 2-7, 1983 Analytic;

Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).

California/engineering geology/slope stability/Pacific Coast/Western U.S./United States/land use/legislation/photography/floods/debris/landslides/Santa Catalina Island/Hidden Springs/rupture/forensic geology/GEOREF.

3782. Walton JTL, Dean RG. Computer algorithm to calculate longshore energy flux and wave direction from a two pressure sensor array. US Army Coastal Engineering Research Center, Technical Paper 1982;82-2:33 pages Address: Dept of Army Coastal Eng Res Center, (CEREN-EV), Kingman Building, Fort Belvoir, VA 22060,FL.

A documented (FORTRAN IV) computer program to analyze wave data collected at Channel Islands Harbor, California is discussed. The program performs the basic analysis of two wave gage pressure records necessary to compute wave direction and wave energy at a given frequency and computes the longshore energy flux used in sand transport for the entire energy spectrum of the wave record. This program uses linear wave theory for the wave transformation process and includes the assumption of straight and parallel bottom contours necessary for application of Snell's law of refraction. The necessary steps in an analysis of wave data and sample outputs for some wave records from the Channel Islands wave gage pressure sensor pair are given. The program presently accepts data in the standard CERC magnetic-tape format where record lengths consist of 4100 values. Computer program/longshore energy flux/sediment transport/wave gage array/wave spectra/Channel Islands Harbor/marine geology.

3783. Howell DG, Vedder JG. Ferrelo Fan, California; depositional system influenced by eustatic sea level changes. Geo Marine Letters. 1984;3(2-4):p.187-192

U. S. Geol. Surv., Menlo Park, CA, United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present).

Remnants of an Eocene fan system are preserved onshore at San Diego and in the central part of the southern California borderland. Even though faults and erosion have truncated its margins, geophysical data and exploratory wells indicate that remaining parts of the fan extent beneath an offshore area nearly 400-km long and 40- to 100-km wide. Environments representing fluvial, fan-delta, shelf-channel, overlapping inner- to outer-fan, and basin-plain facies are recognized or inferred. Three progradational cycles onshore and two distinct pulses of sand accumulation offshore are attributable to eustatic low sea-level sands.

California/stratigraphy/Eocene/sedimentation/environment/submarine fans/Mount Soledad Formation/Scripps Conglomerate/Stadium Conglomerate/Pomerado Conglomerate/Pacific Coast/Western U.S./United States/Ferrelo Fan/transgression/Paleogene/Tertiary/marine geology/San Diego/continental borderland/faults/erosion/sandstone/clastic rocks/turbidite/GEOREF.

3784. Walton JTL, Dean RG. Computer Algorithm to Calculate Longshore Energy Flux and Wave Direction from a Two Pressure Sensor Array. Technical paper. : Coastal Engineering Research Center, Fort Belvoir, VA. CERC-TP-82-2; 1982. 36. A documented (FORTRAN IV) computer program is discussed as originally written for the CERC Longshore Sand Transport Research Program to analyze wave data collected at Channel Islands Harbor, California. The program performs the basic analysis of two wave gage pressure records necessary to compute wave direction and wave energy at a given frequency and computes the longshore energy flux used in sand transport for the entire energy spectrum of the wave record. This

program uses linear wave theory for the wave transformation process and includes the assumption of straight and parallel bottom contours necessary for application of Snell's law of refraction. The necessary steps in an analysis of wave data and sample outputs for some wave records from the Channel Islands wave gage pressure sensor pair are given. The program presently accepts data in the standard CERC magnetic-tape format where record lengths consist of 4,100 values.

Ocean waves/Dynamic pressure/Computations/Computer programs/Orientation /Energy/Flux/Spectra/Sand/Sediment transport/Channel Islands Harbor/geology/earth Sciences/Oceanography.

3785. McLean H, Howell DG. Miocene Blanca Fan, northern Channel Islands, California; small fans reflecting tectonism and volcanism. *Geo Marine Letters*. 1984;3(2-4):p.161-166
U. S. Geol. Surv., Menlo Park, CA, United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present).
Blanca Fan is a submarine fan composed of Miocene volcanoclastic strata. Parts of the fan system are exposed on Santa Cruz and Santa Rosa Islands, and possibly correlative strata crop out on San Miguel and Santa Catalina Islands. The Blanca Fan and underlying breccia reflect regional transcurrent faulting in the California Continental Borderland and development of a system of rapidly subsiding basins and uplifted linear ridges during early and middle Miocene time. Erosion of uplifted crystalline basement rocks followed by silicic volcanism created linear sediment sources for the alluvial and submarine fans, respectively.
California/oceanography/ocean floors/Blanca Formation/Vaqueros Formation/Blanca Fan/Miocene/Neogene/Tertiary/Pacific Coast/Western U.S./United States/bottom features/submarine fans/marine geology/transcurrent faults/faults/volcanoclastics/Santa Cruz Island/Santa Rosa Island/conglomerate/clastic rocks/Pacific Ocean/GEOREF.

3786. Waples RS, Rosenblatt RH. Patterns of larval drift in Southern California USA marine shore fishes inferred from allozyme data. *U.S. Natl. Mar. Fish. Ser. Fish. Bull.* 1987;85(1):1-12
Address: NORTHWEST ALASKA FISHERIES CENT., NATL. MARINE FISHERIES SERVICE, NOAA, 2725 MONTLAKE BLVD. EAST, SEATTLE, WASH. 98112.
A multispecies analysis of allozyme data for 10 marine shore fishes [*Embiotoca jacksoni*, *Clinocottus analis*, *Alloclinus holderi*, *Lythrypnus dalli*, *Caulolatilus princeps*, *Chromis punctipinnis*, *Girella nigricans*, *Paralabrax clathratus*, *Semicossyphus pulcher*, *Medialuna californiensis*] was undertaken to identify patterns of genetic differentiation resulting from larval drift. Previous studies suggest that allele frequencies in these fishes are sensitive primarily to the effects of migration, rather than to natural selection or historical factors. The following patterns recur in most species: 1) Two northern populations (La Jolla, California, and the California Channel Islands) share a relatively high genetic affinity with all other populations, while the two southern populations (Isla de Guadalupe and Punta Eugenia, Baja California, Mexico) are relatively divergent; 2) the two southern populations apparently exchange genes much more frequently with northern populations than with each other, 3) anomalous results for the ocean whitefish, *Caulolatilus princeps*, can be understood on the basis of known patterns of larval distribution in this species. The consistency of these large-scale patterns among species with markedly different life history features and dispersal capabilities suggests that the results obtained here may provide insight into the population structure of other species (invertebrates as well as fish) with pelagic larvae.

allele frequency/migration/population structure/allozyme/genetic differentiation/larval drift/coastal waters/population structure/nearshore fishes/pelagic larvae/fish larvae/population genetics/dispersion/allozyme *Embiotoca jacksoni*/*Clinocottus analis*/*Alloclinus holderi*/*Lythrypnus dalli*/*Caulolatilus princeps*/*Chromis punctipinnis*/*Girella nigricans*/*Paralabrax clathratus*/*Semicossyphus pulcher*/*Medialuna californiensis*/La Jolla, California/California Channel Islands/Isla de Guadalupe/Punta Eugenia/Baja California, Mexico/marine biology/ichthyology/evolution/genetics.

3787. Normark WR, Piper DJW. Navy Fan, California borderland; growth pattern and depositional processes. *Geo Marine Letters*. 1984;3(2-4):p.101-108 U. S. Geol. Surv., Menlo Park, CA, United-States; *Geol. Surv. Can., Bedford Inst. Oceanogr., Canada Analytic; Serial B; Bibliography and Index of Geology (1969-present)*.

Navy Fan is a late Pleistocene sand-rich fan prograding into an irregularly shaped basin in the southern California borderland. The middle fan, characterized by one active and two abandoned 'distributary' channels and associated lobe deposits, at present onlaps part of the basin slope directly opposite from the upper-fan valley, thus dividing the lower-fan/basin-plain regions into two separate parts of different depths. Fine-scale mesotopographic relief on the fan surface and correlation of individual turbidite beds through nearly 40 cores on the middle and lower fan give data for evaluating the late Pleistocene and Holocene depositional processes.

California/oceanography/ocean floors/Pacific Coast/Western U.S./United States/Navy Fan/Pleistocene/Quaternary/submarine fans/bottom features/marine geology/acoustical surveys/geophysical surveys/continental borderland/upper Pleistocene/Pacific Ocean/GEOREF.

3788. Ward D. Natural seepage. *Oceans* 1982;15(2):42 natural seepage/Hydrocarbon/Gulf of Mexico/Norton Sound/Santa Barbara Channel/Coal Oil Point/petroleum.

3789. Jackson GA, Koh RCY, Brooks NH, Morgan JJ. Assessment of alternative strategies for sludge disposal into deep ocean basins off Southern California. *EQL Report*. 1979;14 Monographic; Serial Final report to city of Los Angeles Cty. Sanitation Dist. of Los Angeles Cty. Cty. Sanitation Dist. of Orange Cty. through Los Angeles/Orange Cty. Metro. Area Reg. Wastewater Solids Manage. Progr. B; Bibliography and Index of Geology (1969-present).

California/environmental geology/waste disposal/Los Angeles County/Orange County/Southern California/Pacific Coast/Western U.S./United States/sludge/marine environment/deep sea environment/sewage/Southern California Bight/offshore/ocean circulation/models/nutrients/Pacific Ocean/continental shelf/GEOREF.

3790. Warford AL, Kosiur DR. The effect of wastewater treatment on methanogenesis in a marine outfall. *Journal of the Water Pollution Control Federation* 1979;51(1):37-42 Address: California Univ., Los Angeles. Methanogenesis in the Avalon outfall sediments of Santa Catalina Island, California, was monitored in its natural environment before and after the initiation of wastewater treatment. After treatment began, the outfall sediments were less reducing and contained less organic matter, which led to a thirty fold reduction in the rate of methane production. High

concentrations of sulfide and the presence of active sulfate-reduction did not inhibit methanogenesis, contrary to the observations in lacustrine sediments. Methanogenesis was observed to recycle annually 0.13% of the organic carbon. (EIS-Deal).

Methane/Methane bacteria/Sewage treatment/Outfall sewers/Methanogenesis/Outlets/Waste water treatment/Sulfates/Sulfides/Organic matter/Water analysis/Chemical analysis/Sediments/Bacteria/Carbon cycle/sulfur compounds/sewage outfall/wastewater treatment/sediment analysis/bacteria/Santa Catalina Island/Avalon outfall/water quality/pollution/water quality/public health/marine biology/resource management.

3791. Givens R. The nearshore marine biota; Santa Catalina Island. NAGT-FWS Santa Catalina Island field trip. ; 1984. p. p.11-16.

Univ. South. Calif., Catalina Mar. Sci. Cent., Los Angeles, CA, United-States Natl. Assoc. Geol. Teachers, Bloomington, IN Analytic; Book B; Bibliography and Index of Geology (1969-present).

California/environmental geology/ecology/invertebrates/nearshore environment/algal flora/Pacific Coast/Western U.S./United States/microfossils/guidebook/GEOREF.

3792. Warner JA, Latz MI, Case JF. Cryptic bioluminescence in a midwater shrimp. Science 1979;203(4385):1109-1110
Address: Univ. of California, Dept. of Biological Sciences, Santa Barbara, CA 93106.

Quantitative studies were conducted on bioluminescence of mesopelagic animals. It was found that the mesopelagic shrimp *Sergestes similis* trawled at depths of 25-400 m in the Santa Barbara Channel emits ventrally directed bioluminescence that closely matches the intensity of downward-directed illumination and is able to rapidly modify its light output to match changes in background intensity. Masking experiments show that the photoreceptors involved are the compound eyes or adjacent tissues. Light emission originates from modified portions of the hepatopancreas and is similar to oceanic light in angular distribution and spectral characteristics. Normally oriented animals respond minimally to upward-directed light. *Sergestes similis*/shrimp/Santa Barbara Channel/marine biology.

3793. Lebow R. San Pedro Harbor to Catalina Island; a deep sea field trip. NAGT-FWS Santa Catalina Island field trip. ; 1984. p. p.5-10. Pierce Coll., United-States Natl. Assoc. Geol. Teachers, Bloomington, IN Analytic; Book B; Bibliography and Index of Geology (1969-present). California/oceanography/marine geology/Los Angeles County/Pacific Coast/Western U.S./United States/Santa Catalina Island/guidebook/San Pedro Channel/Los Angeles Long Beach Harbor/Santa Monica Bay/faunal list/GEOREF.

3794. Watson RD, Henry ME, Theisen AF, Donovan TJ, Hemphill WR. Detection of marine oil slicks as a petroleum exploration tool. U. S. Geol. Surv., Prof. Pap. 1100 1978;1100:23-24
sea water/geochemistry/petroleum/hydrocarbons/exploration/Santa Barbara Channel/economic geology/general geology/mining geology/petroleum.

3795. Wayland RG, Acuff AD, McCulloh TH, Raleigh CB, Vedder JG, Yenne KA. Facts relating to Well No. 5, Pitas Point Unit area, and the earthquake of August 13, 1978, Santa Barbara Channel, California. : U. S. Geol. Surv., Open-File Rep. 78-906; 1978. 67. seismology/earthquakes/Pitas Point

Unit/data/effects/stratigraphy/Santa Barbara Channel/Pitas Point/geophysics/seismology/geology.

3796. Anonymous. NAGT FWS Santa Catalina Island field trip. ; 1984. p. p.16.

Natl. Assoc. Geol. Teachers, Bloomington, IN Monographic; Book Natl. Assoc. Geol. Teachers, Far West Sect., field trip March 18, 1984; individual papers are cited separately. B; Bibliography and Index of Geology (1969-present). California/areal geology/Santa Catalina Island/Los Angeles County/Pacific Coast/Western U.S./United States/guidebook/GEOREF.

3797. Weaver E. Miocene stratigraphy, silica diagenesis and paleomagnetism of Santa Rosa Island [dissertation]. Santa Barbara, CA: University of California; 1985. 144.

Miocene/processes/style/silicification/en echelon folds/Rincon Formation/Monterey Formation/Beechers Bay Formation/San Miguel Volcanics/San Onofre Breccia/ rotation/Santa Cruz Fault/Santa Rosa Island Fault/Garanon fault system/Carrington Basin/Santa Rosa Island/stratigraphy/historical geology/structural geology.

3798. Bogaert B, Prothero W, Reichle MS. Aftershocks of the Santa Barbara earthquake of August 13, 1978. Anonymous. American Geophysical Union; 1981 fall meeting. Eos,-Transactions,-American-Geophysical-Union. 1980;61(46):p.1042 Woodward-Clyde Consult., San Francisco, CA, United-States; Univ. Calif. at Santa Barbara, United-States; Scripps Inst. Oceanogr., United-States American Geophysical Union; 1980 fall meeting, San Francisco, CA, Dec. 7-11, 1981 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). California/seismology/earthquakes/seismicity/refraction/Pacific Coast/Western U.S./United States/Santa Barbara earthquake, 1978/magnitude/seismographs/epicenters/focus/Santa Barbara Channel/distribution/faults/swarms/focal mechanism/GEOREF.

3799. Wakeham SG, Lee C, Farrington JW, Gagosian RB.

Biogeochemistry of particular organic matter in the oceans; results from sediment trap experiments. Deep Sea Research. Part A: Oceanographic Research Papers. 1984;31(5A):p.509 Woods Hole Oceanogr. Inst., Woods Hole, MA, United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present).

Particulate organic matter collected in sediment traps from various oceanic regimes--Sargasso Sea, equatorial North Atlantic, central North Pacific, California Current, and Peru coastal upwelling--have been analyzed for their lipid and amino acid composition and flux. Despite rapid settling of the large particles through the water column and a relatively small depth gradient for total organic carbon flux, there are major changes in the composition and flux of lipids and amino acids associated with the particles. The rapid disappearance of the more labile compounds with increasing depth indicates that the major sources of such compounds are in the upper part of the water column and that they are readily degraded as the particles sink. On the other hand, the intermittent appearance of large amounts of wax ester, along with the changing fatty acid composition of the particles, points to deep-water sources for some of these compounds. ocean circulation/biocirculation/organic materials/geochemistry/sea water/sediments/biogeochemistry/world ocean/amino acids/lipids/fatty acids/organic carbon/GEOREF.

3800. Webster FL, Burdick DJ, Griggs DG, Yenne KA. Geologic report, proposed Southern California planning area; OCS lease sale No. 95. : U.S. Dep. Interior, Miner. Manage. Serv., Los Angeles, CA, United States MMS 85-0042; 1985. 64.

fuel resources/continental shelf/OCS lease sale
95/basement/reservoir rocks/source rocks/structural
traps/stratigraphic traps/resources Santa Barbara Channel/Santa
Maria Basin/economic geology/energy sources/petroleum/oceanography.

3801. Savrda CE, Bottjer DJ, Gorsline D. Biofacies in oxygen
deficient basins of the California borderland. Pipkin BW. Geology
of Santa Catalina Island and nearby basins. ; 1984. p. p. 54-62.
Univ. South. Calif., Los Angeles, CA, United-States SEPM
Analytic; Book B; Bibliography and Index of Geology (1969-
present).
California/oceanography/sedimentation/paleoecology/indicators/ana
erobic environment/environment/marine environment/Pacific
Coast/Western U.S./United
States/stratigraphy/biofacies/petroleum/deep sea environment/Santa
Monica Basin/San Pedro Basin/X ray radiography/biogenic
structures/sedimentary structures/photogeologic
methods/oxygen/faunal
studies/biogeography/echinoderms/gastropods/arthropods/ichnofossi
ls/GEOREF.

3802. Weissman DB. Zoogeography of the Channel Island
Orthoptera. Menke AS, Miller DR. Entomology of the California
Channel Islands: proceedings of the first symposium. Santa
Barbara, California, USA: Santa Barbara Museum of Natural History;
1985. 61-68.
Presented at: Symposium on Entomology of the California Channel
Islands (at) Annual Meeting of the Entomological Society of
America, San Diego, CA (USA), Dec 1981 Address: Dep. Entomol.,
California Acad. Sci., Golden Gate Park, San Francisco, CA 94118.
The Channel islands are useful for testing many biogeographical
tenets because only eight islands are involved: these Island
are closer, fewer, and smaller than other island groups (i.e.
Hawaiian, Galapagos, Canary, West Indies, etc.) from
which extensive empirical biogeographical data have also come.
Additionally, all eight Channel Islands are presently located
near the mainland. This permits identification and comparison
of island and mainland (source) faunas and assessment of
probable speciation patterns. In this paper, the authors
consider the Orthoptera in the broadest sense to also include the
walking sticks, praying mantis, and cockroaches. Six years
(1969-74) of extensive field work on all the Channel Islands
and adjacent mainland areas form the foundation for this analysis.
zoogeography/biogeography/endenism/species-area relationship/island
biogeography/Orthoptera/California Channel Islands/terrestrial
biology/entomology.

3803. Sorensen SS. Metamorphic geology of the Catalina
Schist Terrane on Santa Catalina Island. Pipkin BW. Geology of
Santa Catalina Island and nearby basins. ; 1984. p. p. 28-53.
Univ. Calif., Dep. Earth and Space Sci., Los Angeles, CA, United-
States SEPM Analytic; Book B; Bibliography and Index of Geology
(1969-present). California/petrology/metamorphic
rocks/schists/Catalina Schist/Santa Catalina Island/Pacific
Coast/Western U.S./United
States/nappes/blueschist/greenschist/amphibolites/aureoles/subduc
tion/P T conditions/phase equilibria/metamorphism/GEOREF.

3804. Wellington GM, Anderson S. Surface feeding by a
juvenile gray whale, *Eschrichtius robustus*. Fishery Bulletin
1978;76(1):290-293
A juvenile gray whale exhibited unusual surface feeding behavior in
a bed of giant kelp, *Macrocystis pyrifera*. It appeared to be

consuming the mysid crustacean, *Acanthomysis sculpta*.
feeding biology/foraging behavior/*Echrichtius robustus*/gray
whale/Santa Barbara Channel/Refugio Beach State Park/marine
biology.

3805. Rowland SM. Geology of Santa Catalina Island; a
review. Pipkin BW. Geology of Santa Catalina Island and nearby
basins. ; 1984. p. p. 1-27. Univ. Nev., Dep. Geosci., Las Vegas,
NV, United-States SEPM Analytic; Book B; Bibliography and Index
of Geology (1969-present).
California/areal geology/Santa Catalina Island/Pacific
Coast/Western U.S./United States/metamorphic rocks/igneous
rocks/sedimentary rocks/Farallon Plate/plate
tectonics/Mesozoic/Cenozoic/Catalina Schist/subduction zones/thrust
faults/faults/Greenschist Thrust/Blueschist Thrust/Ollas
Thrust/paleogeography/Catalina Pluton/San Onofre Breccia/GEOREF.

3806. Wells RA. Disturbance and the dynamics of a shallow
subtidal algal assemblage in Big Fisherman's Cove, Santa Catalina
Island, California [dissertation]. : University of Southern
California; 1985. Unknown. The effects of disturbance from storms
on the species composition of a shallow subtidal algal
assemblage were documented. Substratum not perturbed by storms
was dominated by a mat of the articulated coralline algae
Lithothrix aspergillum and *Corallina officinalis*. Disturbed
surfaces were colonized by the articulated coralline algae and
other species including *Colpomenia sinuosa* and *Sargassum muticum*.
Comparison of the species composition of the disturbed and
undisturbed substrata suggested several effects of the timing
(seasonality), intensity (thoroughness of removal), spatial
scale (isolation from the existing assemblage), and frequency of
disturbance. Controlled field experiments were performed to test
the hypothesized effects of storm disturbance. Isolated cobbles
experimentally overturned at different seasons were initially
colonized by different species but tended to become more
similar with time. Naturally disturbed cobbles on which the
abraded holdfasts of articulated corallines remained were rapidly
recolonized by these algae and less subject to invasion.
Clearances of different thoroughness and spatial scale within the
articulated coralline algae mat were subject to short-term
invasion by *Sargassum*, depending upon the season of clearance. No
invading species persisted over 11 months. Existing stands of
articulated corallines prevented recruitment by other species
including epiphytic *Macrocystis* settlement. Both articulated
coralline algae and *Sargassum* co-existed after recruitment by
settlement on the large spatial scale clearing of a virgin boulder.
Competitive interactions within the assemblage were evaluated
by selective removal treatments on the virgin boulder. *Colpomenia*
had no effect on other subsequent colonizers. *Sargassum* excluded
Colpomenia and prevented growth of the upright portions of
Lithothrix while the encrusting holdfasts grew beneath; growth
of the upright portions occurred during the die-back phase of
Sargassum in the late summer. Re-growth of *Sargassum* reduced the
corallines to persistent encrusting holdfasts. A cyclic pattern
may persist under these recruitment conditions. Both the
tolerance and inhibition models of succession (Connell and
Slatyer 1977) were in evidence in this assemblage. A model is
proposed to predict the likelihood of invasion of patches under
different conditions of disturbance (frequency, timing,
intensity, and spatial scale). Data from this and other
experiments were used to evaluate the applicability of the
model to algal assemblages. (Copies available exclusively
from Micrographics Department, Doheny Library, USC, Los Angeles,

CA 90089-0182.). storm disturbance/competition/ subtidal algae/Lithothrix aspergillum/Corallina/officinalis/Colpomenia/sinuosa/Sargassum muticum/Macrocyctis pyrifera/Santa Catalina Island/Big Fisherman's Cove/marine biology, botany.

3807. Pipkin BW. Geology of Santa Catalina Island and nearby basins. ; 1984. 62 p.

SEPM Monographic; Book B; Bibliography and Index of Geology (1969-present). California/areal geology/Santa Catalina Island/Pacific Coast/Western U.S./United States/GEOREF.

3808. Wendorf MA. Prehistoric manifestations of fire and the fire areas of Santa Rosa Island, California [dissertation]. Berkeley, California, USA: University of California; 1982. 210. Though the controlled use of fire may have been one of the most important achievements in the development of culture, little is known of the effects of fire in the prehistoric record. Additionally, little is known about natural fire features which may resemble cultural features such as fire pits and hearths. The controversial fire areas, or hearths, of Santa Rosa Island, California, illustrate the need for research into the effects of fire in the prehistoric record. The Santa Rosa features, dated by radiocarbon at more than 40,000 years to about 10,000 years, sometimes contain the charred bones of the island mammoth (*Mammuthus exilis*), and, rarely, possible stone tools. It has been hypothesized that these fire areas were hearths in which mammoth were roasted by early man. With reference to the fire areas, this research examines the effects of recent natural fires throughout California. Several hypotheses, including the hearth hypothesis, are tested in succession, and a dune blowout site on Santa Rosa Island is excavated. In a series of tests, it is shown that (1) the features are fire caused; (2) the fire areas are not hearths or fire pits; (3) the majority of fire areas were caused by forest fires in the Pleistocene; and (4) there is as yet no unquestionable evidence of man and mammoth associations on Santa Rosa Island, though additional research may yield conclusive evidence. Additionally, a typology of fire areas. is devised and a method of differentiating fire reddened and non-fire reddened sediments is presented. It is hoped that this typology will be of assistance to those concerned with the effects of fire in the prehistoric record. fire/fire areas/fire pits/hearths/stone tools/Homo sapiens/Mammuthus exilis/island mammoth/Santa Rosa Island/anthropology/archaeology.

3809. Eggers DE, Thompson DT. An evaluation of the marine magnetic gradiometer. Geophysics. 1984;49(6):p.771-779

Gulf Res. and Dev. Co., Pittsburgh, PA, United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present). This study examines the ability of a marine gradiometer to produce diurnal-free magnetic intensity data. An experimental program was carried out in the Santa Barbara channel offshore California. A shore-based station was operated continuously during the survey period to monitor the temporal magnetic activity. The gradiometer data are adversely affected by the magnetic field of the towing vessel. An analysis of gradiometer bias as a function of ship's heading and deployment distance shows remarkable agreement with a model of the ship's magnetic field proposed by Bullard and Mason in 1961. Based upon this model, analytic azimuth correction factors are developed and applied to the gradiometer data. Comparisons are made among single-sensor, ship-minus-shore, and integrated total magnetic intensities. Residual mistie statistics, contour maps, and

profile plots form the basis of the comparison. At this location, the ship-minus-shore and integrated total intensities produce maps with standard residual misties of 0.55 and 0.62 gamma. The gradiometer is recommended for routine use in the marine environment. The gradiometer is very effective in eliminating diurnal activity, but it requires moderately more sophisticated data analysis procedures.--Modified journal abstract. geophysical methods/magnetic methods/instruments/automatic data processing/geophysical surveys/magnetic surveys/Pacific Ocean/California/marine methods/magnetometer/magnetic gradiometer/magnetic field/Santa Barbara channel/offshore/Pacific Coast/Western U.S./United States/interpretation/techniques/Earth/GEOREF.

3810. Wenner AM, Johnson DL. Land vertebrates on the California Channel Islands: sweepstakes or bridges? C.M. Power. The California islands: proceedings of a multidisciplinary symposium. Santa Barbara, California: Santa Barbara Mus. Nat. Hist.; 1980. 497-530. Address: Univ. Calif., Marine Sci. Inst., Santa Barbara, CA, USA; Univ. Ill., Dep. Geogr., Urbana, IL, USA Conference: Multidisciplinary symposium on the California islands Santa Barbara, CA, Feb. 27-March 1, 1978. biogeography/Pleistocene/Quaternary/Cenozoic/landbridges/Vertebrata/California Channel Islands/vertebrate paleontology.

3811. Stafford WL. The Foxen of Santa Barbara. Bulletin of the Southern California Paleontological Society. 1984;16(3-4):p.34-37 Analytic; Serial B; Bibliography and Index of Geology (1969-present). California/stratigraphy/Cenozoic/mollusks/occurrence/Pleistocene/paleoclimatology/fish/Santa Barbara County/Foxen Mudstone/Monterey Shale/Sisquoc Formation/Santa Barbara Formation/Pacific Coast/Western U.S./United States/Southern California/Santa Barbara Basin/Santa Maria/paleontology/Mollusca/Quaternary/More Mesa Beach/popular geology/collecting/fossil localities/Neogene/Tertiary/bivalves/gastropods/faunal list/Scaphopoda/GEOREF.

3812. Westman WE. Island biogeography: studies on the xeric shrublands of the inner Channel Islands, California. Journal of Biogeography 1983;10(2):97-118 Address: Dept. of Geog., Univ. of California, Los Angeles, CA 90024. On Santa Cruz, East Anacapa, Santa Catalina and San Clemente, floristic variation among island samples responds primarily to a gradient of decreasing moisture availability, inducing a transition from mesophyllous coastal sage shrub to increasingly fleshy coastal succulent scrub vegetation. Previous studies of the California Islands, sampling more islands and considering island floras as a whole, found positive correlations between island area and species richness. In the present study, samples are limited to a single broad vegetation type, sites of a fixed area are considered, and disturbance factors are minimized. When richness (total or native species only) of these samples is considered against island area and distance to the mainland, low or negative correlations result. When total area of the vegetation type on the island is used as independent variable, the negative correlations persist. The previous positive correlations reported were possibly due to increasing habitat (including disturbance) heterogeneity with increasing island area, rather than to reduced extinction pressure as postulated by the MacArthur-Wilson model. Island biogeography/moisture availability/species richness/coastal

sage shrub/succulent scrub/plant ecology/plant communities/disturbance/grazing/fire/air pollution/Santa Cruz Island/East Anacapa Island/Santa Catalina Island/San Clemente Island/terrestrial biology/ecology/botany.

3813. Westman WE. Xeric Mediterranean-type shrubland associations of Alta California, USA and Baja California, Mexico, and the community continuum debate. *Vegetatio* 1983;52(1):3-19
Address: DEP. OF GEOGRAPHY, UNIV. OF CALIF., LOS ANGELES, LOS ANGELES, CA 90024. A survey of the xeric shrublands of Pacific coastal North America from San Francisco to El Rosario (Mexico), including the inner Channel Islands, was conducted using 99 sample sites of 0.063 ha size. TWINSPLAN classification and DECORANA ordination confirmed the existence of 2 plant formations, distinguishable physiognomically: coastal sage shrub and coastal succulent shrub. Within coastal sage scrub, 4 floristic associations were recognized: Diablan, Venturan, Riversidian and Diegan. Within coastal succulent shrub, 2 floristic associations were defined: Martirian Vizcainan. These associations occur in distinct geographical regions following the coastline, with the Riversidian association occurring in the basin inland from Venturan and Diegan regions. Their locations are strongly correlated with differences in evapotranspirative stress regimes. The Channel Island sites show affinities to several of the mainland associations. The Venturan association can be further subdivided floristically into 2 subassociations, dominated by *Salvia mellifera* and *S. leucophylla*, respectively. These subassociations which are coextensive geographically at a regional scale, typically do not intermingle at a local scale but often meet along sharp boundaries in the landscape. The dominant species segregate by moisture preference, *S. mellifera* preferring coarser-texture soils and more southerly aspects than *S. leucophylla*. Richness and equitability of these sites are depressed relative to other xeric shrubland sites, reflecting the fact that the 2 subassociations partition the Venturan flora into substantially non-overlapping subsets of species. This segregation of associates between the 2 *Salvia* dominance types strongly suggests biotic influence of the dominants on subordinate species, perhaps mediated by allelopathy. This biotic interaction, leading to relatively strong floristic subassociations segregating independently in the landscape, would provide an example of the holistic community structure referred to by Clements and his followers, embedded within a larger pattern of continuity in species distributions.
coastal sage shrub/coastal succulent scrub/holistic continuity/species distribution/allelopathy/vegetation surveys/semiarid environments/phytogeography/phytosociology/community composition/evapotranspiration/moisture preferences/soil texture/*Salvia mellifera*/*Salvia leucophylla*/Pacific coastal North America/San Francisco/El Rosario, Mexico/California Channel Islands/terrestrial biology/botany/ecology.

3814. Simpson JJ. An offshore eddy in the California current system; Part III, Chemical structure. Simpson, J. J., Koblinsky, C. J., Haury, L. R., Dickey, T. D. An offshore eddy in the California current system. *Scripps Inst. Oceanogr., Mar. Life Res. Group, La Jolla, CA, United-States. Progress-in-Oceanography.* 1984;13(1):p.71
Scripps Inst. Oceanogr., Mar. Life Res. Group, La Jolla, CA, United-States; Scripps Inst. Oceanogr., Mar. Life Res. Group, La Jolla, CA, United-States; NASA, Goddard Space Flight Cent., United-States; Univ. South. Calif., Dep. Geol. Sci., United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present).

Pacific Ocean/oceanography/ocean circulation/California/sea water/composition/salinity/Pacific Coast/Western U.S./United States/offshore/eddies/density/vorticity/observations/mechanism/spatial variations/chemical properties/GEOREF.

3815. Simpson JJ, Koblinsky CJ, Haury LR, Dickey TD. An offshore eddy in the California current system. Progress in Oceanography. 1984;13(1):111 Scripps Inst. Oceanogr., Mar. Life Res. Group, La Jolla, CA, United-States; NASA, Goddard Space Flight Cent., United-States; Univ. South. Calif., Dep. Geol. Sci., United-States Monographic; Serial Individual article in scope is cited separately. B; Bibliography and Index of Geology (1969-present). Pacific Ocean/oceanography/ocean circulation/California/Pacific Coast/Western U.S./United States/offshore/GEOREF.

3816. Wickham DE, Kuris AM. The comparative ecology of nemertean egg predators. Amer. Zool. 1985;25:127-134
The nemertean family, Carcinonemertidae, is adapted to fill the specialized niche of ectocommensal and egg-predator on decapod crustacean hosts. The group has been known for over a century but its ecological role has only recently been elucidated. This paper contains information on the life history, development, diet, reproduction taxonomy and evolution of parasitic nemerteans. Carcinonemertidae/Pseudocarcinonemertes/Carcinonemertes/Pacific Coast/marine biology/parasitology.

3817. Savrda CE, Bottjer DJ, Gorsline DS. Euxinic biofacies in anoxic basins; San Pedro and Santa Barbara basins, California continental borderland. Horn, M. K. AAPG annual convention with divisions SEPM/EMD/DPA. AAPG-Bulletin. 1983;67(3):p.544
Univ. South. Calif., Los Angeles, CA, United-States AAPG annual convention with divisions SEPM/EMD/DPA, Dallas, TX, April 17-20, 1983 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). California/oceanography/continental slope/paleoecology/indicators/anaerobic environment/sedimentary structures/biogenic structures/environmental analysis/sedimentation/environment/Pacific Coast/Western U.S./United States/San Pedro Basin/Santa Barbara Basin/continental margin/geochemistry/oxygen/fabric/species richness/continental borderland/lithofacies/cores/burrows/benthonic taxa/slope environment/GEOREF.

3818. Wicksten MK. The species of *Lebbeus* in California, USA (Crustacea: Caridea: Hippolytidae). Allan Hancock Found. Occas. Pap. (New Ser.) 1978;0(1):1-8 Address: ALLAN HANCOCK FOUND., UNIV. SOUTH. CALIF., LOS ANGELES, CALIF. 90007. Species [3] of the genus *Lebbeus* [*L. lagunae*, *L. washingtonianus* and *L. polaris*] were found in California. Of these, only *L. lagunae* was observed in its natural habitat. This shrimp inhabits low intertidal to subtidal areas from Monterey Bay to Cortez Bank. In life, the colors of the animal provide camouflage among algae. Each ovigerous female carried 800-900 eggs. The other 2 spp. of *Lebbeus* inhabit soft substrates. *L. washingtonianus* is a bathyal species recorded from Santa Rosa Island to San Clemente Island at depths of 827-1818 m. *L. polaris* was collected in the Monterey submarine canyon at 954-1044 m. A key to the species is provided. distribution/ecology/fertility/eggs/descriptions/comparisons/taxonomy/systematics/key/shrimp/Crustacea/Caridea/Hippolytidae/lagunae/Lebbeus washingtonianus/Lebbeus polaris/Monterey Bay/Cortez Bank/Santa Rosa Island/San Clemente Island/Monterey submarine canyon/marine biology.

3819. Giger W, Schaffner C. Unsaturated steroid hydrocarbons as indicators of diagenesis in immature Monterey shales. *Naturwissenschaften*. 1981;68(1):p.37-39 Stanford Univ., Dep. Geol., Stanford, CA 94305, United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present). California/geochemistry/organic materials/hydrocarbons/diagenesis/materials/shale/sedimentary rocks/clastic rocks/Monterey Formation/biogenic origin/geochemical indicators/maturity/gas chromatography/Pacific Coast/Western U.S./United States/Santa Barbara Basin/sedimentary petrology/steroids/Santa Barbara/GEOREF.

3820. Wicksten MK. Observations on feeding in *Maxwellia santarosana* (Gastropoda: Muricidae). *Veliger* 1980;23(1):96 Address: ALLAN HANCOCK FOUND., UNIV. SOUTH. CALIF., LOS ANGELES, CALIF. 90007. *M. santarosana* was collected on rocky reefs at Santa Catalina Island and along the Palos Verdes Peninsula, California [USA]. In an aquarium, this snail drilled a tapered hole into the upper valve of the pelecypod *Chama arcana*. Feeding and drilling lasted 9 days. *M. santarosana* and *M. gemma* both prey on pelecypods of rocky intertidal to subtidal areas. feeding biology/reef/aquarium/intertidal/subtidal/predation/drilling/Gastropoda/Muricidae/Maxwellia santarosana/Maxwellia gemma/Chama arcana/Santa Catalina Island/Palos Verdes Peninsula/marine biology/malacology.

3821. LaPointe PR, Belfield WC, Helwig JA. Analysis of fracturing and fluid flow characteristics of the Monterey Formation, Santa Barbara Channel, CA. Mayer, E. H. *Western energy frontiers*. THUMS Long Beach Co., Long Beach, CA, United-States. *Proceedings-Annual-California-Regional-Meeting.-Society-of-Petroleum-Engineers*. 1984;54:p.97-106 ARCO Oil and Gas Co., United-States; THUMS Long Beach Co., Long Beach, CA, United-States *Western energy frontiers*; 1984 California regional meeting, Long Beach, CA, Apr. 11-13, 1984 Analytic; Serial; Conference publication B; Bibliography and Index of Geology (1969-present). California/stratigraphy/Miocene/fractures/experimental studies/reservoir rocks/Monterey Formation/Pacific Coast/Western U.S./United States/Santa Barbara Channel/Neogene/Tertiary/statistical analysis/tortuosity/regression analysis/permeability/porous materials/GEOREF.

3822. Wicksten MK. Behavior in *Clythrocerus planus* (Rathbun, 1900) (Brachyura, Dorippidae). *43(3)Crustaceana* 1982;43(3):306-307 Address: Dep. Biol., Texas A&M Univ., College Station, TX 77843. *Clythrocerus planus* is a small crab found on subtidal bottoms of coarse sand, shell or pebbles from the northern Gulf of California, Mexico, to Monterey, California (Schmitt, 1921; Wicksten, 1980b). Nininger (in Schmitt, 1921) noted that *C. planus* carried pieces of shell, pebbles, sticks, bits of seaweeds, or entire shells above the carapace. The last two pair of pereopods, shaped like hooks, gripped these objects. The author obtained live specimens of *C. planus* by dredging at 40-120 m off Big Fisherman's Cove, Santa Catalina Island; and Huntington Beach, California. The crabs were kept in aquaria for observation. All crabs carry bits of shell, chips of rock, or entire shells dorsal to the posterior part of the carapace. These objects are held by the propodi and dactyls of the fourth and fifth pereopods. Dead and preserved animals, however, always lose the material formerly carried.

camouflage/anti-predator behavior/crabs/Clythrocerus
planus/Brachyura/Dorippidae/Big Fisherman's Cove/Santa Catalina
Island/Huntington Beach/marine biology.

3823. Wicksten MK. *Pagurus redondoensis*, a new species of
hermit crab from southern California (Anomura: Paguridae). J.
Crust. Biol. 1982;2(4):605-611 Address: Texas A&M Univ., Biol.
Dep., College Station, TX 77843, USA. *Pagurus redondoensis*, new
species, is the only known member of the *provenzano* group of the
genus *Pagurus* in California. This small hermit crab occurs along
the mainland of southern California and Santa Catalina Island. It
is particularly common in shallow subtidal areas of King Harbor,
Redondo Beach. new species/animal
morphology/taxonomy/Anomura/Paguridae/Pagurus redondoensis/hermit
crab/southern California/King Harbor/Redondo Beach/Santa Catalina
Island/marine biology.

3824. Anderson JG. The 4 September 1981 Santa Barbara
Island, California, earthquake; interpretation of strong motion
data. Bulletin of the Seismological Society of America.
1984;74(3):p.995-1010
Univ. Calif., San Diego, Inst. Geophys. and Planet. Phys., La
Jolla, CA, United-States Analytic; Serial B; Bibliography and
Index of Geology (1969-present).
Seven timed strong motion accelerograms were recorded between 45
and 80 km from the Santa Barbara Island earthquake. From these, the
average estimate for ML is 6.0, compared to an average of ML = 5.5
from more distant recordings. When ML is estimated from
accelerograph data using the distance correction to the ML scale
proposed by Luco (1982), an average of 5.3 is obtained. S-wave
spectra imply a seismic moment of 1.5×10^{24} dyne-dm and, by the
method of Brune (1970), a source radius of 2 km and a stress drop
of 90 bars. If the displacement spectrum is assumed to be
approximated by two asymptotes, $f(0)$ at frequencies less than the
corner frequency and $f(-2)$ at frequencies greater than the corner
frequency, the level of the $f(-2)$ asymptote can be constrained by
rms acceleration (Hanks, 1979). This leads to a smaller estimated
source radius and a higher stress drop. In the process of matching
these spectra, an average value of Q can be inferred to be
consistent with the spectra at high frequencies. This value is
between 300 and 500 for the assumed spectral shapes.--Modified
journal abstract. California/seismology/earthquakes/elastic
waves/Pacific Coast/Western U.S./United States/Santa
Barbara/Channel Islands/Santa Barbara Island earthquake,
1981/accelerograms/strong motion/attenuation/magnitude/Santa Monica
Mountains/S waves/body waves/Q/spectral analysis/GEOREF.

3825. Wicksten MK. Two species of *Odontozona* (Decapoda:
Stenopodidea) from the Eastern Pacific. J. Crustac. Biol.
1982;2(1):130-135
Address: Dept. Biol., Texas A&M Univ., College Station, TX 77843,
USA. Two species of stenopodid shrimp of the genus *Odontozona* are
here recognized from the eastern Pacific. *Odontozona rubra*, new
species, a red shrimp from the Gulf of California, is described. A
broken specimen, probably *O. spongicola* (Alcock and Anderson), has
been collected off Santa Catalina Island, California. new
species/morphology/taxonomy/new
records/biogeography/Decapoda/Stenopodidea/Malacostraca/Odontozona
rubra/*Odontozona spongicola*/shrimp Pacific Ocean
Northeast/California Coast/Gulf of California/Santa Catalina
Island/marine biology.

3826. Barrera E. The evolution of the Miocene oceans in the

eastern North Pacific as inferred from stable isotope ratios of foraminifera. Elfner, L. E. Ohio Academy of Science; 93rd annual meeting. Ohio J. Sci., Columbus, OH, United-States. The-Ohio-Journal-of-Science. 1984;84:p.15
Case West. Reserve Univ., Dep. Geol. Sci., Cleveland, OH, United-States; Ohio J. Sci., Columbus, OH, United-States Ohio Academy of Science; 93rd annual meeting, Cleveland, OH, April 27-20, 1984
Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). Pacific Ocean/stratigraphy/Miocene/foraminifers/biochemistry/isotopes/stable isotopes/oxygen/O 18/O 16/carbon/C 13/C 12/Neogene/Tertiary/North Pacific/eastern North Pacific/Deep Sea Drilling Project/DSDP Site 173/DSDP Site 470/IPOD/DSDP Site 495/California Current/microfossils/assemblages/GEOREF.

3827. Wicksten MK. A new species of Heptacarpus from California USA with a redescription of Heptacarpus palpator (Caridea: Hippolytidae). Bull. South. Calif. Acad. Sci. 1986;85(1):46-55
Address: DEP. BIOL., TEX. A AND M UNIV., COLLEGE STATION, TEX. 77843-3258. A new species of Heptacarpus, a small shrimp marked with brown dots, is described. It ranges from Santa Rosa Island, California to Guadalupe Island, Mexico. Related to H. palpator and H. brevisrostris, it can be distinguished from them by having only one large distal spine on the first segment of the antennular peduncle, and often having a spine at the distal end of the carpus of the first pereopod. Heptacarpus palpator is redescribed and better distinguished from H. brevisrostris. Heptacarpus palpator ranges from Monterey Bay, California to the south, while H. brevisrostris usually lives north of Monterey Bay.
description/color pattern/peduncle/pereopod Heptacarpus/Heptacarpus palpator/Heptacarpus brevisrostris/Santa Rosa Island/Guadalupe Island/marine biology.

3828. Luyendyk BP, Hajic EJ, Simonett DS. Side scan sonar mapping and computer aided interpretation in the Santa Barbara Channel, California. Marine Geophysical Researches. 1983;5(4):p.365-388
Univ. Calif., Dep. Geol. Sci., Santa Barbara, CA 93106, United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present). Pacific Ocean/geophysical surveys/acoustical surveys/automatic data processing/California/Pacific Coast/Western U.S./United States/Santa Barbara Channel/marine methods/sonar methods/cartography/image analysis/computers/maps/side scanning sonar/Anacapa Passage/GEOREF.

3829. Wildenstein AW, Ruez WJ, Hayes DA, Delflache ML, Glasscock MS. Design of the Hondo Platform for 850-Ft water depth in the Santa Barbara Channel. Journal of Petroleum Technology 1979;31(4):407
Platform design/Offshore drilling/Petroleum technology/Santa Barbara Channel/petroleum.

3830. Mullins HT, Nagel DK. Detection of shallow hydrocarbons with high frequency seismic reflection data. AAPG annual convention with divisions SEPM/EMD/DPA. AAPG-Bulletin. 1983;67(3):p.521-522
Syracuse Univ., Syracuse, NY, United-States; Moss Landing Mar. Lab., United-States AAPG annual convention with divisions SEPM/EMD/DPA, Dallas, TX, April 17-20, 1983 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).
California/geophysical surveys/seismic surveys/Pacific

Ocean/economic geology/fuel resources/Santa Cruz County/Monterey Formation/Santa Cruz Mudstone/Purisima Formation/exploration/offshore/Pacific Coast/Western U.S./United States/San Gregorio Fault Zone/Santa Cruz Basin/Outer Santa Cruz Basin/anomalies/Monterey Bay fault zone/GEOREF.

3831. Willason SW, Cox JL. Laminarinase activity of euphausiid crustaceans in response to different food levels and temperatures. Am. Zool. 1980;20(4):754 Address: UNIV. CALIF., SANTA BARBARA CONFERENCE PAPER: ANNUAL MEETING OF THE AMERICAN SOCIETY OF ZOOLOGISTS, AMERICAN MICROSCOPICAL SOCIETY, AMERICAN SOCIETY OF LIMNOLOGY AND OCEANOGRAPHY, ANIMAL BEHAVIOR SOCIETY, CANADIAN SOCIETY OF ZOOLOGISTS, ECOLOGICAL SOCIETY OF AMERICA, SOCIETY OF SYSTEMATIC ZOOLOGY, AND THE WESTERN SOCIETY OF NATURALISTS, SEATTLE, WASH., USA, DEC. 27-30, 1980. nauplii/digestive enzymes/beta 1-3 glucan/starvation euphausiid/crustaceans/ditylum brightwellii/Euphausia pacifica/Nematoscelis difficilis/Artemia nauplii/Santa Barbara Channel/marine biology.

3832. Molina CA. The occurrence of Cycladophora (?) davisiana Ehrenberg in the Gulf of California. AAPG annual convention with divisions SEPM/EMD/DPA. AAPG-Bulletin. 1983;67(3):p.517 UNAM, Mexico City, Mexico AAPG annual convention with divisions SEPM/EMD/DPA, Dallas, TX, April 17-20, 1983 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). radiolarians/biogeography/Holocene/Gulf of California/paleontology/Radiolaria/microfossils/ecology/biostratigraphy/occurrence/distribution/Cycladophora ? davisiana/North American Pacific/Pacific Ocean/ocean circulation/paleocirculation/stratigraphy/interpretation/Quaternary/California Current/GEOREF.

3833. Willason SW, Cox JL. Diel feeding laminarinase activity and phytoplankton consumption by euphausiids. Biol. Oceanogr. 1987;4(1):1-24 Address: MARINE SCIENCE INSTITUTE, UNIVERSITY OF California, SANTA BARBARA. Three corroborative techniques-stomach fullness, gut fluorescence, and digestive enzyme activity (laminarinase)-were used to examine the feeding ecology of two common euphausiid species off the California coast [USA]. Euphausia pacifica showed a diel feeding periodicity: stomach fullness, gut pigment levels, and laminarinase activity increased at night when this species entered the surface waters (< 80 m). In situ phytoplankton consumption by E. pacifica was quite variable and was positively correlated with surface chlorophyll a concentration at the time of collection. E. pacifica collected during March 1981 in Monterey Bay had the highest ingestion rates, and those collected in the Santa Barbara Channel during October 1980 had the lowest. Diel changes in digestive enzyme activity of E. pacifica were influenced by phytoplankton ingestion during a single feeding period. However, overall digestive enzyme levels (average day or night enzyme activity) were probably influenced by longer-term feeding conditions (> 4-5 days). In contrast to E. pacifica, Nematoscelis difficilis consumed only small amounts of phytoplankton and did not show any consistent feeding patterns or diel changes in enzyme activity. feeding biology/feeding ecology/diel patterns/euphausiids/Euphausia pacifica/Nematoscelis difficilis/Santa Barbara Channel/marine biology.

3834. Shiller AM. Particulate geochemistry in an area of

coastal upwelling; the Santa Barbara Basin. Suess E, Thiede J. Coastal upwelling, its sediment records; Part A, Responses of the sedimentary regime to present coastal upwelling. *Oreg. State Univ., Sch. Oceanogr., Corvallis, OR, United-States.* 10A. ; 1983. p. p. 289-301.

Scripps Inst. Oceanogr., La Jolla, CA, United-States; *Oreg. State Univ., Sch. Oceanogr., Corvallis, OR, United-States; Univ. Kiel, Dep. Geol., Federal-Republic-of-Germany Plenum Press, New York, NY* Coastal upwelling and its sediment record, Vilamoura, Sept. 1-4, 1981 Analytic; Book; Conference publication B; Bibliography and Index of Geology (1969-present). Pacific Ocean/oceanography/ocean circulation/California/sediments/marine sediments/geochemistry/Pacific Coast/Western U.S./United States/Santa Barbara Basin/upwelling/particulate materials/seasonal variations/sea water/dissolved materials/bathymetry/California Current/grain size/GEOREF.

3835. Williams AB. Mud shrimps *Upogebia* from the Eastern Pacific (Thalassinoidea: Upogebiidae). *San Diego Soc. Nat. Hist. Mem.* 1986;0(14):1-60 Address: NATL. MARINE FISH. SERV. SYSTEMATICS LAB., NATL. MUSEUM NATURAL HISTORY, WASHINGTON, D.C. 20560.

The mud shrimp genus *Upogebia* found in the eastern Pacific between Alaska and the Galapagos Islands is reviewed. Four previously described species from this region are recognized: *U. longipollex* (Streets) and *spinigera* (Smith) ranging from El Salvador to Ecuador; *pugettensis* (Dana), from Valdez, Alaska to Morro Bay, California; *rugosa* (Lockington), Gulf of California; and a fifth species from the western Atlantic, *affinis* (Say), has been taken once in San Francisco Bay. Fifteen species new to science are described: *U. acanthops*, Panama; *burkenroadi*, Sonora, Mexico; *dawsoni*, Gulf of California to Panama; *galapagensis*, Galapagos Islands; *jonesi*, Sonora, Mexico, to Panama; *lepta* islands off southern California, *maccrarya*e. El Salvador to Ecuador; *macginitieorum*, southern California bight; *onichion*, San Miguel Island off southern California; *schmitti*, Panama; *tenuipollex*, Ecuador; *thistlei*, Gulf of California to Ecuador; *veleronis*, Islas Tres Marias, Mexico, and Cape San Francisco, Ecuador; *ramphula*, Maria Madre Island, Mexico; *cocosia*, Cocos Island. All except *U. affinis* are illustrated. Keys are given for identification of all species of *Upogebia* known from the Western Hemisphere, 7 from the western Atlantic and 19 from the eastern Pacific. new species/mud shrimp/*Upogebia*/eastern Pacific/Alaska/Galapagos Islands/San Miguel Island/marine biology.

3836. Traganza ED, Silva VM, Austin DM, Hanson WL, Bronsink SH. Nutrient mapping and recurrence of coastal upwelling centers by satellite remote sensing; its implication to primary production and the sediment record. Suess E, Thiede J. Coastal upwelling, its sediment records; Part A, Responses of the sedimentary regime to present coastal upwelling. *Oreg. State Univ., Sch. Oceanogr., Corvallis, OR, United-States.* 10A. ; 1983. p. p. 61-83.

Nav. Postgrad. Sch., Dep. Oceanogr., Monterey, CA, United-States; Oreg. State Univ., Sch. Oceanogr., Corvallis, OR, United-States; Univ. Kiel, Dep. Geol., Federal-Republic-of-Germany Plenum Press, New York, NY Coastal upwelling and its sediment record, Vilamoura, Sept. 1-4, 1981 Analytic; Book; Conference publication B; Bibliography and Index of Geology (1969-present). Pacific Ocean/oceanography/ocean circulation/California/geophysical surveys/remote sensing/maps/cartography/satellite methods/upwelling/nutrients/North Pacific/infrared surveys/eastern North Pacific/currents/Point Sur/Pacific Coast/Western U.S./United States/California Current/temperature/GEOREF.

3837. Williams B. Platform off California due on stream. Oil Gas J. 1982;80(4):96-97

Address: 650 S. Grand Ave., Los Angeles, CA 90017, USA.

Union to start flow from Platform Gina in Santa Barbara Channel's Hueneme field. Firm brought Platform Gilda on stream earlier this month. Both platforms are to be fully on stream in 1983 with flow of 20,000 b/d oil, 7.6 MMcfd associated gas. production platforms/oil production/gas production/Platform Gina/Hueneme Field/Santa Barbara Channel/Platform Gina/Hueneme/Field petroleum.

3838. Juillet A, Labeyrie LD, Schrader H. Oxygen isotope composition of diatom silica and silicoflagellate assemblage changes in the Gulf of California; a 700 year upwelling study. Thiede J, Suess E. Coastal upwelling, its sediment record; Part B, Sedimentary records of ancient coastal upwelling. Univ. Kiel, Dep. Geol., Kiel, Federal-Republic-of-Germany. 10B. ; 1983. p. p. 277-293. Cent. Faibles Radioact., Lab. Mixte C.N.R.S.-C.E.A., Gif-sur-Yvette, France; Univ. Kiel, Dep. Geol., Kiel, Federal-Republic-of-Germany; Oreg. State Univ., Sch. Oceanogr., United-States; Oreg. State Univ., Sch. Oceanogr., United-States Plenum Press, New York, NY Coastal upwelling and its sediment record, Vilamoura, Sept. 1-4, 1981 Analytic; Book; Conference publication B; Bibliography and Index of Geology (1969-present).

Gulf of California/geochemistry/silica/oxygen/isotopes/O 18/O 16/Protista/Silicoflagellata/Holocene/algal flora/diatom flora/North American Pacific/Pacific Ocean/stable isotopes/diatoms/algae/Quaternary/Carmen Basin/upwelling/biostratigraphy/temperature/Guaymas Basin/Mexico/Sonora/Baja California/California Current/salinity/microfossils/GEOREF.

3839. Williams B. Hot play in Miocene Monterey fans out to Santa Barbara Channel. Oil Gas J. 1983;81(43):49-51

Address: c/o Oil Gas Journal, P.O. Box 1260, Tulsa, OK 74101, USA.

The quest for prolific Miocene Monterey pay off California has spread to the Santa Barbara Channel. New wildcat campaigns in deep waters and deeper zone tests in mature areas in search of the once elusive Monterey presage a new surge of development in the offshore Santa Barbara basin, site of the world's first offshore oil well. Exxon Co. U.S.A.'s oil discoveries in the channel's Santa Ynez Unit, together with onshore Santa Maria basin strikes, triggered the Monterey hunt in the first place. But untested giant structures in the Outer Continental Shelf Sale 53 area of the offshore Santa Maria basin so far have commanded the spotlight.

oil exploration/gas exploration/Miocene/Monterey/petroleum exploration/resevoir delimitation/exploration management/Santa Barbara Channel/petroleum/geology.

3840. Schrader H, Baumgartner TR. Decadal variation of upwelling in the central Gulf of California. Thiede J, Suess E. Coastal upwelling, its sediment record; Part B, Sedimentary records of ancient coastal upwelling. Univ. Kiel, Dep. Geol., Kiel, Federal-Republic-of-Germany. 10B. ; 1983. p. p. 247-276. Oreg. State Univ., Sch. Oceanogr., Corvallis, OR, United-States; Univ. Kiel, Dep. Geol., Kiel, Federal-Republic-of-Germany; Oreg. State Univ., Sch. Oceanogr., United-States; Super. Ensenada, Cent. Invest. Cient. y Ed.; Super. Ensenada, Mexico Plenum Press, New York, NY Coastal upwelling and its sediment record, Vilamoura, Sept. 1-4, 1981 Analytic; Book; Conference publication B; Bibliography and Index of Geology (1969-present).

Gulf of California/oceanography/ocean circulation/Mexico/geochronology/varves/correlation/sediments/marine sediments/lithofacies/North American Pacific/Pacific

Ocean/upwelling/variability/Guaymas Basin/planar bedding structures/sedimentary structures/Baja California/bathymetry/Carmen Basin/Farallon Basin/Pescadero Basin/San Pedro Martir Basin/Sonora/Sinaloa/currents/California Current/laminations/sedimentation rates/GEOREF.

3841. Dunbar RB. Stable isotope record of upwelling and climate from Santa Barbara Basin, California. Thiede J, Suess E. Coastal upwelling, its sediment record; Part B, Sedimentary records of ancient coastal upwelling. Univ. Kiel, Dep. Geol., Kiel, Federal-Republic-of-Germany. 10B. ; 1983. (p.217-246). Scripps Inst. Oceanogr., La Jolla, CA, United-States; Univ. Kiel, Dep. Geol., Kiel, Federal-Republic-of-Germany; Oreg. State Univ., Sch. Oceanogr., United-States Plenum Press, New York, NY Coastal upwelling and its sediment record, Vilamoura, Sept. 1-4, 1981 Analytic; Book; Conference publication B; Bibliography and Index of Geology (1969-present).

Pacific

Ocean/geochemistry/isotopes/California/oceanography/continental shelf/sediments/stable isotopes/foraminifers/biostratigraphy/Holocene/oxygen/O 18/O 16/carbon/C 13/C 12/Pacific Coast/Western U.S./United States/Santa Barbara Basin/upwelling/anaerobic environment/microfossils/ratios/Quaternary/Port Hueneme/Los Angeles/San Diego/varves/planar bedding structures/sedimentary structures/Davidson Current/standard materials/temperature/GEOREF.

3842. Summerhayes CP. Sedimentation of organic matter in upwelling regimes. Thiede J, Suess E. Coastal upwelling, its sediment record; Part B, Sedimentary records of ancient coastal upwelling. Univ. Kiel, Dep. Geol., Kiel, Federal-Republic-of-Germany. 10B. ; 1983. p. p. 29-72.

Exxon Prod. Res. Co., Houston, TX, United-States; Univ. Kiel, Dep. Geol., Kiel, Federal-Republic-of-Germany; Oreg. State Univ., Sch. Oceanogr., United-States Plenum Press, New York, NY Coastal upwelling and its sediment record, Vilamoura, Sept. 1-4, 1981 Analytic; Book; Conference publication B; Bibliography and Index of Geology (1969-present).

Gulf of California/oceanography/sedimentation/Pacific Ocean/Atlantic Ocean/ocean circulation/patterns/upwelling/organic materials/geochemistry/organic carbon/continental margin/North American Pacific/pelagic sedimentation/bottom water/Santa Barbara Basin/anaerobic environment/oxidation/varves/planar bedding structures/sedimentary structures/laminations/bathymetry/turbidite/topography/diagenesis /GEOREF.

3843. Willingham CR, Hamilton DH. The nature of the Hosgri fault zone: Part I. Structure and extent. Geological Society of America, 83rd annual meeting, Cordilleran Section. Abstracts with Programs - Geological Society of America 19(6). ; 1987. 464. Address: Earth Sci. Assoc., Palo Alto, CA Conference: Geological Society of America, Cordilleran Section, 83rd annual meeting; with the Paleontological Society of America, Pacific Coast Section. Hilo, HI, United States May 20-22, 1987.

faults/Hosgri fault zone/San Gregorio Fault/San Simeon fault zone/right-lateral faults/common-depth-point method/thrust faults/seismic surveys/geophysical surveys/displacements/Pacific Coast/Western U.S./United States/Santa Barbara County/Santa Barbara Channel/Point Arguello/Point Conception/structural geology/applied geophysics.

3844. Hammond DE, Jalajas EW, Berelson W, Buchholtz MR.

Radon 222 fluxes at a site in San Clemente Basin, measured with the MANOP lander. Anonymous. American Geophysical Union; 1983 Fall meeting.

Eos,-Transactions,-American-Geophysical-Union. 1983;64(45):p.721 Univ. South. Calif., Dep. Geol. Sci., Los Angeles, CA, United-States; Lamont-Doherty Geol. Obs., United-States American Geophysical Union, Fall meeting, San Francisco, CA, Dec. 5-9, 1983 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). Pacific Ocean/geochemistry/nodules/manganese composition/radon/isotopes/Rn 222/manganese/San Clemente Basin/California/Pacific Coast/Western U.S./United States/bioturbation/biogenic structures/sedimentary structures/noble gases/diffusion/X ray radiography/Equatorial Pacific/MANOP/GEOREF.

3845. Wilson H. Santa Barbara Channel drilling slowed. Oil Gas J. (Tulsa) 1980;78(10):68-70 oil drilling/production management/petroleum discoveries/Santa Barbara Channel/continental shelf/offshore geology/petroleum.

3846. Jahnke RA, Weiss RF, Santschi PH, Buchholtz MR, Broecker WS, Heggie D, Hudson A, Bender ML. The Bottom Lander. Anonymous. American Geophysical Union; 1983 Fall meeting. Eos,-Transactions,-American-Geophysical-Union. 1983;64(45):p.721 Scripps Inst. Oceanogr., San Diego, CA, United-States; Lamont-Doherty Geol. Obs., United-States; Univ. R.I., Grad. Sch. R.I., United-States American Geophysical Union, Fall meeting, San Francisco, CA, Dec. 5-9, 1983 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). Pacific Ocean/geochemistry/sediments/oceanography/instruments/Bottom Lander/nodules/manganese composition/manganese/pore water/tracers/San Clemente Basin/calcium carbonate/solution/hydrochemistry/sediment water interface/MANOP/GEOREF.

3847. Wilson HM. Interior pressing action in Santa Barbara Channel (exploration). Oil Gas J (Tulsa) 1978;76(26):47-51 petroleum exploration/legislative exploration management/TX/Santa Barbara Channel/continental shelf/offshore geology/petroleum.

3848. Webb SW, Cox CS. Ocean floor observations of the evolution of the microseism spectrum during a storm. Anonymous. American Geophysical Union; 1983 spring meeting. Eos,-Transactions,-American-Geophysical-Union. 1983;64(18):p.269 Scripps Inst. Oceanogr., La Jolla, CA, United-States American Geophysical Union 1983 spring meeting, Baltimore, MD, May 30-June 3, 1983 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). California/oceanography/continental shelf/seismology/microseisms/genesis/Pacific Coast/Western U.S./United States/storms/San Clemente Island/spectral analysis/winds/ocean waves/magnetic field/electrical field/GEOREF.

3849. Wingfield JC, Newman AL, Hunt Jr. GL, Farner DS. Endocrine aspects of female-female pairing in the Western Gull *Larus occidentalis* Wymani. Anim. Behav. 1982;30(1):9-22 Address: ROCKEFELLER UNIV. FIELD RES. CENT., TYRREL ROAD, MILLBROOK, N.Y. 12545. Investigations of the colonies of western gulls on Santa Barbara Island, California, USA, revealed a surplus of females and the occurrence of female-female pairs that produce clutches with as many as 6 eggs. Females are able to establish and

defend breeding territories, behaviors generally thought to be under the control of androgens. Few significant differences in circulating levels of the luteinizing hormone and androgens are seen among breeding males, breeding females in heterosexual pairs and breeding females in homosexual pairs. In both homo and heterosexual pairs sampled in 1977, only females had elevated plasma levels of estrogens in spring, coincident with the period in which they show courtship behaviors such as food begging and solicitation of copulation. Given a sex ratio skewed in favor of females, as with the colonies of this species on Santa Barbara Island, and the essentially equal plasma levels of androgens in males and females, it is not difficult to rationalize the formation of female-female pairs. The hypothesis that female-female pairing involves hormonal masculinization of 1 member of the pair was not supported.

territorial defense/territoriality/courtship/androgens/leutenizing hormone/masculinization/sex ratio/reproductive biology/sexual behavior/endocrinology/females/breeding territories/androgens/oestrogens/estrogens/sex hormones/homosexual behavior/Charadriiformes/Western Gulls/Larus occidentalis/Santa Barbara Island/terrestrial biology/ornithology.

3850. Steer BL, Abbott PL. Paleohydrology of the Eocene Ballena River, Sonora to San Diego. The Geological Society of America, Cordilleran Section, 77th annual meeting, international meeting.

Abstracts-with-Programs-Geological-Society-of-America.

1981;13(2):p.108 Amoco Prod. Co., Denver, CO, United States; San Diego State Univ., United States The Geological Society of America, Cordilleran Section, 77th annual meeting, international meeting, Hermosillo, March 25-27, 1981 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).

California/stratigraphy/Eocene/Mexico/paleogeography/sedimentary rocks/clastic rocks/provenance/San Diego County/Poway Conglomerate/Jolla Vieja Formation/Ballena Gravels/Pacific Coast/Western U.S./United States/San Diego/Santa Cruz Island/Peninsular Ranges/continental borderland/Sonora/Ballena River/Paleogene/Tertiary/paleohydrology/Imuris Volcanics/alluvium/clastic sediments/alluvial fans/submarine fans/channel geometry/grain size/stream transport/velocity/floods/reconstruction/GEOREF.

3851. Barrera E, Barron JA, Keller G, Savin S. Middle and late Miocene surface water temperature variations in the northeastern Pacific Ocean, as inferred from planktic foraminiferal oxygen isotope ratios. The Geological Society of America, 96th annual meeting.

Abstracts-with-Programs-Geological-Society-of-America.

1983;15(6):521 Case West. Univ., Dep. Geol. Sci., Cleveland, OH, United States; U. S. Geol. Surv., United States The Geological Society of America, 96th annual meeting, Indianapolis, IN, Oct. 31-Nov. 3, 1983 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). Pacific Ocean/stratigraphy/Miocene/foraminifers/biostratigraphy/oxygen/isotopes/O 18/O 16/paleoclimatology/ocean

circulation/currents/California Current/upper

Miocene/Neogene/Tertiary/foraminifera/microfossils/Protista/planktonic taxa/stable isotopes/Deep Sea Drilling Project/DSDP Site 173/DSDP Site 470/IPOD/DSDP Site 495/Equatorial Pacific/California/Pacific Coast/Western U.S./United States/Baja California/paleontology/Globigerinacea/Rotaliina/middle Miocene/northeastern Pacific Ocean/GEOREF.

- # 3852. Wolfram WR:LT. Santa Barbara SALM: a prototype deepwater production riser and floating production system. J. Pet. Technol. 1980;32(2):311-318 Address: Exxon Prod. Res. Co., Houston, TX 77001, USA.
The Hondo offshore storage, oil treating, and off-loading system in the Santa Barbara Channel contains most of the essential features of a deepwater floating production system. This paper discusses the design concept, including dynamic analysis, earthquake design, fatigue analysis, and the high-pressure flow system. A current status report and future plans for the project are given. single point moorings/tanker terminals/production platforms/floating platforms/riser pipes/storage tanks/oil/dynamic analysis/design/Santa Barbara Channel/petroleum/engineering.
- # 3853. Wood WJ. An analysis of human skeletal material from Rincon Creek: A comparison of Santa Barbara Channel data [dissertation]. Fullerton, California, USA: California State University; 1978. 154.
skeletal material/Homo sapiens/Rincon Creek/Santa Barbara Channel/physical anthropology.
- # 3854. Mullins HT, Nagel DK. High frequency seismic data detect shallow hydrocarbons. World Oil. 1983;197(6):p.133-134, 136, 138
Syracuse Univ., Syracuse, NY, United-States; Moss Landing Mar. Lab., United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present). California/economic geology/fuel resources/geophysical surveys/seismic surveys/applications/high frequency methods/reflection/exploration/seismic smears/seismic wipeouts/Pacific Coast/Western U.S./United States/Santa Cruz Basin/offshore/San Gregorio fault zone/GEOREF.
- # 3855. Steinmetz RL. Earthquake resistant design of offshore structures. Cummings GE, Cleland LL, Smith PD, Chung DH. Proceedings, seismic risk and heavy industrial facilities conference. Lawrence Livermore Natl. Lab., Livermore, CA, United-States. ; 1983. p. p. 4-6.
Exxon Prod. Res. Co., Houston, TX, United-States; Lawrence Livermore Natl. Lab., Livermore, CA, United-States Lawrence Livermore Natl. Lab., Livermore, CA Seismic risk and heavy industrial facilities conference, San Francisco, CA, May 11-13, 1983 Analytic; Book; Conference publication Presented at conference by Vayas, Yogesh. B; Bibliography and Index of Geology (1969-present). Alaska/engineering geology/earthquakes/California/China/Persian Gulf/marine installations/Western U.S./United States/Cook Inlet/Pacific Coast/Santa Barbara Channel/Far East/Asia/Bohai Bay/Arabian Sea/Indian Ocean/Aegian Sea/design/offshore/seismic risk/marine platforms/epicenters/GEOREF.
- # 3856. Woodford AO. Discussion. Eocene conglomerate sedimentology and basin analysis, San Diego and the southern California borderland. Journal of Sedimentary Petrology 1980;50(2):655
The author questions the correlation between the Eocene of San Nicolas Island and the Poway Conglomerate of central San Diego County in Howell and Link's 1979 paper (GeoAbstracts 80E/0144) as it does not take into account a difference in content of large quartz grains in the welded tuff clasts that are the most abundant constituents of the conglomerates involved.
Eocene/conglomerates/San Nicolas Island/San Diego County/geology/petroleum.

3857. Rindsberg AK, Warme JE. Bathyal ichnology of North San Clemente Basin (California Borderland). Nriagu, J. O., Troost, R. Abstracts of papers; International Association of Sedimentologists, eleventh international congress on sedimentology. International-Congress-on-Sedimentology--Congres-International-de-Sedimentologie. 1982;11:p.25
Colo. Sch. Mines, Golden, CO, United-States Eleventh international congress on sedimentology, Hamilton, ON, Aug. 22-27, 1982 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).
California/oceanography/continental shelf/sedimentation/environment/ichnofossils/ecology/invertebrates/shelf environment/Pacific Coast/Western U.S./United States/San Clemente Basin/substrates/sand/clastic sediments/biofacies/lithofacies/Scolicia/Skolithos/Aconichnus/Teichichnus/Aster osoma/Chondrites/burrows/marine sediments/echinoderms/crustaceans/worms/Polychaetia/turbidite/North American Pacific/Pacific Ocean/GEOREF.

3858. Woodhouse CD,,, Strickley J. Sighting of northern right whale (*Eubalaena glacialis*) in the Santa Barbara Channel. J. Mammal. 1982;63(4):701-702 Address: Santa Barbara Mus. Nat. Hist., Santa Barbara, CA 93105, USA. Based on records of early whalers, the northern right whale, *E. glacialis*, is a temperate to boreal species in the North Pacific and North Atlantic Oceans. In recent years, a few reports of right whales off the Washington, Oregon, and California Coasts have been published. Their distribution and relative numbers in the western Pacific, the Aleutian Islands area, and Bering Sea were summarized by Omura et al. (1969) and Klumov (1962). The last reported sighting off southern California was that of Gilmore (1956) near La Jolla, California. One recent population estimate for the North Pacific was 220 (Kreps, 1977). On 17 April 1981, at 1230 h, students of a sixth grade class from Brandon School, Goleta, California, sighted a right whale from the M/V Sunfish in the eastern portion of the Santa Barbara Channel (34 degree 07'N, 119 degree 18'W). distribution records/geographical distribution/animal distribution/cetaceans/Balaenidae/Eubalaena glacialis/northern right whale/Santa Barbara Channel/34 degree 07'N, 119 degree 18'W/marine biology/mammalogy.

3859. Muhs DR. Quaternary sea level events on northern San Clemente Island, California. Quaternary Research (New York). 1983;20(3):p.322-341 Univ. Wis., Dep. Geogr., Madison, WI, United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present).
Stratigraphic, radiometric, amino acid, and pedologic dating techniques have allowed the development of a chronology of sea-level changes for about the last 500,000 yr. A uranium-series date on coral of about 127,000 yr for the 2nd terrace serves as a calibration point for amino acid age estimates of four other mapped terraces. Two of these terraces have age estimates of about 80,000-105,000 yr, another has an age estimate of about 127,000 yr, and the 5th terrace on the west side of the island is estimated to be about 415,000-575,000 yr old. These dates correlate reasonably well with marine terraces dated elsewhere and with stages of the oxygen-isotope record that are thought to represent high stands of the sea. Weakly cemented calcareous dune sands (eolianites) on northern San Clemente Island appear to represent low stands of the sea, since calcareous shelf sands were the most likely source. A radiocarbon date of about 22,000 yr suggests that the youngest eolianite was deposited during the last glacial maximum. An older

eolianite is estimated to be about 140,000-195,000 yr old based on stratigraphic relations and degree of soil development. The suggested ages for the eolianites also correlate well with oxygen-isotope estimates of low sea levels.--Modified journal abstract. California/stratigraphy/Quaternary/geomorphology/coastal features/terraces/sedimentary rocks/clastic rocks/eolianite/absolute age/dates/corals/changes of level/Pacific Coast/Western U.S./United States/San Clemente Island/northern San Clement Island/amino acids/organic materials/alluvial fans/relative dating/oxygen/isotopes/O 18/O 16/stable isotopes/correlation/racemization/soils/shore features/GEOREF.

3860. Woolley JJ. Sedimentology of the Sespe and Vaqueros formations, Santa Rosa Island, California [dissertation]. San Diego, Calif.: San Diego State University; 1978. Unknown. sedimentary rocks/sedimentation/sedimentary petrology/clastic rocks/provenance/sandstone/paleocurrents/Vaqueros Formation/Sespe Formation/Tertiary/Cenozoic/arkose/pyroclastics/Oligocene Paleogene/mudstone/Santa Rosa Island/geology/sedimentary petrology.

3861. Fischer PJ, Simila GW. North Channel Slope Fault, Santa Barbara Basin, California; a reevaluation. AAPG annual convention with divisions SEPM/EMD/DPA. AAPG-Bulletin. 1983;67(3):p.461
Calif. State Univ., Northridge, CA, United-States; Mesa, United-States AAPG annual convention with divisions SEPM/EMD/DPA, Dallas, TX, April 17-20, 1983 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).
California/structural geology/faults/Pacific Ocean/oceanography/continental slope/patterns/en echelon faults/Pacific Coast/Western U.S./United States/North Channel slope fault/Pitas Point Fault/F 1 Fault/Point Conception Fault/seismic surveys/geophysical surveys/Coal Oil Point/Molino Anticline/reverse faults/high angle faults/Hondo/Neogene/Tertiary/Quaternary/Gaviota/South Santa Ynez Fault/systems/Santa Barbara Basin/GEOREF.

3862. Worth Research Associates LJ,C. Summary Report on Contract N00014-83-C-2004. ; 1982. 46.
This project is concerned with an experimental determination of wide-band propagation parameters in the HF spectrum. Propagation characteristics of both sky-wave and ocean-surface surface-wave modes were the subject of the investigations. To provide near-full-scale measurement ranges, ocean propagation paths from San Clemente Island to Pt. Mugu, California, (site of the Navy Pacific Missile test Center) and to Pt. Arguello (Vandenberg Air Force Base) were used. Generally, field operations were conducted over periods of two to three weeks at times which allowed October 18 through November 1, 1982; January 10 through January 17; and May 1 to May 14, 1983.
Surface waves/Ionospheric propagation/Air Force facilities/High frequency/Propagation/Spectra/Broadband/Oceans/Parameters/Paths/San Clemente Island/Pt. Mugu/Pt. Arguello/physics.

3863. Venkatesan MI, Kaplan IR, Mankiewicz P, Ho WK, Sweeney RE. Determination of petroleum contamination in marine sediments by organic geochemical and stable sulfur isotope analyses. Ernst WG, Morin JG. The environment of the deep sea; Rubey Volume II. Univ. Calif., Dep. Earth & Space Sci., Los Angeles, CA, United-States. ; 1982. p. p. 93-104. Univ. Calif., Dep. Earth & Space Sci., Los Angeles, CA, United-States; Univ. Calif., Dep. Earth & Space Sci.,

Los Angeles, CA, United-States; Sci. Appl., United-States; Global Geochem. Corp., United-States Prentice-Hall, Englewood Cliffs, NJ The Rubey colloquium ; The environment of the deep sea, Los Angeles, CA, April-June 1979 Analytic; Book; Conference publication Univ. Calif., Inst. Geophys. and Planet. Phys., Contrib. No. 1976. B; Bibliography and Index of Geology (1969-present).

Atlantic Ocean/geochemistry/sulfur/Pacific Ocean/Gulf of Mexico/environmental geology/pollution/isotopes/S 34/S 32/organic materials/hydrocarbons/sediments/marine sediments/petroleum/stable isotopes/Walvis Bay/Gulf of Alaska/North American Pacific/Bering Sea/West Pacific/North American Atlantic/North Atlantic/southern California Bight/California Bight/eastern Bering Sea/gas chromatograms/GEOREF.

3864. Yerkes RF, Greene HG, Tinsley JC, Lajoie KR. Seismotectonic setting of Santa Barbara Channel area, southern California. U. S. Geol. Surv., Open-File Rep. 80-299. ; 1980. 42. note: U.S. Geol. Surv., Open-File Serv. Sect., Branch Distrib., Denver, Colo., United States. seismology/engineering geology/seismicity/geologic hazards/seismotectonics/maps/tectonics/earthquake distribution/Santa Barbara Channel/Santa Barbara County/engineering geology/environmental geology/seismology.

3865. Liu K, Kaplan IR. Nitrous oxide in the sea off Southern California. Ernst WG, Morin JG. The environment of the deep sea; Rubey Volume II. Univ. Calif., Dep. Earth & Space Sci., Los Angeles, CA, United-States. ; 1982. p. p. 73-92. Univ. Calif., Inst. Geophys. and Planet. Phys., Dep. Earth & Space Sci., Los Angeles, CA, United-States; Univ. Calif., Dep. Earth & Space Sci., Los Angeles, CA, United-States Prentice-Hall, Englewood Cliffs, NJ The Rubey colloquium ; The environment of the deep sea, Los Angeles, CA, April-June 1979 Analytic; Book; Conference publication B; Bibliography and Index of Geology (1969-present). Pacific Ocean/geochemistry/nitrogen/sea water/geochemical cycle/California/Southern California/nitrous oxide/Santa Barbara Basin/Whites Point/San Pedro Basin/nitrate ion/nitrite ion/nitrification/denitrification/saturation/atmosphere/pollution /waste disposal/sewage/liquid waste/GEOREF.

3866. Yerkes RF, Greene HG, Tinsley JC, Lajoie KR. Maps showing seismotectonic setting of the Santa Barbara Channel area, California. U. S. Geol. Surv., Misc. Field Stud. Map MF-1169. ; 1981. 25. seismology/tectonophysics/seismicity/plate tectonics/maps/seismotectonics/geotectonic maps/seismotectonic maps/explanatory text/USGS/Santa Barbara Channel/solid earth geophysics/seismology/geology.

3867. Yerkes RF, Lee WHK. Seismicity and late Quaternary deformation in the western Transverse Ranges. Geol. Soc. Am., Abstr. Programs 1979;11(3):136-137 Address: U. S. Geol. Surv., Menlo Park, Calif., USA Conference: The Geological Society of America, Cordilleran Section, 75th annual meeting. San Jose, Calif., April 9-11, 1979. seismology/structural geology/seismicity/earthquakes/neotectonics/seismotectonics/upper Quaternary/Quaternary/magnitude/mechanism/elastic waves/P-waves/faults/fault planes/uplifts/geodesy/extension/plate tectonics Santa Barbara County/Ventura County/Transverse Ranges/Santa Barbara Channel/Ventura Basin/geology/geophysics/seismology.

3868. Howell DG. Eocene sea level fluctuation, Southern California borderland. The Geological Society of America, 93rd annual meeting. Abstracts-with-Programs-Geological-Society-of-America. 1980;12(7):p.451 U. S. Geol. Surv., Menlo Park, CA, United-States The Geological Society of America, 93rd annual meeting, Atlanta, GA, Nov. 17-20, 1980 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). California/soils/Paleosols/surveys/sedimentary rocks/clastic rocks/conglomerate/sedimentation/cyclic processes/regression/Pacific Coast/Western U.S./United States/Southern California/Eocene/Paleogene/Tertiary/transgression/San Diego/kaolinite/clay minerals/sheet silicates/silicates/Peninsular Ranges/continental borderland/GEOREF.

3869. Yingst J. Factors influencing rates of sediment ingestion by *Parastichopus parvimensis* (Clark), an epibenthic deposit-feeding holothurian. Estuar. Coast. Shelf Sci. 1982;14(2):119-134
Address: Dep. Biol. Sci., Wayne State Univ., Detroit, MI 48202, USA. Rates of sediment ingestion and organic matter uptake by *Parastichopus parvimensis*, an epibenthic deposit-feeding holothurian have been examined in relation to intraspecific patterns of age-size distribution, differences in sediment type ingested, seasonal variations in temperature and annual evisceration events. Individuals living in areas of rock rubble along cove margins in the vicinity of the Isthmus, Santa Catalina Island, southern California were 27% smaller and seven times more numerous than holothurians living on granular sediments on cove bottoms. Animals feeding on granular sediments consume almost eight times the quantity of organic matter per animal per day than those feeding on sediment from rock surfaces. *P. parvimensis* is non-selective with respect to grain size ingested. By only ingesting the top few millimeters of sediment it does, however, exploit the sediment layer with the highest and most readily utilizable organic matter. Annual evisceration events, which affected 60% of the population during Oct. and Nov., caused a cessation in feeding for similar to 4 weeks until minimal gut connections were formed, and can result in an annual decrease of 10% in rates of sediment reworking and organic matter removal by the entire population. ingestion/sediments/environmental factors/organic matter/age composition/size distribution/detritus feeders/evisceration/temperature/grainsize/sediment ingestion/feeding behavior/deposit feeders/Holothurian/Holothuroidea/*Parastichopus parvimensis*/Santa Catalina Island/Isthmus/marine biology.

3870. Kaplan IR. Stable isotopes of sulfur, nitrogen and deuterium in Recent marine environments. Arthur, M. A., Anderson, T. F., Kaplan, I. R., Veizer, J., Land, L. S. Stable isotopes in sedimentary geology. Univ. S.C., Dep. Geol., Columbia, SC, United-States. SEPM-Short-Course. 1983;10:p.2.21-2.108 Univ. Calif., Dep. Earth and Space Sci., Los Angeles, CA, United-States; Univ. S.C., Dep. Geol., Columbia, SC, United-States; Univ. Ill., Dep. Geol. Sci., United-States; Univ. Calif., Dep. Earth and Space Sci., United-States; Univ. Ottawa, Dep. Geol., Canada; Univ. Tex., Dep. Geol. Sci., United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present). sulfur/isotopes/S 34/S 32/geochemistry/processes/fractionation/nitrogen/N 15/N 14/ratios/stable isotopes/hydrogen/D/H/deuterium/sediments/marine sediments/sedimentation/environment/marine environment/SEM

data/experimental studies/Baltic Sea/European Atlantic/North Atlantic/Atlantic Ocean/pore water/California/Pacific Coast/Western U.S./United States/Santa Barbara Basin/pyrite/sulfides/Nonesuch Shale/Precambrian/Tertiary/Devonian/petroleum/GEOREF.

3871. Yochem PK, Stewart BS, DeLong RL, DeMaster DP. Diel haul-out patterns and site fidelity of harbor seals *Phoca vitulina richardsi* on San Miguel Island, California, USA in Autumn. Mar. Mamm. Sci. 1987;3(4):323-332 Address: SEA WORLD RES. INST., HUBBS MARINE RES. CENT., 1700 S. SHORES RD., SAN DIEGO, CALIF. 92109. We studied the haul-out patterns and movements of harbor seals (*Phoca vitulina richardsi*) on San Miguel Island, California, from 23 October through 6 December 1982 by attaching a radio transmitter to each of 18 seals and monitoring their presence ashore with continuously scanning receivers. Seals hauled out at all hours although, on average, the largest proportion of tagged seals was ashore between 1300 and 1500 h. Median duration of haul-out bouts of individual seals ranged from 4.7 to 21.8 h; 81% of all haul-out bouts were less than 12 h and 3% were longer than 24 h. Eighty-one percent of the seals that were resighted at least twice used only the sites where they were tagged; two seals used two sites and one seal used three. Most seals were hauled out on fewer than 51% of the days sampled. On average, about 41% of tagged seals hauled out every day whereas an average of about 19% was hauled out during peak afternoon hours. Using telemetry data to correct a count of 412 seals made during an aerial survey, we estimated absolute abundance at about 2,168 seals; a modified Peterson mark-recapture model produced an estimate of about 1,445 seals. movements/peterson mark-recapture/survey/radio transmitter/aerial survey/haul-out patterns/population levels/activity patterns/diurnal variations/haul-out behavior/site fidelity/*Phoca vitulina richardsi*/harbor seals/San Miguel Island/marine biology/mammalogy.

3872. York AE. Northern fur seal *Callorhinus ursinus*, Eastern Pacific population, Pribilof Islands, Alaska and San Miguel Island, California, USA. International Symposium and Workshop on the Status, Biology, and Ecology of Fur Seals. NOAA Teck. Rep. MNFS Circ. 1987;0(51):9-22 Address: NATL. MAR. MAMMAL LAB., NATL. MAR. FISH. SERV. NOAA, 7600 SAND POINT WAY N.E., BUILD. 4, SEATTLE, WASH. 98115 Presented: CAMBRIDGE, ENGLAND, UK, APRIL 23-27. Northern fur seal/*Callorhinus ursinus*/Pribilof Islands/Alaska/San Miguel Island/marine biology/mammalogy.

3873. Hurst RW, Wood W, Hume M. Geochemistry of the Conejo, Catalina Island and Santa Cruz Island volcanic suites. The Geological Society of America, Cordilleran Section, 78th annual meeting. Abstracts-with-Programs-Geological-Society-of-America. 1982;14(4):p.174 Calif. State Univ., Dep. Geol., Los Angeles, CA, United-States The Geological Society of America, Cordilleran Section, 78th annual meeting, Anaheim, CA, April 19-21, 1982 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). California/geochemistry/isotopes/igneous rocks/volcanic rocks/potassium/strontium/rubidium/iron/magmas/differentiation/Santa Barbara County/Pacific Coast/Western U.S./United States/Southern California/continental borderland/Catalina Island/Santa Cruz Island/Conejo/major elements/GEOREF.

3874. Young DN, Kapraun DF. The genus *Polysiphonia* (Rhodophyta: Ceramiales) from Santa Catalina Island, California,

USA 1. Oligosiphonia. Jpn. J. Phycol. 1985;33(2):103-117
Address: ALLAN HANCOCK FOUND., DEP. BIOL. SCI., UNIV. SOUTHERN
CALIF., LOS ANGELES, CALIF. 90089.

species descriptions/taxonomic notes/Polysiphonia
flaccidissima/Polysiphonia scopulorum/Polysiphonia
decussata/Polysiphonia pacifica/Polysiphonia
eastwoodae/Polysiphonia acuminata/Polysiphonia
savatieri/Polysiphonia simplex/Santa Catalina Island/marine
biology/botany/phycology.

3875. Hornafius S, Kamerling M, Terres R, Luyendyk B.
Differential tectonic rotation within the western Transverse
Ranges. The Geological Society of America, Cordilleran Section,
78th annual meeting.

Abstracts-with-Programs-Geological-Society-of-America.
1982;14(4):p.173-174 Univ. Calif., Dep. Geol. Sci., Santa Barbara,
CA, United-States The Geological Society of America, Cordilleran
Section, 78th annual meeting, Anaheim, CA, April 19-21, 1982
Analytic; Serial; Conference publication; Abstract B; Bibliography
and Index of Geology (1969-present).
California/structural
geology/tectonics/paleomagnetism/Neogene/Topanga Formation/Monterey
Formation/Rincon Shale/Pacific Coast/Western U.S./United
States/Transverse Ranges/Miocene/Tertiary/shale/clastic
rocks/marine environment/Point Mugu/Santa Cruz Island/Santa Ynez
Range/declination/rotation/Santa Maria Basin/Santa Monica
Mountains/GEOREF.

3876. Zahary RG. An ecological analysis of the floral and
faunal assemblages on temperate artificial marine reefs at Santa
Catalina Island, California [dissertation]. Los Angeles,
California, USA: University of Southern California; 1982. Unknown.
Seven concrete reefs were positioned at 10 m depth on a flat
sand bottom, surrounded on three sides by a cobble field which
supported a kelp forest. Each reef contained 36 interstices of
each of four sizes in specific geometric array. Blocks of
interstices were interspersed with vertical walls of identical
dimension. Removable sample bricks were attached to each reef.
Monthly day and night censuses (May, 1979 through May, 1980)
identified reef inhabitants as to holes of specific size and
position vertically, horizontally, and by side of reef. Sample
bricks were retrieved monthly, their inhabitants were
identified, counted, and their biomass measured. Three reefs
were continuously perturbed by having all macro-algae removed
monthly. Algal abundance was influenced primarily by *Colpomenia*
sinuosa and *Sargassum muticum*. Shannon diversity for algae
varied inversely with biomass due to the effect of these two
species on equitability. Perturbation led to a significant
increase in Shannon diversity by increasing equitability, thus
implicating natural disturbance as a possible source for
maintenance of subtidal algal diversity. Analysis of sample
bricks yielded 30,368 identifiable animals. The majority (78%)
were amphipods and their numbers heavily influenced Shannon
diversity. Algal perturbation significantly increased
Shannon diversity for invertebrates by reducing the number of
amphipods and thus increasing equitability. Monthly Shannon
indices for invertebrates and algae correlated significantly, as
did monthly algal biomass and invertebrate number. Of the two
resident species of fish, one, *Lythrypnus dalli*, exhibited no
spatial preferences and was present 24 hours per day, but was
markedly diurnal. The other, *Chromis punctipinnis*, was resident
only at night, and certain size classes exhibited specificity both
for interstice size and vertical level. Perturbation had no

measurable effect on *L. dalli*, but there were significantly more *C. punctipinnis* in perturbed than in unperturbed reefs. Although previous studies have indicated that *C. punctipinnis* generally spends the night in the open only when interstitial spaces are unavailable, some were always sheltered on the exposed top surfaces of the reefs during night censuses even though interstices of all sizes were available.
artificial reefs/Shannon diversity/Santa Catalina Island/marine biology.

3877. Zimmerman RC, Robertson DL. Effects of El Nino on local hydrography and growth of the giant kelp *Macrocystis pyrifera* at Santa Catalina Island, California, USA. *Limnol. Oceanogr.* 1985;30(6):1298-1302

Address: ALLAN HANCKOCK FOUND., UNIV. SOUTHERN CALIF., LOS ANGELES, 90089-0371. Deepened isotherms associated with El Nino resulted in severe nutrient limitation and very low kelp productivity during the last half of 1983. Frond growth rates were so low that terminal blades formed before reaching the surface, eliminating the canopy. Frond initiation rates were also extremely low, resulting in significant reductions in mean plant size. Plants growing above 10 m were more severely affected than plants at 20 m. These results suggest that nutrient pulses associated with internal waves are critical for survival of *Macrocystis pyrifera* in nutritionally marginal habitats in southern California.
nutrient pulse/marginal habitat/isotherm/productivity/frond initiation rate/plant size/depth/El Nino/nutrient limitation/kelp productivity/growth/giant kelp/*Macrocystis pyrifera*/Santa Catalina Island/marine biology/phyecology/botany.

3878. Lewis SW, Gallie MR, English DJ, Frost EG. Folding and normal faulting related to inferred strike slip faulting on Santa Catalina Island; its implications for the inception of the San Andreas Fault system. The Geological Society of America, Cordilleran Section, 77th annual meeting, international meeting. Abstracts-with-Programs-Geological-Society-of-America. 1981;13(2):p.66 Univ. South. Calif., Dep. Geol. Sci., Los Angeles, CA, United-States; San Diego State Univ., Dep. Geol. Sci., San Diego, CA, United-States The Geological Society of America, Cordilleran Section, 77th annual meeting; international meeting, Hermosillo, Sonora, March 25-27, 1981 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). California/structural geology/faults/displacements/strike slip faults/folds/style/synclines/Pacific Coast/Western U.S./United States/Santa Catalina Island/San Andreas Fault/continental borderland/fault scarps/gouge/normal faults/striations/bedding plane irregularities/sedimentary structures/deformation/erosion surfaces/fault zones/growth faults/patterns/Mesozoic/GEOREF.

3879. Prothero W, Keller B. Santa Barbara channel earthquake locations, 1979-1982. AGU 1984 Fall meeting. *Eos, Transactions, American Geophysical Union* 1984;65(45):996
Address: Univ. Calif., Dep. Geol. Sci., Santa Barbara, CA, USA
Conference: American Geophysical Union, 1984 Fall meeting. San Francisco, CA, Dec. 3-7, 1984.
earthquakes/faults/Pitas Point Fault/Oak Ridge Fault/Mesa Fault/Arroyo Parida Fault/thrust faults/displacements/Santa Barbara Channel/geology/geophysics/seismology.

3880. Buchholtz MR, Santschi PH, Broecker WH. Verification of MANOP Lander benthic chamber. Anonymous. American Geophysical Union; 1983 spring meeting. *Natl. Sci. Found., United-States. Eos,-*

Transactions, -American-Geophysical-Union. 1983;64(18):p.250-251
Lamont-Doherty Geol. Obs., Palisades, NY, United-States; Natl. Sci.
Found., United-States American Geophysical Union; 1983 spring
meeting, Baltimore, MD, May 30-June 3, 1983 Analytic; Serial;
Conference publication; Abstract B; Bibliography and Index of
Geology (1969-present).
sediments/geochemistry/trace elements/sea
water/oceanography/instruments/benthic chambers/Pacific
Ocean/marine sediments/sediment water
interface/tracers/MANOP/Equatorial Pacific/California/Pacific
Coast/Western U.S./United States/San Nicholas Basin/GEOREF.

3881. Sauer JD. Weeds of the California Channel Islands,
USA: unplanned experiments with introduced ungulates in systems
lacking native herbivores. Proc. Int. Bot. Congr. 1981;13(0):207
Address: DEP. GEOGR., UNIV. CALIF., LOS ANGELES, CALIF. 90024
CONFERENCE PAPER: MEETING OF THE 13TH INTERNATIONAL BOTANICAL
CONGRESS, SYDNEY, N.S.W., AUSTRALIA, AUG. 21-28, 1981. PROC INT BOT
CONGR VO- 13 (0). 1981. 207. introduced species/feral
animals/grazing/animal control
opuntia/goats/pigs/rabbits/cattle/sheep/bison/deer/bunch
grasses/fennel/oak/pine/annual weeds/California Channel
Islands/terrestrial biology/botany.

3882. Cutter GA, Bruland KW. Selenium in the surface waters
of different oceanic regimes; selective uptake. Anonymous. American
Geophysical Union; 1983 spring meeting. Natl. Sci. Found., United-
States.
Eos, -Transactions, -American-Geophysical-Union. 1983;64(18):p.249
Old Dominion Univ., Dep. Oceanogr., Norfolk, VA, United-States;
Natl. Sci. Found., United-States; Univ. Calif. Santa Cruz, Cent.
Coast. Mar. Stud., United-States American Geophysical Union; 1983
spring meeting, Baltimore, MD, May 30-June 3, 1983 Analytic;
Serial; Conference publication; Abstract B; Bibliography and Index
of Geology (1969-present).
Nova Scotia/oceanography/estuaries/Pacific Ocean/sea
water/geochemistry/trace elements/selenium/Hawaii/continental
shelf/California/equilibrium/geochemical cycle/biogenic
effects/fjords/Maritime Provinces/Eastern
Canada/Canada/selenates/selenides/sulfides/California Current/East
Pacific Ocean Islands/Polynesia/United States/Pacific Coast/Western
U.S./GEOREF.

3883. NOAA/National Geophysical. NOS Hydrographic Data Base
of the Pacific Coast [Magnetic Computer Tape;
Specifications-9TRK/ASCII]. NOAA/National Geophysical Data Center.
10 Magnetic computer Tape; Specifications-9TRK/ASCII. W18279 and
W18196 are 6250 bpi. W14570, W14052, W08058, W18518, W15801 and
W18442 are 1600 bpi. L G047928W-28W and LG047928W-28X are tape scan
for 1600 and documentation.
NOAA/National Geophysical Data Center/Hydrographic/Pacific/Digital
Hydrographic surveys/oceanography/Channel Islands National Marine
Sanctuary/CINMS.

3884. Willingham CR, Hamilton DH. Neogene structure and
stratigraphy of the offshore region on trend with the western
Transverse Ranges. The Geological Society of America, Cordilleran
Section, 78th annual meeting. Abstracts-with-Programs-Geological-
Society-of-America. 1982;14(4):p.245 Ogle Pet., Santa Barbara, CA,
United-States; Earth Sci. Assoc., United-States The Geological
Society of America, Cordilleran Section, 78th annual meeting,
Anaheim, CA, April 19-21, 1982 Analytic; Serial; Conference
publication; Abstract B; Bibliography and Index of Geology (1969-

present).

California/structural geology/tectonics/Pacific Coast/Western U.S./United States/Transverse Ranges/Neogene/Tertiary/lithostratigraphy/stratigraphy/offshore/seismic surveys/geophysical surveys/reflection/Santa Maria Basin/Santa Barbara Channel/reverse faults/faults/folds/crustal shortening/compression tectonics/Santa Lucia Bank/GEOREF.

3885. Sorensen SS. A petrologic and geochemical study of mafic plutonites from the California continental borderland and Los Angeles Basin. The Geological Society of America, Cordilleran Section, 78th annual meeting. Abstracts-with-Programs-Geological-Society-of-America. 1982;14(4):p.236 Univ. Calif., Dep. Earth and Space Sci., Los Angeles, CA, United-States The Geological Society of America, Cordilleran Section, 78th annual meeting, Anaheim, CA, April 19-21, 1982 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). California/petrology/igneous rocks/geochemistry/trace elements/rare earths/plutonic rocks/Los Angeles County/Santa Barbara County/Pacific Coast/Western U.S./United States/Los Angeles Basin/continental borderland/Santa Cruz Island/Willows Complex/Santa Catalina Island/diorites/island arcs/mineral composition/gabbros/GEOREF.

3886. Grossman EL, Ku T. Aragonite water isotopic paleotemperature scale based on the benthic foraminifer *Hoeglundina elegans*. The Geological Society of America, 94th annual meeting. Abstracts-with-Programs-Geological-Society-of-America. 1981;13(7):p.464 Univ. South. Calif., Dep. Geol. Sci., Los Angeles, CA, United-States Geological Society of America, 94th annual meeting; the Paleontological Society (73rd); the Mineralogical Society of America (62nd); the Society of Economic Geologists (61st); Cushman Foundation (32nd); Geochemical Society (26th); National Association of Geology Teachers (22nd); Geoscience Information Society (16th), Cincinnati, OH, Nov. 2-5, 1981 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). California/stratigraphy/Holocene/foraminifers/biochemistry/isotopes/oxygen/18/16/paleoclimatology/Pacific Coast/Western U.S./United States/Southern California Borderland/paleontology/Quaternary/living taxa/stable isotopes/benthonic taxa/paleotemperature/aragonite/carbonates/calcite/shells/*Hoeglundina elegans*/microfossils/GEOREF.

3887. Belfield WC, Helwig J, La PPR, Dahleen WK. Monterey fractured reservoir, Santa Barbara Channel, California. Anonymous. AAPG annual convention with divisions SEPM/EMD/DPA. AAPG-Bulletin. 1983;67(3):p.421-422 Arco Oil and Gas Co., Dallas, TX, United-States AAPG annual convention with divisions SEPM/EMD/DPA, Dallas, TX, April 17-20, 1983 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). California/economic geology/oil and gas fields/diagenesis/effects/reservoir properties/Monterey Formation/Pacific Coast/Western U.S./United States/Santa Barbara Channel/Monterey fractured reservoir/South Elwood Field/traps/structural traps/faults/offshore/fractures/breccia/clastic rocks/silica/stratigraphic breccia/coalescent fracture breccia/fault breccia/pore pressure/brecciation/tar/GEOREF.

3888. McKinney CR. Uranium series ages of Columbian mammoth enamel on Santa Rosa Island; implications for low sea stands and man's entry into North America. Geological Society of America, 93rd annual meeting.

Abstracts-with-Programs-Geological-Society-of-America.

1980;12(7):p.481 Fla. State Univ., Dep. Geol., Tallahassee, FL, United-States 93rd annual meeting of the Geological Society of America, Atlanta, GA, Nov. 17-20, 1980 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).

California/geochronology/Pleistocene/Mammalia/Elephantoidea/absolute age/dates/teeth/stratigraphy/changes of level/Pacific Coast/Western U.S./United States/Santa Rosa Island/Mammuthus exilis/Proboscidea/paleontology/Mammuthus columbi/uranium/Th/U/Quaternary/fossilization/Channel Islands/archaeology/GEOREF.

3889. Renwick W, Brumbaugh R, Loeher L. Landslide morphology and processes on Santa Cruz Island, California. Geografiska Annaler. Series A: Physical Geography. 1982;64(3-4):p.149 Rutgers Univ., Dep. Geogr., New Brunswick, NJ, United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present).

California/geomorphology/mass movements/landslides/landform evolution/permeability/soils/Pacific Coast/Western U.S./United States/Santa Cruz Island/geologic hazards/GEOREF.

3890. Swanberg NR. The trophic role of colonial Radiolaria in oligotrophic oceanic environments. Limnology and Oceanography. 1983;28(4):p.655 Lamont-Doherty Geol. Obs., Palisades, NY, United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present).

Radiolaria/ecology/Holocene/microfossils/carbon/colonial taxa/chlorophyll/pigments/organic materials/photosynthesis/marine environment/planktonic taxa/Atlantic Ocean/California current/Indian Ocean/Acosphaera spinosa/Sphaerococcus punctatum/Collozoum inerme/Collozoum radiosum/Collozoum pelagicum/Collozoum longiforme/nitrogen/Quaternary/GEOREF.

3891. Grossman EL, Ku T. Stable isotopic composition of 'live' benthic foraminifera from the Southern California borderland; isotopic equilibrium and vital effect. Geological Society of America, 93rd annual meeting. Abstracts-with-Programs-Geological-Society-of-America. 1980;12(7):p.438 Univ. South Calif., Dep. Geol. Sci., Los Angeles, CA, United-States 93rd annual meeting of the Geological Society of America, Atlanta, GA, Nov. 17-20, 1980 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).

California/paleontology/foraminifera/faunal studies/Quaternary/isotopes/oxygen/O 18/O 16/carbon/C 13/C 12/stable isotopes/Southern California/microfossils/Protista/Cassidulina tortuosa/Cassidulina limbata/Bolivina argentea/Uvigerina curtica/Cassidulina peregrina/Hoeglundina elegans/Quinqueloculina vulgaris/Lenticulina cushmani/Pacific Coast/Western U.S./United States/GEOREF.

3892. Fischer PJ, Kreutzer PA, Morrison L, Rudat J, Ticken E, Webb J, Woods M, Berry R, Ashley R, Henry M et al. Shelf sediment volumes, Southern California continental borderland. Geological Society of America, 93rd annual meeting. Abstracts-with-Programs-Geological-Society-of-America. 1980;12(7):p.426 Calif. State Univ., Dep. Geol. Sci., Northridge, CA, United-States; San Diego State Univ., Dep. Geol. Sci., United-States 93rd annual

meeting of the Geological Society of America, Atlanta, GA, Nov. 17-20, 1980 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).
California/geophysical surveys/seismic surveys/oceanography/continental shelf/sediments/marine sediments/distribution/Southern California/Pacific Coast/Western U.S./United States/continental borderland/Holocene/Quaternary/cores/Point Conception/sediment volume/structural geology/scarps/folds/faults/tectonics/isopach maps/maps/rivers/GEOREF.

3893. Douglas RG. Benthic foraminifera of continental margin basins. Geological Society of America, 93rd annual meeting. Abstracts-with-Programs-Geological-Society-of-America. 1980;12(7) Univ. South. Calif., Dep. Geol. Sci., Los Angeles, CA, United-States 93rd annual meeting of the Geological Society of America, Atlanta, GA, Nov. 17-20, 1980 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).
California/oceanography/continental shelf/foraminifera/occurrence/benthonic taxa/Pacific Coast/Western U.S./United States/microfossils/Protista/basins/sedimentation/oxygen/bioturbation/biogenic structures/sedimentary structures/California Current/East Pacific/Pacific Ocean/GEOREF.

3894. Aud BW. Abnormal pressure zones can be predicted by seismic data. World Oil. 1974;179(2):p.37-39
Dresser Olympic, Houston, TX, United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present).
Oklahoma/geophysical surveys/seismic surveys/California/Texas/Southwestern U.S./United States/Anadarko Basin/Pacific Coast/Western U.S./Santa Barbara Channel/offshore/geopressure/GEOREF.

3895. Keller B, Prothero WAJ, Trehu AM, Stierman DJ. Ray trace model of the Santa Barbara, California, land sea seismic refraction experiment. Geophysical Research Letters. 1983;10(10):p.933-936
Univ. Calif., Santa Barbara, CA, United-States; U. S. Geol. Surv., United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present). Significant lateral P velocity variations extending to at least 15 km depth. Most major faults mapped on the surface have a signature in the deeper crustal structures. A deep low-velocity trough underlies the Montalvo trend in the Santa Barbara Channel. A narrow high-velocity ridge is associated with basement rocks south of the Santa Cruz Island fault. Lateral velocity variations suggest that earthquake hypocenters and fault plane solutions calculated assuming a laterally homogeneous crust-model may be significantly in error.--Modified journal abstract.
California/seismology/crust/oceanography/continental shelf/Pacific Ocean/geophysical surveys/seismic surveys/velocity structure/Santa Barbara County/Pacific Coast/Western U.S./United States/Santa Barbara Channel/Transverse Ranges/raypaths/geophysical profiles/refraction methods/deep seismic sounding/deep seated structures/P waves/body waves/elastic waves/faults/fault planes/earthquakes/continental borderland/discontinuities/low velocity zones/North American Pacific/GEOREF.

3896. Crippen RE, Luyendyk BP, Hajic EJ. High resolution structural mapping in the Santa Barbara Channel. Anonymous. Geological Society of America, Cordilleran Section, 78th annual meeting.

Abstracts-with-Programs-Geological-Society-of-America.
1982;14(4):p.157 Univ. Calif., Dep. Geogr., Santa Barbara, CA,
United-States Geological Society of America, Cordilleran Section,
78th annual meeting, Anaheim, CA, April 19-21, 1982 Analytic;
Serial; Conference publication; Abstract B; Bibliography and Index
of Geology (1969-present).
California/oceanography/continental shelf/Pacific Ocean/geophysical
surveys/surveys/Pacific Coast/Western U.S./United States/North
American Pacific/sonar methods/acoustical
surveys/reflection/seismic surveys/tectonics/Anacapa
Passage/Monterey Formation/folds/Santa Cruz Island Fault/Dume
Fault/anticlines/Santa Rosa Island Fault/high resolution
methods/GEOREF.

3897. Bartling WA, Abbott PL. Upper Cretaceous submarine
fans, San Miguel Island and San Diego, and some relations to
borderland tectonics. Anonymous. Geological Society of America,
Cordilleran Section, 78th annual meeting. Abstracts-with-Programs-
Geological-Society-of-America. 1982;14(4):p.147 Chevron, San
Francisco, CA, United-States Geological Society of America,
Cordilleran Section, 78th annual meeting, Anaheim, CA, April 19-21,
1982 Analytic; Serial; Conference publication; Abstract B;
Bibliography and Index of Geology (1969-present).
California/structural geology/tectonics/faults/systems/block
structures/sedimentary rocks/clastic
rocks/deposition/sedimentation/environment/marine environment/San
Diego County/Santa Barbara County/continental borderland/Pacific
Coast/Western U.S./United States/Upper Cretaceous/Cretaceous/San
Miguel Island/San Diego/submarine
fans/mudstone/Campanian/Senonian/Maestrichtian/parent
materials/GEOREF.

3898. Graham SA. The Monterey; formation tapped for big
pays. AAPG Explorer. 1983;5(1):p.1, 4-5
Stanford Univ., Appl. Earth Sci. and Geol., Stanford, CA, United-
States Analytic; Serial B; Bibliography and Index of Geology
(1969-present). California/economic
geology/petroleum/fractures/distribution/reservoir rocks/Monterey
Formation/Southern California/Pacific Coast/Western U.S./United
States/offshore/Point Conception/Point Arguello/Santa Barbara
Channel/Santa Maria Basin/diatomite/source
rocks/Miocene/Neogene/Tertiary/sedimentary rocks/siliceous
composition/Elk Hills/San Joaquin Basin/Chico Martinez Creek/South
Belridge Field/Lost Hills Field/hydraulic fracturing/popular
geology/GEOREF.

3899. Dunbar RB. The glacial Holocene transition; a detailed
isotopic record of surface and bottom water events from San
Clemente Basin (California). Anonymous. Geological Society of
America, 94th annual meeting. Abstracts-with-Programs-Geological-
Society-of-America. 1981;13(7):p.443 Scripps Inst. Oceanogr., La
Jolla, CA, United-States Geological Society of America, 94th
annual meeting; the Paleontological Society (73rd); the
Mineralogical Society of America (62nd); the Society of Economic
Geologists (61st); Cushman Foundation (32nd); Geochemical Society
(26th); National Association of Geology Teachers (22nd); Geoscience
Information Society (16th), Cincinnati, OH, Nov. 2-5, 1981
Analytic; Serial; Conference publication; Abstract B; Bibliography
and Index of Geology (1969-present).
California/stratigraphy/Pleistocene/Holocene/sediments/marine
sediments/age/paleoclimatology/oxygen/isotopes/O 18/O 16/carbon/C
13/C 12/analysis/stable isotopes/Pacific Coast/Western U.S./United
States/continental margin/San Clemente Basin/Quaternary/upper

Pleistocene/lower

Holocene/boundary/shells/geochemistry/foraminifers/microfossils/g
laciation/bent honic taxa/planktonic taxa/North Atlantic/Atlantic
Ocean/currents/meltwater/Globigerinacea/Rotaliina/foraminifera/Or
bitoidacea/GEO REF.

3900. Abbott PL, Kies RP, Bachmann WR, Natenstedt CJ. A
tectonic slice of Eocene strata, northern part of California
continental borderland. Larue DK, Steel RJ. Cenozoic marine
sedimentation; Pacific margin, U.S.A. Stanford Univ., Stanford, CA,
United-States.; 1983. p. p.151-168.

San Diego State Univ., Dep. Geol. Sci., San Diego, CA, United-
States; Stanford Univ., Stanford, CA, United-States; Nor. Res.
Cent., Norway; Union Oil Co., United-States Soc. Econ. Paleontol.
and Mineral., Pac. Sect., Los Angeles, CA 1983 convention; Society
of Economic Paleontologists and Mineralogists, Pacific Section ;
Cenozoic marine sedimentation; Pacific margin, U.S.A., Sacramento,
CA, May 18, 1983 Analytic; Book; Conference publication B;
Bibliography and Index of Geology (1969-present).

sedimentation/controls/tectonic controls/sedimentary rocks/clastic
rocks/conglomerate/California/sedimentary
petrology/paleogeography/Eocene/Paleogene/Tertiary/Pacific
Coast/Western U.S./United States/continental borderland/San Miguel
Island/Santa Cruz Island/Santa Rosa Island/San Nicolas
Island/composition/rhyolite/rhyolites/volcanic rocks/GEOREF/GEOREF.

3901. Bartling WA, Abbott PL. Upper Cretaceous sedimentation
and tectonics with reference to the Eocene, San Miguel Island, and
San Diego area, California. Larue DK, Steel RJ. Cenozoic marine
sedimentation; Pacific margin, U.S.A. Stanford Univ., Stanford, CA,
United-States. ; 1983. p. p.133-150.

Chevron U.S.A., Concord, CA, United-States; Stanford Univ.,
Stanford, CA, United-States; Nor. Res. Cent., Norway; San Diego
State Univ., Dep. Geol. Sci., United-States Soc. Econ. Paleontol.
and Mineral., Pac. Sect., Los Angeles, CA 1983 convention; Society
of Economic Paleontologists and Mineralogists, Pacific Section ;
Cenozoic marine sedimentation; Pacific margin, U.S.A., Sacramento,
CA, May 18, 1983 Analytic; Book; Conference publication B;
Bibliography and Index of Geology (1969-present).

California/sedimentary petrology/sedimentation/controls/tectonic
controls/paleogeography/Eocene/Mirounga Formation/Upper
Cretaceous/Cretaceous/tectonics/Paleogene/Tertiary/San Miguel
Island/San Diego Region/Pacific Coast/Western U.S./United
States/submarine fans/marine environment/conglomerate/clastic
rocks/sandstone/mudstone/lithofacies/GEOREF.

3902. Isaacs CM. Compositional variation and sequence in the
Miocene Monterey Formation, Santa Barbara coastal area, California.
Larue DK, Steel RJ. Cenozoic marine sedimentation; Pacific margin,
U.S.A. Stanford Univ., Stanford, CA, United-States. ; 1983. p.
p.117-132.

U. S. Geol. Surv., Menlo Park, CA, United-States; Stanford Univ.,
Stanford, CA, United-States; Nor. Res. Cent., Norway Soc. Econ.
Paleontol. and Mineral., Pac. Sect., Los Angeles, CA 1983
convention; Society of Economic Paleontologists and Mineralogists,
Pacific Section ; Cenozoic marine sedimentation; Pacific margin,
U.S.A., Sacramento, CA, May 18, 1983 Analytic; Book; Conference
publication B; Bibliography and Index of Geology (1969-present).

California/sedimentary petrology/sedimentary rocks/clastic
rocks/lithofacies/Monterey
Formation/Miocene/Neogene/Tertiary/Pacific Coast/Western
U.S./United States/Santa Barbara
Basin/composition/lithostratigraphy/phosphate

composition/diatomaceous earth/calcareous composition/siliceous composition/marl/shale/mudstone/hemipelagic environment/upwelling/terrigenous materials/GEOREF.

3903. Belfield WC, Helwig J, La PPR, Dahleen WK. South Ellwood oil field, Santa Barbara Channel, California, a Monterey Formation fractured reservoir. Isaacs CM, Garrison RE. Petroleum generation and occurrence in the Miocene Monterey Formation, California. U. S. Geol. Surv., Menlo Park, CA, United-States. ; 1983. p. p.213-221. ARCO Oil and Gas Co., Geol. Res., Dallas, TX, United-States; U. S. Geol. Surv., Menlo Park, CA, United-States Soc. Econ. Paleontol. and Mineral., Pacific Sect., Los Angeles, CA 1983 convention of the Pacific Section, Society of Economic Paleontologists and Mineralogists ; Petroleum generation and occurrence in the Miocene Monterey Formation, California, Sacramento, CA, May 20-22, 1983 Analytic; Book; Conference publication B; Bibliography and Index of Geology (1969-present). California/economic geology/oil and gas fields/Monterey Formation/Sisquoc Formation/Pacific Coast/Western U.S./United States/South Ellwood Field/offshore/petroleum/Santa Barbara Channel/Miocene/Neogene/Tertiary/fractures/breccia/clastic rocks/chert/chemically precipitated rocks/dolostone/carbonate rocks/porcellanite/structural traps/traps/permeability/geopressure/reservoir rocks/X ray data/opal/silica minerals/framework silicates/silicates/GEOREF.

3904. Anonymous. Geology and reservoir characteristics of the Santa Ynez Unit, Santa Barbara Channel, off California. Isaacs CM, Garrison RE. Petroleum generation and occurrence in the Miocene Monterey Formation, California. U. S. Geol. Surv., Menlo Park, CA, United-States. ; 1983. p. p.111-130. U. S. Geol. Surv., Menlo Park, CA, United-States Soc. Econ. Paleontol. and Mineral., Pacific Sect., Los Angeles, CA 1983 convention of the Pacific Section, Society of Economic Paleontologists and Mineralogists ; Petroleum generation and occurrence in the Miocene Monterey Formation, California, Sacramento, CA, May 20-22, 1983 Analytic; Book; Conference publication Reprinted from U. S. Geological Survey FES 74-20, Proposed plan of development, Santa Ynez Unit, Santa Barbara Channel off California, final environmental statement, Vol. 1, 1974. B; Bibliography and Index of Geology (1969-present). California/economic geology/fuel resources/Monterey Formation/Sisquoc Formation/Rincon Formation/Vaqueros Sandstone/Sespe Formation/Alegria Formation/Gaviota Formation/Matilija Sandstone/Pacific Coast/Western U.S./United States/offshore/Santa Ynez Unit/Santa Barbara Channel/reverse faults/faults/strike slip faults/Santa Ynez Fault/structural traps/traps/reservoir rocks/Tertiary/GEOREF.

3905. McEvoy J, Maxwell JR. Diagenesis of steroidal compounds in sediments from the Southern California Bight (DSDP Leg 63, Site 467). Bjoroey, M., Albrecht, C., Cornford, C., de Groot, K., Eglinton, G., Galimov, E., Leythaeuser, D., Pelet, R., Rullkoetter, J., Speers, G. Advances in organic geochemistry, 1981. Continent. Shelf Inst., Norway. Proceedings-of-the-International-Meeting-on-Organic-Geochemistry. 1983;10:p. 449-464. Univ. Bristol, Org. Geochem. Unit, Bristol, United-Kingdom; Continent. Shelf Inst., Norway; Univ. Louis Pasteur, Inst. Chem., France; Br. Natl. Oil Corp., United-Kingdom; Shell Can., Canada; Univ. Bristol, Org. Geochem. Unit, United-Kingdom; Akad. Nauk SSSR, USSR; Inst. Chem. Kerforsch., Federal-Republic-of-Germany; Inst.

Fr. Pet., France; BP Res. Cent., United-Kingdom Tenth international meeting on organic geochemistry; Advances in organic geochemistry, 1981, Bergen, Sept. 14-18 Analytic; Serial; Conference publication B; Bibliography and Index of Geology (1969-present).

Pacific Ocean/geophysical surveys/heat flow/California/oceanography/continental shelf/sediments/geochemistry/organic materials/marine sediments/diagenesis/materials/Pacific Coast/Western U.S./United States/Leg 63/IPOD/Deep Sea Drilling Project/DSDP Site 467/Southern California Bight/California Continental Borderland/steroids/mass spectra/gas chromatographs/sterols/alcohols/ketones/chlorins/Neogene/Tertiary /Quaternary/GE OREF.

3906. Thornton SE. Mass movement processes in fine grained, hemipelagic basin; Santa Barbara Basin, California Borderland. 1981 AAPG annual convention with divisions; SEPM/EMD/DPA. AAPG-Bulletin. 1981;65(5):p.1001 Univ. South. Calif., Los Angeles, CA, United-States 1981 AAPG annual convention with divisions; SEPM/EMD/DPA, San Francisco, CA, May 31-June 3, 1981 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).

soil mechanics/materials/properties/sediments/marine sediments/deposition/California/oceanography/continental slope/sedimentation/sedimentation rates/mass movements/continental borderland/slumping/Pacific Coast/Western U.S./United States/Santa Barbara Basin/silt/clastic sediments/clay/mudflows/plasticity/liquid limits/materials, properties/Pacific Ocean/GEOREF.

3907. Corbett EJ, Piper KA. Santa Barbara Island, California earthquake, September 4, 1981. Anonymous. American Geophysical Union; 1981 fall meeting. Eos,-Transactions,-American-Geophysical-Union. 1981;62(45):p.958 Calif. Inst. Technol., Seismol. Lab., Pasadena, CA, United-States; Univ. South. Calif., United-States American Geophysical Union; 1981 fall meeting, San Francisco, CA, Dec. 7-11, 1981 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). California/seismology/earthquakes/epicenters/Pacific Coast/Western U.S./United States/Santa Barbara Island earthquake, 1981/aftershocks/focal mechanism/seismicity/GEOREF.

3908. Keller B. Seismic cluster in Santa Barbara Channel, California, 22 Feb 81. Anonymous. American Geophysical Union; 1981 fall meeting. Eos,-Transactions,-American-Geophysical-Union. 1981;62(45):p.957 Univ. Calif., Mar. Sci. Inst. Geol., Santa Barbara, CA, United-States American Geophysical Union; 1981 fall meeting, San Francisco, CA, Dec. 7-11, 1981 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).

California/seismology/earthquakes/faults/Pacific Coast/Western U.S./United States/Santa Barbara Channel earthquakes, 1981/seismicity/velocity/focus/reflection/reverse faults/models/Pitas Point/Montalvo Trend/GEOREF.

3909. Orme AR, Brown AJ. Variable sediment flux and beach management, Ventura County, California. Magoon, O. T., Converse, H. Coastal zone '83. Proceedings-of-the-Symposium-on-Coastal-and-Ocean-Management. 1983;3:p.2328 Univ. Calif., Dep. Geogr., Los Angeles, CA, United-States Third symposium on coastal and ocean management; Coastal zone '83, San Diego, CA, June 1-4, 1983 Analytic; Serial; Conference publication B; Bibliography and Index

of Geology (1969-present).
sediments/environmental analysis/coastal
environment/California/engineering geology/shorelines/Pacific
Coast/Western U.S./United States/Ventura County/changes/human
activity/beaches/behavior/erosion/bars/three dimensional
models/models/observations/Santa Monica Mountains/Santa Clara
River/Santa Barbara Channel/Ventura River/stream
sediments/sedimentary petrology/Ormond Beach/Port Hueneme/GEOREF.

3910. Hundley JB. Containment of a natural hydrocarbon seep
in Santa Barbara Channel. Magoon, O. T., Converse, H. Coastal zone
'83. Proceedings-of-the-Symposium-on-Coastal-and-Ocean-Management.
1983;3:p.1261 ARCO Oil Gas Co., Bakersfield, CA, United-States
Third symposium on coastal and ocean management; Coastal zone '83,
San Diego, CA, June 1-4, 1983 Analytic; Serial; Conference
publication; Abstract B; Bibliography and Index of Geology (1969-
present).
California/engineering geology/marine installations/environmental
geology/pollution/Pacific Coast/Western U.S./United States/Santa
Barbara Channel/Goleta/oil seeps/offshore/structures/GEOREF.

3911. Miller PL. Late Cretaceous coccolith biostratigraphy
of San Miguel Island, California. Micropaleontology.
1983;29(2):p.182-201 Chevron U.S.A., Concord, CA, United-States
Analytic; Serial B; Bibliography and Index of Geology (1969-
present).
California/stratigraphy/Cretaceous/algal flora/coccoliths/Santa
Barbara County/South Point Sandstone/Pozo Formation/Jalama
Formation/Canada Formation/Upper Cretaceous/biostratigraphy/San
Miguel Island/Pacific Coast/Western U.S./United
States/nannofossils/algae/Turonian/Coniacian/Senonian/Santonian/C
ampanian/Maestrichtian/GEOREF.

3912. Corbett EJ. Velocity structure of Southern California
continental borderland as seen from Catalina Island. Long, T. 78th
annual meeting, Seismological Society of America, abstracts. Ga.
Inst. Technol., Sch. Geophys. Sci., Atlanta, GA, United-States.
Earthquake-Notes. 1982;54(1):p.67-68 Calif. Inst. Technol.,
Seismol. Lab., Pasadena, CA, United-States; Ga. Inst. Technol.,
Sch. Geophys. Sci., Atlanta, GA, United-States 78th annual
meeting of the Seismological Society of America, Salt Lake City,
UT, May 2-4, 1983 Analytic; Serial; Conference publication;
Abstract B; Bibliography and Index of Geology (1969-present).
California/seismology/crust/velocity structure/Pacific
Coast/earthquakes/oceanography/continental shelf/Los Angeles
County/Ventura County/Western U.S./United States/Santa Catalina
Island/traveltime/explosions/Mohorovicic discontinuity/P waves/body
waves/elastic waves/Santa Barbara Islands earthquake 1981/San
Nicolas Island/Santa Barbara Islands/Southern
California/continental borderland/GEOREF.

3913. Legg MR. Present day microplate tectonics in the
Southern California continental borderland. Nierenberg, W. A.
Proceedings of the Sixth meeting of the Centros de Investigacion de
Baja California and Scripps Institution of Oceanography.
Transactions-CIBCASIO-(Meeting). 1982;6:p.51-97 Univ. Calif.,
Scripps Inst. Oceanogr., La Jolla, CA, United-States Sixth
meeting of the Centros de Investigacion de Baja California and
Scripps Institution of Oceanography, La Jolla, CA, Dec. 1980
Analytic; Serial; Conference publication B; Bibliography and Index
of Geology (1969-present).
California/tectonophysics/plate tectonics/Mexico/Pacific
Coast/Western U.S./United States/Southern California/Baja

California/continental borderland/GEOREF.

3914. Pietrafesa LJ. Shelf break circulation, fronts, and physical oceanography; East and West Coast perspectives. 1981 AAPG annual convention with divisions; SEPM/EMD/DPA. AAPG-Bulletin. 1981;65(5):p.971
N.C. State Univ., Raleigh, NC, United-States 1981 AAPG annual convention with divisions; SEPM/EMD/DPA, San Francisco, CA, May 31-June 3, 1981 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).
Eastern U.S./oceanography/continental slope/Pacific Coast/continental shelf/Pacific Ocean/ocean circulation/Atlantic Ocean/United States/Western U.S./shelf slope break/North American Atlantic/North Atlantic/North American Pacific/Gulf of Maine/currents/Atlantic Bight/Gulf Stream/California Current/Western Boundary Current/bottom features/upwelling/downwelling/GEOREF.

3915. Nardin TR. Seismic stratigraphy of Santa Monica Basin fill, Southern California Borderland. 1981 AAPG annual convention with divisions; SEPM/EMD/DPA. AAPG-Bulletin. 1981;65(5):p.964
Univ. South Calif., Los Angeles, CA, United-States 1981 AAPG annual convention with divisions; SEPM/EMD/DPA, San Francisco, CA, May 31-June 3, 1981 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).
sedimentation/transport/marine transport/California/geophysical surveys/seismic surveys/stratigraphy/Cenozoic/sediments/marine sediments/deposition/Southern California/Pacific Coast/Western U.S./United States/continental borderland/reflection/Santa Monica Basin/Neogene/Tertiary/Quaternary/Hueneme Canyon/Mugu Canyon/Dume Canyon/Redondo Canyon/submarine canyons/Santa Monica Canyon/tectonic controls/sedimentation rates/GEOREF.

3916. Erickson RC. Subsurface geotechnical hazards in petroleum and geothermal development. Halbouty, M. T. Energy resources of the Pacific region. AAPG-Studies-in-Geology. 1981;12:p.517-535
Chevron USA, San Francisco, CA, United-States Symposium on energy resources of the Pacific region, Honolulu, HI, July 30-Aug. 4, 1978 Analytic; Serial; Conference publication B; Bibliography and Index of Geology (1969-present).
California/economic geology/energy sources/engineering geology/geologic hazards/rock mechanics/case studies/reservoir rocks/Pacific Coast/Western U.S./United States/petroleum/geothermal energy/development/stress/Southern California/San Joaquin Valley/land subsidence/oil and gas fields/faults/pore pressure/earthquakes/Santa Barbara Channel/continental margin/fluid injection/induced earthquakes/GEOREF.

3917. Wallis WS. Oil and gas exploration, offshore Southern California. Halbouty, M. T. Energy resources of the Pacific region. AAPG-Studies-in-Geology. 1981;12:p.383-389
Ogle Pet., Santa Barbara, CA, United-States Symposium on energy resources of the Pacific region, Honolulu, HI, July 30-Aug. 4, 1978 Analytic; Serial; Conference publication B; Bibliography and Index of Geology (1969-present).
California/economic geology/fuel resources/well logging/interpretation/lithostratigraphy/Pacific Coast/Western U.S./United States/Southern California/petroleum/natural gas/continental margin/San Diego Trough/Los Angeles Basin/Outer Banks Basin/Ventura Basin/Santa Barbara Channel/sedimentary basins/Tertiary/deformation/faults/anticlines/folds/possibilities/traps/offshore/GEOREF.

3918. Ogle BA. Oil and gas exploration offshore Central and Northern California. Halbouty, M. T. Energy resources of the Pacific region. AAPG-Studies-in-Geology. 1981;12:p.375
Ogle Pet., Santa Barbara, CA, United-States Symposium on energy resources of the Pacific region, Honolulu, HI, July 30-Aug. 4, 1978 Analytic; Serial; Conference publication B; Bibliography and Index of Geology (1969-present). California/economic geology/fuel resources/well logging/interpretation/lithostratigraphy/Monterey Sandstone/Pacific Coast/Western U.S./United States/Northern California/Central California/natural gas/petroleum/continental margin/exploration/Tertiary/sedimentary basins/Santa Maria Basin/Salinas Basin/Bodega Santa Cruz Basin/Point Arena Basin/Eel River Basin/sandstone/clastic rocks/Santa Barbara Channel/offshore/anticlines/folds/faults/possibilities/traps/GEOR EF.

3919. Bennett V, DePaolo DJ. Tectonic implications of Nd isotopes in the Pelona, Rand, Orocopia and Catalina schists, Southern California. Braunstein, J., Thomson, A. F. 95th annual meeting, The Geological Society of America. Abstracts-with-Programs-Geological-Society-of-America. 1982;14(7):p.442 Univ. Calif., Dep. Earth and Space Sci., Los Angeles, CA, United-States 95th annual meeting, The Geological Society of America, New Orleans, LA, Oct. 18-21, 1982 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). California/structural geology/tectonics/isotopes/neodymium/Nd 144/Nd 143/Pelona Schist/Rand Schist/Orocopia Schist/Catalina Schist/Pacific Coast/Western U.S./United States/Southern California/geochemistry/Precambrian/Santa Catalina Island/San Gabriel Mountains/San Andreas Fault/Garlock Fault/Chocolate Mountains Schist/Mesozoic/Cenozoic/displacements/metasedimentary rocks/metabasalt/metaigneous rocks/partial melting/GEOREF.

3920. Almogi LA, Douglas RG. Planktic foraminiferal biofacies in the Southern California borderland. A. F. 95th annual meeting, The Geological Society of America. Abstracts-with-Programs-Geological-Society-of-America. Braunstein JT. ; 1982. 14(7). p. p.431. Univ. South. Calif., Dep. Geol. Sci., Los Angeles, CA, United-States 95th annual meeting, The Geological Society of America, New Orleans, LA, Oct. 18-21, 1982 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). 0016-7592. California/paleontology/foraminifera/Globigerinacea/Holocene/Pacific Coast/Western U.S./United States/Southern California/biofacies/microfossils/Protista/Rotaliina/Quaternary/N eogloboquadrin a/thanatocenoses/sediments/shells/basins/bioturbation/biogenic structures/sedimentary structures/planktonic taxa/continental borderland/climate/sedimentation/oxygen/GEOREF.

3921. Bunnell D. The amazing caves of Santa Cruz Island. NSS News. 1983;41(2):p.86-87 Analytic; Serial B; Bibliography and Index of Geology (1969-present). California/geomorphology/solution features/caves/Pacific Coast/Western U.S./United States/Santa Cruz Island/sea caves/Painted Cave/GEOREF.

3922. Warford AL, Kosiur DR, Doose PR. Methane production in

Santa Barbara Basin sediments. Geomicrobiology Journal. 1979;1(2):p.117
Univ. Calif., Los Angeles, CA, United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present).
California/geochemistry/sediments/methane/organic materials/hydrocarbons/diagenesis/Pacific Coast/Western U.S./United States/ecosystems/GEOREF.

3923. Olson RE, Olsen DR, Rullman JD, Vasser FGI. Hondo Field development and operations. Anonymous. Proceedings-Offshore-Technology-Conference. 15 (Vol. 2). 1983:p.253
Exxon Co., United-States Fifteenth annual offshore technology conference, Houston, TX, May 2-5, 1983 Analytic; Serial; Conference publication OTC 4542. B; Bibliography and Index of Geology (1969-present).
California/economic geology/oil and gas fields/Hondo Field/development/Santa Ynez Unit/Santa Barbara Channel/Pacific Coast/Western U.S./United States/petroleum/production/GEOREF.

3924. Vyas YK, Angemeer J, Murff JD, Neuberger CA, McNeilan T, Klejbuk LWJ. Deepwater geotechnical site investigations; Santa Ynez Unit, offshore California. Anonymous. Proceedings-Offshore-Technology-Conference. 1983;15 (Vol. 1):p.217 Exxon Prod. Res. Co., United-States Fifteenth annual offshore technology conference, Houston, TX, May 2-5, 1983 Analytic; Serial; Conference publication OTC 4467. B; Bibliography and Index of Geology (1969-present).
California/engineering geology/marine installations/soil mechanics/site exploration/marine platforms/Santa Ynez Unit/offshore/Pacific Coast/Western U.S./United States/deep water environment/Santa Barbara Basin/foundations/aseismic design/Pacific Ocean/North American Pacific/GEOREF.

3925. Guthrie LD, Rowley PR. Containment of naturally occurring subsea hydrocarbon emissions; a project review. Anonymous.
Proceedings-Offshore-Technology-Conference. 15 (Vol. 1). 1983:p.33 ARCO Oil & Gas Co., United-States Fifteenth annual offshore technology conference, Houston, TX, May 2-5, 1983 Analytic; Serial; Conference publication OTC 4446. B; Bibliography and Index of Geology (1969-present).
California/engineering geology/petroleum engineering/oil seeps/fuel resources/gas seeps/Pacific Coast/Western U.S./United States/Santa Barbara Channel/production/Santa Barbara Basin/Coal Oil Point/offshore/natural gas/petroleum/pollution/controls/GEOREF.

3926. Muhs DR. A soil chronosequence on Quaternary marine terraces, San Clemente Island, California. Simonson, R. W., Yaalon, D. H. Aridic soils. Geoderma. 1982;28(3-4):p.257-283
Univ. Wis., Dep. Geogr., Madison, WI, United-States International conference on Aridic soils, Kiryat Anavim, March 29-April 4, 1981 Analytic; Serial; Conference publication B; Bibliography and Index of Geology (1969-present).
California/soils/properties/surveys/Los Angeles County/Pacific Coast/Western U.S./United States/San Clemente Island/marine terraces/arid environment/Quaternary/parent materials/time factor/Alfisols/Vertisols/Mollisols/relative age/pedogenesis/morphology/geochemistry/X ray data/soil profiles/GEOREF.

3927. Graham SA, Bachman SB. Structural controls on submarine fan geometry and internal architecture; upper La Jolla fan system, offshore Southern California. AAPG Bulletin. 1983;67(1):p.83-96

Stanford Univ., Dep. Appl. Earth Sci., Stanford, CA, United-States; Cornell Univ., United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present).

High-resolution seismic data. Three bathymetrically prominent conduits supply sediment. Seismic profiling data confirm the previously reported erosional character of the channel and constructional nature of flanking levees. Newport Channel is a single well-defined channel with flanking constructional levees where it lies in a structurally controlled trough. The position of Loma sea valley is tightly controlled by the structure of the steep flank of Coronado Bank. The La Jolla Fan comprises a complex interleaved set of sediment wedges derived from multiple sources and woven around the wrench tectonic fabric of uplifts and basins of the Southern California borderland. Expansion from the simple radial growth pattern of fan sedimentation to a complex fan system.--Modified journal abstract. California/oceanography/ocean floors/Pacific Ocean/geophysical surveys/seismic surveys/sedimentation/controls/tectonic controls/Pacific Coast/Western U.S./United States/Southern California/offshore/submarine fans/channels/bathymetry/bottom features/reflection methods/geophysical profiles/sea valleys/geometry/deep sea sedimentation/wrench faults/faults/plate tectonics/La Jolla Fan/North American Pacific/GEOREF.

3928. Gray LD. Geology of Mesozoic basement rocks from well cores in Santa Maria Basin, Santa Barbara County, California. 1981 AAPG annual convention with divisions; SEPM/EMD/DPA. AAPG-Bulletin. 1981;65(5):p.932

Union Oil Co. Calif., Ventura, CA, United-States 1981 AAPG annual convention with divisions; SEPM/EMD/DPA, San Francisco, CA, May 31-June 3, 1981 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). California/tectonophysics/plate tectonics/Santa Barbara County/Pacific Coast/Western U.S./United States/Santa Maria Basin/Mesozoic/ophiolite/ultramafics/basalts/volcanic rocks/greenstone/schists/gabbros/peridotite/peridotites/Franciscan Formation/sandstone/clastic rocks/mudstone/shale/basement/plate convergence/collision/Farallon Pacific spreading center/transform faults/faults/strike slip faults/subduction/melange/GEOREF.

3929. Doose PR, Kaplan IR. Biogenetic control of gases in marine sediments of Santa Barbara Basin, California. 1981 AAPG annual convention with divisions; SEPM/EMD/DPA. AAPG-Bulletin. 1981;65(5):p.919-920

Univ. Calif. Los Angeles, Los Angeles, CA, United-States 1981 AAPG annual convention with divisions; SEPM/EMD/DPA, San Francisco, CA, May 31-June 3, 1981 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). Pacific Ocean/geochemistry/organic materials/sediments/methane/carbon/isotopes/C 13/C 12/California/Pacific Coast/Western U.S./United States/Santa Barbara Basin/marine sediments/hydrocarbons/gases/diffusion/genesis/bacteria/stable isotopes/biogenic effects/North American Pacific/GEOREF.

3930. Kies RP, Abbott PL, Filewicz M. Sedimentology of late Paleocene through middle Eocene Poway clast bearing marine depositional system, southern California borderland. Anonymous. AAPG-SEG-SEPM Pacific Section meeting. AAPG-Bulletin. 1982;66(10):p.1692-1693

San Diego State Univ., San Diego, CA, United-States; Union Oil Co., United-States AAPG-SEG-SEPM Pacific Section meeting, Anaheim, CA, April 14-17, 1982 Analytic; Serial; Conference publication;

Abstract B; Bibliography and Index of Geology (1969-present).
California/stratigraphy/Paleogene/sedimentation/processes/marine
sedimentation/sedimentary rocks/clastic rocks/lithofacies/Santa
Barbara County/San Diego County/Poway Conglomerate/Mount Soledad
Formation/Pacific Coast/Western U.S./United States/Southern
California/continental borderland/Santa Cruz Island/San Miguel
Island/upper Paleocene/Paleocene/Tertiary/lower
Eocene/Eocene/middle Eocene/conglomerate/GEOREF.

3931. Bartling WA, Abbott PL. Sedimentology of Upper
Cretaceous submarine fan strata, San Miguel Island, California, and
comparison to selected mainland localities. Anonymous. AAPG-SEG-
SEPM Pacific Section meeting. AAPG-Bulletin. 1982;66(10):p.1684
Chevron U.S.A., San Francisco, CA, United-States; San Diego State
Univ., United-States AAPG-SEG-SEPM Pacific Section meeting,
Anaheim, CA, April 14-17, 1982 Analytic; Serial; Conference
publication; Abstract B; Bibliography and Index of Geology (1969-
present).
California/sedimentary petrology/sedimentation/processes/deep sea
sedimentation/sedimentary rocks/environmental analysis/deep sea
environment/Santa Barbara County/Pacific Coast/Western U.S./United
States/San Miguel Island/Upper Cretaceous/Cretaceous/clastic
rocks/GEOREF.

3932. Kies RP. Paleogeography of the Mt. Soledad Formation
west of the Rose Canyon Fault. Abbott PL. Geologic studies in San
Diego. San Diego State Univ., Dep. Geol. Sci., San Diego, CA,
United-States. ; 1982. p. p.1-11. San Diego State Univ., Dep.
Geol. Sci., San Diego, CA, United-States; San Diego State Univ.,
Dep. Geol. Sci., San Diego, CA, United-States San Diego Assoc.
Geol., San Diego, CA Analytic; Book B; Bibliography and Index of
Geology (1969-present).
California/stratigraphy/Paleogene/paleogeography/foraminifers/bio
stratigraphy/San Diego County/Mount Soledad Formation/Rose Canyon
Fault/San Diego/Southern California Borderland/estuarine
environment/deltaic environment/fluvial environment/marine
environment/slope environment/lower
Eocene/Eocene/Tertiary/upper
Paleozoic/Paleozoic/lithofacies/microfossils/Pacific Coast/Western
U.S./United States/Cibicidoides coalingensis/Eponides
mexicana/Lenticulina/Nodosariidae/Nodosariacea/Rotaliina/foramini
fera/nodosariid s/orbitoidids/rotaliinids/GEOREF.

3933. Barron JA, Keller G. Integration of diatom and
planktonic foraminiferal data for biostratigraphic and
paleoclimatic interpretation of middle and upper Miocene Monterey
Shale. Anonymous. Association round table; 1981 AAPG annual
convention with divisions; SEPM/EMD/DPA; technical program
summaries and abstracts. AAPG-Bulletin. 1981;65(5):p.895-896
U. S. Geol. Surv., Menlo Park, CA, United-States 1981 AAPG annual
convention with divisions; SEPM/EMD/DPA, San Francisco, CA, May 31-
June 3, 1981 Analytic; Serial; Conference publication; Abstract
B; Bibliography and Index of Geology (1969-present).
California/stratigraphy/Miocene/foraminifers/biostratigraphy/pale
oclimatology/a lgal flora/diatom flora/Monterey Formation/Pacific
Coast/Western U.S./United States/Neogene/Tertiary/middle
Miocene/upper Miocene/microfossils/DSDP Site 173/Deep Sea Drilling
Project/DSDP Site 470/IPOD/Newport Bay/California Current/paleo
oceanography/planktonic taxa/assemblages/Luisian/Mohnian/GEOREF.

3934. Shiller AM. Iron and manganese particulate
geochemistry in the Santa Barbara Basin, California. Anonymous.
American Geophysical Union; 1981 fall meeting. Eos,-Transactions,-

American-Geophysical-Union. 1981;62(45):p.906 Scripps Inst. Oceanogr., La Jolla, CA, United-States American Geophysical Union; 1981 fall meeting, San Francisco, CA, Dec. 7-11, 1981 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). California/geochemistry/sea water/Pacific Ocean/trace elements/iron/manganese/Pacific Coast/Western U.S./United States/Santa Barbara Basin/North American Pacific/particulate materials/geochemical profiles/GEOREF.

3935. Berelson WM, Hammond DE, Fuller C. Radon 222 profiles in California borderland basins; models of basin water mixing and the flux of radon from basin sediments. Anonymous. American Geophysical Union; 1981 fall meeting. Eos,-Transactions,-American-Geophysical-Union. 1981;62(45):p.894 Univ. South. Calif., Dep. Geol. Sci., Los Angeles, CA, United-States American Geophysical Union; 1981 fall meeting, San Francisco, CA, Dec. 7-11, 1981 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). California/geochemistry/isotopes/Pacific Ocean/radon/Rn 222/radium/Ra 226/sediments/marine sediments/sea water/processes/diffusion/Pacific Coast/Western U.S./United States/Santa Barbara Basin/Channel Islands/San Nicolas Basin/continental borderland/North American Pacific/noble gases/radioactive isotopes/mixing/geochemical profiles/sediment water interface/GEOREF.

3936. LaForge R, Lee WHK. Seismicity and tectonics of the Ortigalita Fault and Southeast Diablo Range, California. Hart, E. W., Hirschfeld, S. E., Schulz, S. S. Proceedings, conference on earthquake hazards in the eastern San Francisco Bay area. Special-Publication-California-Division-of-Mines-and-Geology. 1982;62(p.93-101) Bur. Reclam., Denver, CO, United-States; U. S. Geol. Surv., Menlo Park, CA, United-States Conference on earthquake hazards in the eastern San Francisco Bay area, Hayward, CA, Mar. 24-27, 1982 Analytic; Serial; Conference publication B; Bibliography and Index of Geology (1969-present). Seismicity recorded in the San Luis Dam area by the U.S. Geological Survey Central California Microearthquake Network has been relocated for the purpose of better understanding seismic hazards to San Luis Dam. A parallelogram-shaped area roughly 75 by 50 kilometers was selected which encompasses the Ortigalita Fault and extends about 20 kilometers into the San Joaquin Valley. Earthquakes recorded by a temporary network operated around the San Luis Reservoir by the U.S. Geological Survey in 1974 and an ML 3.7 shock recorded by the current California Department of Water Resources local network in 1981 comprise the set of master events with which seismicity from 1969 through 1980 was relocated. With the limitation of events in the lower part of the study area to magnitude 2.0 or greater, the data set numbers about 250 earthquakes. Epicenters generally moved to the south and west after relocation. The Ortigalita Fault is sub-parallel to the Calaveras Fault and lies about 35 kilometers to the east of it. It consists of at least four en echelon segments that are separated by grabens or pull-apart basins. Seismic activity generally increases from north to south. Clustering occurs at specific locations on the fault. Focal mechanism analysis shows strike-slip faulting to be predominant along the fault and to the east and west. A few small earthquakes in the San Luis Basin (beneath the reservoir) indicate normal and vertical faulting. The level of seismicity in the study area is low; the largest earthquake associated with the Ortigalita Fault sine 1969 is the ML 3.7 event of 1981.--Journal abstract.

California/engineering
geology/earthquakes/seismology/seismicity/networks/Pacific
Coast/Western U.S./United States/Diablo Range/Ortogonalita
Fault/neotectonics/San Luis Dam/San Joaquin
Valley/magnitude/epicenters/Calaveras Fault/focal
mechanism/faults/grabens/San Francisco Bay region/GEOREF.

3937. Mattson JS, Mark HBJ, Kolpack RL, Schutt CE. A rapid,
nondestructive technique for infrared identification of crude oils
by internal reflection spectrometry; qualitative differentiation of
crude oils originating from natural seepages and platform 'A' in
the Santa Barbara Channel. Analytical Chemistry (Washington, DC).
1970;42(2):p.234-238

Univ. Mich., Ann Arbor, MI, United-States; Univ. South. Calif.,
United-States Analytic; Serial B; Bibliography and Index of
Geology (1969-present).

California/geochemistry/water/spectroscopy/methods/infrared
spectroscopy/Pacific Coast/Western U.S./United States/Santa Barbara
Channel/petroleum/natural seepage/nondestructive methods/internal
reflection spectrometry/qualitative analysis/oil seeps/GEOREF.

3938. Hughes GW. Solomon Islands. Anonymous. Stratigraphic
correlation between sedimentary basins of the ESCAP region; Volume
VIII, ESCAP atlas of stratigraphy; III, Australia, Bangladesh,
Fiji, India, Indonesia, Nepal, Solomon Islands, Tajikistan. U.-N.,-
Econ.-Comm.-Asia-Far-East,-Miner.-Resour.-Dev.-Ser.
1982;48:p.115-130

Minist. Nat. Resour., Geol. Div., Honiara, Solomon-Islands
Analytic; Serial; Map B; Bibliography and Index of Geology (1969-
present).

Solomon
Islands/stratigraphy/Cretaceous/Cenozoic/paleogeography/sedimentary
rocks/lithostratigraphy/correlation/corals/biostratigraphy/Pleistocene/
foraminifera/biogeography/Melanesia/Quaternary/Santa Cruz
Basin/Rennell Basin/Solomon Basin/Malaita Uki Basin/East Choiseul
Basin/Central Solomons Basin/Phanerozoic/sedimentary
basins/microfossils/Miocene/Neogene/Tertiary/planktonic
taxa/benthonic taxa/zoning/Ongtong Java Plateau/Deep Sea Drilling
Project/geologic maps/maps/GEOREF.

3939. Zbyszewski G. Geologie des Iles Atlantiques. Translated
title: Geology of the Atlantic Ocean Islands. Portugal;
introduction a la geologie generale; excursions: 016 A-045 A.
Portugal; introduction to general geology; excursions: 016 A-045 A.
G14. ; 1980. p. p. 99-114.

Int. Geol. Congr., Paris Analytic; Book B; Bibliography and Index
of Geology (1969-present).

Atlantic Ocean Islands/areal
geology/regional/guidebook/petrology/tectonics/sedimentary
petrology/Santa Maria Islands/San Miguel Island/Azores/Terceira
Island/Madeira/GEOREF.

3940. Peltzer ET, Bada JL. Low molecular weight alpha
hydroxy carboxylic and dicarboxylic acids in reducing marine
sediments. Geochimica et Cosmochimica Acta. 1981;45(10):p.1847
Univ. Calif., Scripps Inst. Oceanogr., La Jolla, CA 92093, United-
States Analytic; Serial B; Bibliography and Index of Geology
(1969-present). Caribbean Sea/geochemistry/organic
materials/Pacific

Ocean/alteration/diagenesis/materials/sediments/marine
sediments/processes/reduction/organic acids/early
diagenesis/microorganisms/Santa Barbara Basin/California/Pacific
Coast/Western U.S./United States/North American Pacific/North

American Atlantic/North Atlantic/Atlantic Ocean/carboxylic acid/dicarboxylic acid/Cariaco Basin/GEOREF.

3941. Ng A, Patterson CC. Changes of lead and barium with time in California off shore basin sediments. *Geochimica et Cosmochimica Acta*. 1982;46(11):p.2307
Calif. Inst. Technol., Div. Geol. and Planet. Sci., Pasadena, CA, United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present). California/environmental geology/pollution/Pacific Ocean/geochemistry/lead/sedimentation/deposition/sedimentary basins/sediments/marine sediments/abundance/barium/Pacific Coast/Western U.S./United States/North American Pacific/Santa Barbara Basin/Santa Monica Basin/San Pedro Basin/industrial waste/pollutants/time factor/changes/marine transport/sedimentation rates/clay minerals/sheet silicates/silicates/GEOREF.

3942. Kamerling M, Luyendyk BP. Paleomagnetism and tectonics of the islands of the southern California continental borderland. Anonymous. American Geophysical Union; 1981 fall meeting. *Eos, - Transactions, -American-Geophysical-Union*. 1981;62(45):p.855
Univ. Calif., Dep. Geol. Sci., Santa Barbara, CA, United-States American Geophysical Union; 1981 fall meeting, San Francisco, CA, Dec. 7-11, 1981 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). California/tectonophysics/plate tectonics/paleomagnetism/Miocene/Santa Barbara County/Pacific Coast/Western U.S./United States/Southern California/continental borderland/plate rotation/volcanic rocks/Neogene/Tertiary/middle Miocene/strike slip faults/faults/Channel Islands/GEOREF.

3943. Berelson WM, Hammond DE, Fuller C. Radon 222 as a tracer for mixing in the water column and benthic exchange in the Southern California Borderland. *Earth and Planetary Science Letters*. 1982;61(1):p.41-54
Univ. South. Calif., Dep. Geol. Sci., Los Angeles, CA, United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present). California/geochemistry/isotopes/Pacific Ocean/sediments/marine sediments/sea water/radon/Rn 222/radium/Ra 226/Pacific Coast/Western U.S./United States/Southern California/Southern California Borderland/continental borderland/Santa Barbara Basin/San Nicolas Basin/North American Pacific/radioactive tracers/radioactive isotopes/noble gases/sediment water interface/diffusion/geochemical profiles/mixing/GEOREF.

3944. Otvos EG. Barrier island and lagoon evolution, Northeast Gulf of Mexico; coastal elements and interpretation problems. Wright, T. O., Medlin, J. H. Abstracts with programs, 1982, Northeastern and Southeastern combined section meetings. *Abstracts-with-Programs-Geological-Society-of-America*. 1982;14(1-2):p.71
Gulf Coast Res. Lab., Geol. Sect., Ocean Springs, MS, United-States 17th annual meeting of the Northeastern Section and 31st annual meeting of the Southeastern Section, Washington, DC, Mar. 25-27, 1982 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). Gulf Coastal Plain/geomorphology/shore features/barrier islands/Gulf of Mexico/North American Atlantic/North Atlantic/Atlantic Ocean/Northeast Gulf of Mexico/Dernieres Timbabilir Island/Saint Vincent Island/lagoons/evolution/cores/Alabama/Southern U.S./United States/East Dauphin Island/Florida/Southeastern U.S./Eastern U.S./Dog Island/Santa Rosa

Island/deposits/Holocene/Quaternary/Louisiana/erosion/Chandeleur islands/Saint George Island/North America/GEOREF.

3945. Molina CA. Radiolarians in the Gulf of California; Deep Sea Drilling Project Leg 64. Curray, J. R., Blakeslee, J., Platt, L. W., Stout, L. N., Moore, D. G., Aguayo, J. E., Aubry, M., Gerhard, E., Fornari, D. J., Gieskes, J. M., Guerrero-Garcia, J., Kastner, M., Kelts, K. R., Lyle, M., Matoba, Y., Molina-Cruz, A., Niemitz, J., Rueda-Gaxiola, J., Saunders, A. D., Schrader, H., Simoneit, B. R. T., Vacquier, V. Initial reports of the Deep Sea Drilling Project covering Leg 64 of the cruises of the drilling vessel Glomar Challenger, Mazatlan, Mexico to Long Beach, California, December, 1978-January, 1979; Part 2. Initial-Reports-of-the-Deep-Sea-Drilling-Project. 1982;64(2):p.983-1003 Cent. Invest. Cien. Educ. Super., Ensenada, Baja California, Mexico Analytic; Serial B; Bibliography and Index of Geology (1969-present). Gulf of California/stratigraphy/Pliocene/paleoclimatology/Cenozoic/radiolarians/biostratigraphy/Pleistocene/Deep Sea Drilling Project/North American Pacific/Pacific Ocean/Leg 64/IPOD/DSDP Site 474/DSDP Site 475/DSDP Site 476/microfossils/Quaternary/Neogene/Tertiary/Ommatartus avitus/Reticulofenestra pseudoumbilica/California Current/isotope stratigraphy/magnetostratigraphy/Ummatartus penultimus/Anoprunum angelinum/GEOREF.

3946. Ingle JCJ. Cenozoic depositional history of the northern continental borderland of Southern California and the origin of associated Miocene diatomites. Isaacs, C. M. Guide to the Monterey Formation in the California coastal area, Ventura to San Luis Obispo. Guidebook-Pacific-Section,-American-Association-of-Petroleum-Geologists. 1981;52:p.1-8 Stanford Univ., Dep. Geol., Stanford, CA, United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present). California/stratigraphy/Cenozoic/sedimentary rocks/clastic rocks/diatomaceous earth/Monterey Formation/Pacific Coast/Western U.S./United States/Southern California/continental borderland/Tertiary/guidebook/Santa Ynez Mountains/Ventura Basin/Santa Barbara Embayment/GEOREF.

3947. Bush DM, Hall PRJ. Computer assisted prospect generation in a frontier basin. Anonymous. AAPG annual convention with divisions SEPM/EMD/DPA. AAPG-Bulletin. 1982;66(5):p.555 Pennzoil Explor. Prod. Co., Houston, TX, United-States; Nortex Gas and Oil Co., United-States AAPG annual convention with divisions SEPM/EMD/DPA, Calgary, AB, June 27-30, 1982 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). automatic data processing/economic geology/petroleum/exploration/techniques/automatic cartography/Santa Barbara channel basin/Southern California/California/Pacific Coast/Western U.S./United States/energy sources/GEOREF.

3948. Level HR. Field guide to Anacapa Island. ; 1982. 8 p. Ventura Coll., Earth Sci. Dep., Ventura, CA, United-States Natl. Assoc. Geol. Teach., Ventura, CA Monographic; Book Guidebook to Natl. Assoc. Geol. Teach., Far West. Sect. Spring Conf. on March 26-28, 1982 in Ventura, CA. B; Bibliography and Index of Geology (1969-present). California/areal geology/guidebook/Pacific Coast/Western U.S./United States/Anacapa

Island/petrology/stratigraphy/tectonics/GEOREF.

3949. Douglas RG. Paleocology of continental margin basins; a modern case history from the borderland of Southern California. Douglas RG, Colburn IP, Gorsline DS. Depositional systems of active continental margin basins; short course notes. ; 1981. p. p.121-156. Univ. South. Calif., Los Angeles, CA, United-States Soc. Econ. Paleontol. and Mineral., Pac. Sect., Los Angeles, CA Analytic; Book B; Bibliography and Index of Geology (1969-present). ecology/foraminifera/marine environment/Holocene/paleocology/California/oceanography/sedimentation/Environment/continental borderland/Pacific Coast/Western U.S./United States/Southern California/continental margin/indicators/Quaternary/Pacific Ocean/assemblages/microfossils/Protista/benthonic taxa/climate/marginal basins/GEOREF.

3950. Hartman B, Hammond DE. The use of carbon and sulfur isotopes as correlation parameters for the source identification of beach tar in the southern California borderland. Geochim. Cosmochim. Acta. 1981;45(3):p.309-319 Univ. South. Calif., Dep. Geol. Sci., Los Angeles, CA 90007, United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present). California/environmental geology/pollution/organic materials/bitumens/identification/sulfur/isotopes/S 34/S 32/carbon/C 13/C 12/Los Angeles County/stable isotopes/major elements/beaches/provenance/seepage/Pacific Coast/Western U.S./United States/Southern California/tracers/hydrocarbons/Goudron/Coal Oil Point/Santa Monica Bay/GEOREF.

3951. Otvos EG. Santa Rosa Island, Florida Panhandle; origins of a composite barrier island. Southeastern Geology. 1982;23(1):p.15-24 Gulf Coast. Res. Lab., Geol. Sect., Ocean Springs, MS, United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present). Florida/geomorphology/shore features/barrier islands/Santa Rosa County/Okaloosa County/Escambia County/Citronelle Formation/Prairie Formation/Biloxi Formation/Gulfport Formation/Southeastern U.S./Eastern U.S./United States/Panhandle/Gulf Coastal Plain/North America/Santa Rosa Island/changes of level/Pleistocene/Quaternary/Holocene/Santa Rosa Sound/landform evolution/sand/clastic sediments/genesis/GEOREF.

3952. Crawford D. U. S. offshore; U. S. geology tells potential tale. Offshore. 1982;42(2):p.47-49, 51-52, 55 Analytic; Serial B; Bibliography and Index of Geology (1969-present). survey organizations/current research/U. S. Geological Survey/Atlantic Coastal Plain/economic geology/fuel resources/Gulf Coastal Plain/California/Alaska/petroleum/natural gas/continental shelf/outer shelf/Atlantic Ocean/United States/North America/offshore/exploration/Gulf of Mexico/North American Atlantic/North Atlantic/Pacific Coast/Western U.S./Pacific Ocean/Santa Barbara Channel/Southern California Borderland/Gulf of Alaska/North American Pacific/resources/reserves/GEOREF.

3953. Christman SA. Offshore fracture gradients. JPT. Journal of Petroleum Technology. 1973;25(8):p.910-914 Exxon Co. U.S.A., West. Div., United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present). California/engineering geology/petroleum engineering/fracturing/Pacific Coast/Western U.S./United

States/Santa Barbara Channel/offshore/geothermal
gradient/equations/GEOREF.

3954. Isaacs CM. Porosity reduction during diagenesis of the Monterey Formation, Santa Barbara coastal area, California. Garrison RE, Douglas RG. The Monterey Formation and related siliceous rocks of California. Univ. Calif., Santa Cruz, CA, United-States. IGCP Project No. 115/187. ; 1981. p. p. 257-271. . U. S. Geol. Surv., Menlo Park, CA, United-States; Univ. Calif., Santa Cruz, CA, United-States; Univ. South. Calif., Los Angeles, CA, United-States Soc. Econ. Paleontol. Mineral., Pac. Sect., Los Angeles, CA SEPM research symposium dedicated to examine the paleontology, sedimentology, depositional environments and diagenesis of the Monterey Formation, San Francisco, CA, May 29, 1981 Analytic; Book; Conference publication B; Bibliography and Index of Geology (1969-present).
California/sedimentary petrology/sedimentary rocks/clastic rocks/diatomaceous earth/diagenesis/processes/deposition/Monterey Formation/Sisquoc Formation/Pacific Coast/Western U.S./United States/Santa Barbara Basin/porosity/GEOREF.

3955. Donegan D, Schrader H. Modern analogues of the Miocene diatomaceous Monterey Shale of California; evidence from sedimentologic and micropaleontologic study. Garrison RE, Douglas RG. The Monterey Formation and related siliceous rocks of California. Univ. Calif., Santa Cruz, CA, United-States. IGCP Project No. 115/187. ; 1981. p. p.149-157. Oreg. State Univ., Sch. Oceanogr., Corvallis, OR, United-States; Univ. Calif., Santa Cruz, CA, United-States; Univ. South. Calif., Los Angeles, CA, United-States Soc. Econ. Paleontol. Mineral., Pac. Sect., Los Angeles, CA SEPM research symposium dedicated to examine the paleontology, sedimentology, depositional environments and diagenesis of the Monterey Formation, San Francisco, CA, May 29, 1981 Analytic; Book; Conference publication B; Bibliography and Index of Geology (1969-present).
California/oceanography/sedimentary rocks/clastic rocks/diatomaceous earth/Monterey Formation/Pacific Coast/Western U.S./United States/sedimentary petrology/sedimentation/Miocene/Neogene/Tertiary/sediments/Lompoc /micropaleontology/nannofossils/algae/Santa Barbara Basin/GEOREF.

3956. Beyer LA. Offshore southern California. Oliver, H. W. Interpretation of the gravity map of California and its continental margin. U. S. Geol. Surv., Menlo Park, CA, United-States. Bulletin-California, -Division-of-Mines-and-Geology. 1980(205):p.8-15 U. S. Geol. Surv., Menlo Park, CA, United-States; U. S. Geol. Surv., Menlo Park, CA, United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present).
California/oceanography/geophysical surveys/tectonophysics/crust/Pacific Coast/Western U.S./United States/gravity surveys/Southern California/continental shelf/Santa Cruz Basin/observations/Bouguer anomalies/gravity anomalies/free air anomalies/mantle/Santa Barbara Channel/Neogene/Tertiary/GEOREF.

3957. Arends RG, Damassa SP. Diatoms, silicoflagellates and palynomorphs from Holocene sediments of basins in the southern California continental borderland. Field, Michael E., Bouma, Arnold H., Colburn, Ivan P., Douglas, Robert G., Ingle, James C. Proceedings of the Quaternary depositional environments of the Pacific Coast. Pacific-Coast-Paleogeography-Symposium. 1980(4):p.313-334 Union Sci. Technol. Div., Brea, CA, United-States Quaternary depositional environments of the Pacific Coast, Bakersfield, CA, April 9, 1980 Analytic; Serial; Conference

publication B; Bibliography and Index of Geology (1969-present).
California/environmental
geology/ecology/palynomorphs/distribution/algae/diatoms/Holocene/
sediments/marine sediments/composition/oceanography/continental
shelf/Pacific Coast/Western U.S./United
States/Quaternary/microfossils/thallophytes/sedimentary
petrology/GEOREF.

3958. Douglas RG, Liestman J, Walch C, Blake GH, Cotton MLO.
The transition from live to sediment assemblage in benthic
foraminifera from the southern California borderland. Field,
Michael E., Bouma, Arnold H., Colburn, Ivan P., Douglas, Robert G.,
Ingle, James C. Proceedings of the Quaternary depositional
environments of the Pacific Coast. Pacific-Coast-Paleogeography-
Symposium. 1980(4):p.257-280
Univ. South. Calif., Dep. Geol. Sci., Los Angeles, CA, United-
States Quaternary depositional environments of the Pacific Coast,
Bakersfield, CA, April 9, 1980 Analytic; Serial; Conference
publication B; Bibliography and Index of Geology (1969-present).
California/oceanography/continental
shelf/ecology/foraminifera/distribution/sedimentation/environment
/marine environment/Pacific Coast/Western U.S./United
States/environmental geology/microfossils/Protista/benthonic
taxa/Quaternary/GEOREF.

3959. Field ME, Edwards BD. Slopes of the southern
California continental borderland; a regime of mass transport.
Field, Michael E., Bouma, Arnold H., Colburn, Ivan P., Douglas,
Robert G., Ingle, James C. Proceedings of the Quaternary
depositional environments of the Pacific coast.
Pacific-Coast-Paleogeography-Symposium. 1980(4):p.169-184
U. S. Geol. Surv., Menlo Park, CA, United-States Quaternary
depositional environments of the Pacific Coast, Bakersfield, CA,
April 9, 1980 Analytic; Serial; Conference publication B;
Bibliography and Index of Geology (1969-present).
California/oceanography/continental
shelf/sedimentation/transport/marine transport/Pacific
Coast/Western U.S./United States/southern
California/Quaternary/sedimentary petrology/processes/mass
movements/GEOREF.

3960. Wallace TC, Helmberger DV, Ebel JE. A broadband study
of the 13 August 1978 Santa Barbara earthquake. Bulletin of the
Seismological Society of America. 1981;71(6):p.1701
Calif. Technol., Seismol. Lab., Pasadena, CA, United-States
Analytic; Serial Calif. Inst. Technol., Seismol. Lab.; Contrib.
No. 3404. B; Bibliography and Index of Geology (1969-present).
California/seismology/earthquakes/spectral analysis/Santa Barbara
County/Pacific Coast/Western U.S./United States/Southern
California/Santa Barbara Channel/broad band spectra/body
waves/elastic waves/focal mechanism/accelerograms/strong
motion/seismic moment/Santa Barbara earthquake, 1978/GEOREF.

3961. Illich HA, Haney FR, Mendoza M. Geochemistry of oil
and Santa Cruz Basin, Bolivia; case study of migration
fractionation. AAPG Bulletin. 1981;65(11):p.2388-2404
Sunmark Explor. Co., Richardson, TX, United-States; Yacimientos
Pet. Fiscales Boliv., Bolivia Analytic; Serial B; Bibliography
and Index of Geology (1969-present).
Bolivia/economic geology/petroleum/organic
materials/hydrocarbons/geochemistry/South America/Santa Cruz/Santa
Cruz Basin/genesis/chromatograms/statistical analysis/chemical
fractionation/migration/case studies/exploration/data/GEOREF.

3962. Muhs DR, Szabo BJ. Uranium series age of the Eel Point terrace, San Clemente Island, California. *Geology* (Boulder). 1982;10(1):p.23-26 Univ. Wis., Dep. Geogr., Madison, WI, United-States; U. S. Geol. Surv., United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present). California/geochronology/Pleistocene/absolute age/applications/changes of level/geomorphology/shore features/terraces/structural geology/neotectonics/Los Angeles County/Pacific Coast/Western U.S./United States/San Clemente Island/uranium disequilibrium/uplifts/Quaternary/upper Pleistocene/calibration/dates/plate tectonics/rates/GEOREF.

3963. Vedder JG, Crouch JK, Lee WF. Comparative study of rocks from Deep Sea Drilling Project holes 467, 468, and 469 and the southern California borderland. Orlofsky, Susan, Yeats, Robert S., Haq, Bilal U., Barron, John A., Bukry, David, Crouch, James, Denham, Charles, Douglas, A. G., Grechin, Vladimir I., Leinen, Margaret, Niem, Alan R., Verma, Surendra Pal, Pisciotto, Kenneth A., Poore, Richard Z., Shibata, Tsugio, Wolfart, Reinhard. Leg 63 of the cruises of the drilling vessel *Glomar Challenger*, Long Beach, California to Mazatlan, Mexico, October-November 1978. *Initial-Reports-of-the-Deep-Sea-Drilling-Project*. 1981;63:p.907 U. S. Geol. Surv., Menlo Park, CA, United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present). California/oceanography/continental shelf/stratigraphy/Neogene/Deep Sea Drilling Project/Leg 63/IPOD/DSDP Site 467/DSDP Site 468/DSDP Site 469/Miocene/Tertiary/Pliocene/Pacific Coast/Western U.S./United States/Northeast Pacific/Pacific Ocean/GEOREF.

3964. Simoneit BRT, Mazurek MA. Organic geochemistry of sediments from the Southern California borderland, Deep Sea Drilling Project Leg 63. Orlofsky, Susan, Yeats, Robert S., Haq, Bilal U., Barron, John A., Bukry, David, Crouch, James, Denham, Charles, Douglas, A. G., Grechin, Vladimir I., Leinen, Margaret, Niem, Alan R., Verma, Surendra Pal, Pisciotto, Kenneth A., Poore, Richard Z., Shibata, Tsugio, Wolfart, Reinhard. Leg 63 of the cruises of the Drilling Vessel *Glomar Challenger*, Long Beach, California to Mazatlan, Mexico, October-November 1978. *Initial-Reports-of-the-Deep-Sea-Drilling-Project*. 1981;63:p.837 Univ. Calif., Inst. Geophys. and Planet. Phys., Los Angeles, CA, United-States; Univ. California, Dep. Earth and Space Sci., Los Angeles, CA, United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present). California/oceanography/continental shelf/sedimentary rocks/geochemistry/organic materials/carbon/isotopes/C 13/C 12/hydrogen/D/H/sediments/ratios/Deep Sea Drilling Project/Leg 63/IPOD/DSDP Site 467/DSDP Site 468/DSDP Site 469/Miocene/Neogene/Tertiary/Pliocene/Quaternary/lipids/fatty acids/kerogen/diagenesis/stable isotopes/provenance/Pacific Coast/Western U.S./United States/Northeast Pacific/Pacific Ocean/GEOREF.

3965. Ballog RA, Malloy RE. Neogene palynology from the Southern California Continental borderland, Site 467, Deep Sea Drilling Project Leg 63. Orlofsky, Susan, Yeats, Robert S., Haq, Bilal U., Barron, John A., Bukry, David, Crouch, James, Denham, Charles, Douglas, A. G., Grechin, Vladimir I., Leinen, Margaret, Niem, Alan R., Verma, Surendra Pal, Pisciotto, Kenneth A., Poore, Richard Z., Shibata, Tsugio, Wolfart, Reinhard. Leg 63 of the cruises of the Drilling Vessel *Glomar Challenger*, Long Beach, California to Mazatlan, Mexico, October-November 1978. *Initial-*

Reports-of-the-Deep-Sea-Drilling-Project. 1981;63:p.565-575 Union Oil Co. California, Ventura, CA, United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present).

Pacific

Ocean/stratigraphy/Neogene/California/oceanography/continental shelf/palynomorphs/biostratigraphy/Deep Sea Drilling Project/Leg 63/IPOD/DSDP Site 467/Tertiary/Miocene/Pliocene/microfossils/pollen analysis/paleoenvironment/cluster analysis/statistical analysis/Q mode/R mode/Pacific Coast/Western U.S./United States/Northeast Pacific/GEOREF.

3966. Blake GH. Biostratigraphic implications of Neogene benthic foraminifers from Site 468, Southern California continental borderland; a preliminary study. Orlofsky, Susan, Yeats, Robert S., Haq, Bilal U., Barron, John A., Bukry, David, Crouch, James, Denham, Charles, Douglas, A. G., Grechin, Vladimir I., Leinen, Margaret, Niem, Alan R., Verma, Surendra Pal, Pisciotto, Kenneth A., Poore, Richard Z., Shibata, Tsugio, Wolfart, Reinhard. Leg 63 of the cruises of the Drilling Vessel Glomar Challenger, Long Beach, California to Mazatlan, Mexico, October-November 1978.

Initial-Reports-of-the-Deep-Sea-Drilling-Project. 1981;63:p.437-444 Union Oil Co. California, Ventura, CA, United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present).

Pacific

Ocean/stratigraphy/Neogene/California/oceanography/continental shelf/foraminifers/biostratigraphy/Tertiary/Miocene/Pliocene/microfossils/benthonic taxa/Deep Sea Drilling Project/Leg 63/IPOD/DSDP Site 468/paleoenvironment/Pacific Coast/Western U.S./United States/Northeast Pacific/GEOREF.

3967. Eppley RW. Particulate matter in the Southern California Bight. Anonymous. Memorias de la II reunion de los Centros de Investigacion de Baja California y la Institucion de Scripps de Oceanografia--Transactions from the II joint meeting of the Centers of Scientific Research of Baja California and Scripps Institution of Oceanography. Transactions-CIBCASIO-(Meeting). 1976;2:p.12 Univ. Calif., Inst. Mar. Resour., La Jolla, CA, United-States II Reunion de los Centros de Investigacion de Baja California y la Institucion de Scripps de Oceanografia--II Joint meeting of the Centers of Scientific Research of Baja California and Scripps Institution of Oceanography, La Paz, Baja Calif. Sur, Nov. 30, 1976 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).

sediments/marine sediments/suspended materials/Pacific Ocean/oceanography/sea water/nitrogen/geochemistry/carbon/composition/Southern California Bight/particulate materials/depth/euphotic zone/phytoplankton/zooplankton/ecology/GEOREF.

3968. Jensen JR, Estes JE, Mel M. Multispectral kelp resource surveys. Deutch, Morris, Wiesnet, Donald R., Rango, Albert. Satellite hydrology. U. S. Geol. Surv., United-States. Proceedings-of-the-Annual-William-T.-Pecora-Memorial-Symposium-on-Remote-Sensing. Tech. Publ. No. TPS81-1 of Am. Water Resour. Assoc. 1981(5):p.533-542 Univ. Ga., Dep. Geog., Athens, GA, United-States; U. S. Geol. Surv., United-States; Univ. Calif., Dep. Geog., Remote Sensing Unit, United-States Fifth annual William T. Pecora memorial symposium on remote sensing; Satellite hydrology, Sioux Falls, SD, June 10-15, 1979 Analytic; Serial; Conference publication B; Bibliography and Index of Geology (1969-present). California/hydrogeology/hydrology/surveys/geophysical surveys/remote sensing/ecology/algae/estuaries/automatic data

processing/microfossils/thallophytes/Macrocyctis pyrifera/satellite methods/Landsat/kelp/Pacific Coast/Western U.S./United States/infrared methods/geophysical methods/multispectral analysis/imagery/digital simulation/Southern California Bight/aerial photography/microwave methods/GEOREF.

3969. Vedder JG, Howell DG. Topographic evolution of the southern California borderland during late Cenozoic time. Power DM. The California islands; proceedings of a multidisciplinary symposium. ; 1980. p. p. 7-31. U. S. Geol. Surv., Menlo Park, CA, United-States Santa Barbara Mus. Nat. Hist., Santa Barbara, CA Multidisciplinary symposium on the California islands, Santa Barbara, CA, Feb. 27-March 1, 1978 Analytic; Book; Conference publication B; Bibliography and Index of Geology (1969-present). California/geomorphology/changes of level/stratigraphy/Cenozoic/landform evolution/regional/Pacific Coast/Western U.S./United States/islands/Southern California/land bridges/submarine canyons/deformation/terraces/basins/Pleistocene/Quaternary/Holocene/Pliocene/Neogene/Tertiary/Miocene/bathymetry/GEOREF.

3970. Thornton SE. Suspended sediment transport in surface waters of the California Current off southern California; 1977 78 floods. Geo Marine Letters. 1981;1(1):p.23 Univ. South. Calif., Dep. Geol. Sci., Los Angeles, CA, United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present). California/oceanography/ocean circulation/sedimentation/transport/suspended materials/Pacific Coast/Western U.S./United States/California Current/floods/Davidson Current/Landsat/satellite methods/continental shelf/nepheloid layer/provenance/upwelling/North American Pacific/Pacific Ocean/GEOREF.

3971. Lienert BR, Whitcomb JH, Phillips RJ, Reddy IK, Taylor RA. Long term variations in magnetotelluric apparent resistivities observed near the San Andreas Fault in Southern California. J. Geomagn. Geoelec. 1980;32(12):p.757-775 Calif. Inst. Technol., Seismol. Lab., Pasadena, CA, United-States; Jet Propul. Lab., United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present). California/geophysical surveys/magnetotelluric surveys/seismology/earthquakes/seismic sources/Los Angeles County/Kern County/Pacific Coast/Western U.S./United States/San Andreas Fault/Los Angeles/West Antelope Valley/epicenters/Lytle Creek/Santa Barbara Channel/GEOREF.

3972. Otvos EGJ. Barrier islands and hurricanes, Gulf of Mexico. NOGS Log. 1980;20(11):p.1 Gulf Coast Res. Lab., Ocean Springs, MS, United-States Analytic; Serial; Abstract B; Bibliography and Index of Geology (1969-present). Gulf Coastal Plain/engineering geology/shorelines/geomorphology/landform evolution/barrier islands/sedimentation/transport/marine transport/Gulf of Mexico/North American Atlantic/North Atlantic/Atlantic Ocean/North America/Mississippi/Southern U.S./United States/Alabama/Florida/Southeastern U.S./Eastern U.S./Louisiana/Holocene/Quaternary/New Orleans/Mobile Bay/Santa Rosa Island/Apalachicola Bay/hurricanes/storms/lagoons/erosion/deposition/migration/GEOREF.

3973. Bruland KW, Franks RP, Landing WM, Soutar A. Southern California inner basin sediment trap calibration. Earth Planet.

Sci. Lett. 1981;53(3):p.400-408

Univ. Calif., Cent. Coast. Mar. Stud., Santa Cruz, CA, United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present). California/oceanography/marine geology/Pacific Ocean/sedimentation/rates/marine sedimentation/sediments/marine sediments/composition/United States/Southern California/Santa Barbara Basin/Santa Monica Bay/San Pedro Bay/Southern California Bight/sediment traps/marine environment/radioactive isotopes/isotopes/particle interceptor traps/North American Pacific/calibration/instruments/samplers/GEOREF.

3974. Moore WS, Bruland KW, Michel J. Fluxes of uranium and thorium series isotopes in the Santa Barbara Basin. Earth Planet. Sci. 1981;53(3):p.391-399 Univ. S.C., Geol. Dep., Columbia, SC, United-States; Univ. Calif., United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present). California/geochemistry/isotopes/Pacific Ocean/sea water/sediments/marine sediments/uranium/U 238/U 234/thorium/ratios/United States/North American Pacific/Santa Barbara Basin/MANOP/radioactive isotopes/radium/lead/polonium/migration of elements/radioactive decay/suspended materials/data/Southern California/GEOREF.

3975. Howell DG, Vedder J. Structural implications of stratigraphic discontinuities across the southern California borderland. Ernst WG. The geotectonic development of California; Rubey Volume I. Univ. Calif. Los Angeles, Dep. Earth Space Sci., Los Angeles, CA, United-States. ; 1981. p. p.535. U. S. Geol. Surv., Menlo Park, CA, United-States; Univ. Calif. Los Angeles, Dep. Earth Space Sci., Los Angeles, CA, United-States Prentice-Hall, Englewood Cliffs, NJ Analytic; Book B; Bibliography and Index of Geology (1969-present). California/tectonophysics/plate tectonics/Franciscan Formation/United States/continental margin/subduction/transform faults/faults/melange/blueschist facies/ophiolite/ultramafic family/lithostratigraphy/sedimentary rocks/basement/GEOREF.

3976. Walsh TJ. Texture, mineralogy and wave energy relations in intertidal sediments in a closed system, San Miguel Island, California. [dissertation] ; 1979. Univ. of California, United-States; Master's Monographic; Thesis B; Bibliography and Index of Geology (1969-present). unknown p. California/oceanography/continental shelf/sedimentation/processes/intertidal sedimentation/environment/intertidal environment/sediments/clastic sediments/sand/United States/San Miguel Island/granulometry/carbon/Westward Beach/Torrance Beach/Santa Monica Bay/sorting/abundance/provenance /GEOREF.

3977. Madden CT, Johnson DL. Origin(s) of mammoths from northern Channel Islands, California discussion and reply. Quaternary Research (New York). 1981;15(1):p.101-106 Univ. Colo. Mus., Boulder, CO, United-States; Univ. Ill., United-States Analytic; Serial For reference to paper by Johnson, Donald Lee, see Quat. Res., Vol. 10, p. 204, 1978. B; Bibliography and Index of Geology (1969-present). California/paleontology/Mammalia/Elephantoidea/Quaternary/Santa Barbara County/United States/Channel Islands/San Miguel Island/Santa Rosa Island/teeth/biometry/taxonomy/nomenclature/evolution/Mammuthus/Elephantidae/Proboscidea/size/dwarf taxa/Cenozoic/upper Pleistocene/Pleistocene/GEOREF.

3978. Dunbar RB, Berger WH. Fecal pellet flux to modern bottom sediment of Santa Barbara Basin (California) based on sediment trapping. Geological Society of America Bulletin. 1981;92(4):p.I212-I218
Scripps Inst. Oceanogr., La Jolla, CA, United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present). California/oceanography/sedimentation/Pacific Ocean/sediments/marine sediments/composition/processes/bioclastic sedimentation/United States/Santa Barbara Basin/North American Pacific/pellets/fecal pellets/flux/monitoring/experimental studies/techniques/biochemical sedimentation/GEOREF.

3979. Peters KE, Sweeney RE, Kaplan IR. Correlation of carbon and nitrogen stable isotope ratios in sedimentary organic matter. Limnology and Oceanography. 1978;23(4):p.598
Univ. Calif., Dep. Earth and Space Sci., Los Angeles, CA, United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present). Pacific Ocean/oceanography/sediments/geochemistry/isotopes/carbon/C 13/C 12/nitrogen/N 15/N 14/ratios/organic materials/North Pacific/stable isotopes/Bering Sea/Gulf of Alaska/California/United States/Santa Catalina Basin/Santa Barbara Basin/Tanner Basin/San Pedro/Bandaras Bay/Mexico/North America/GEOREF.

3980. Payne JR, Mankiewicz PJ, Nemmers JE, Jordan RE, Brenner S, Venkatesan ID, LBW, Risebrough RW, Gould FG, Moberg ML. Southern California outer continental shelf baseline studies; intercalibration of participating hydrocarbon laboratories. Phifer, D. Oceans '79. Tri City Eng., United-States. Annual-Combined-Conference-San-Diego-Section-of-The-Institute-of-Electrical-and -Electronics-Engineers-Inc.-and-Council-on-Oceanic-Engineering-and-San-Diego-Section,-The-Marine-Technology-Society. 1979(5):p.777
Sci. Appl., La Jolla, CA, United-States; Tri City Eng., United-States; Univ. Calif. Los Ang., United-States; Univ. Calif. Berkeley, United-States; Anal. Res. Labs., United-States Fifth annual conference of the San Diego sections of the Institute of Electrical and Electronics Engineers and the Marine Technology Society; Oceans '79, San Diego, CA, Sept. 17-19, 1979 Analytic; Serial; Conference publication B; Bibliography and Index of Geology (1969-present). California/environmental geology/pollution/oceanography/continental shelf/sediments/clastic sediments/composition/organic materials/geochemistry/United States/Southern California Bight/calibration/petroleum/hydrocarbons/ocean floors/outer shelf/oil spills/sedimentation/chromatography/GEOREF.

3981. Northrop J, Stixrud TE. Underwater sound signals received on geophones and hydrophones off San Diego, California. Phifer, D. Oceans '79. Tri City Eng., United-States. Annual-Combined-Conference-San-Diego-Section-of-The-Institute-of-Electrical-and -Electronics-Engineers-Inc.-and-Council-on-Oceanic-Engineering-and-San-Diego-Section,-The-Marine-Technology-Society. 1979(5):p.69
Nav. Ocean Syst. Cent., San Diego, CA, United-States; Tri City Eng., United-States Fifth annual conference of the San Diego sections of the Institute of Electrical and Electronics Engineers and the Marine Technology Society; Oceans '79, San Diego, CA, Sept. 17-19, 1979 Analytic; Serial; Conference publication B; Bibliography and Index of Geology (1969-present). California/geophysical surveys/acoustical surveys/geophysical methods/acoustical methods/instruments/San Diego County/United

States/geophones/hydrophones/San Diego/Mission Beach/San Diego Trough/Thirty Mile Bank/San Clemente Basin/sediments/continental shelf/oceanography/arrays/marine geology/ocean floors/bottom features/isopach maps/maps/La Jolla/GEOREF.

3982. Meidav T. Geothermal exploration of the Agua de Pau Massif, San Miguel, Azores, Portugal. Soc. Explor. Geophys., Annu. Int. Meet., Abstr. 1978(48):p.107-108
40 Brookside Ave., Berkeley, Calif., United-States Society of Exploration Geophysicists, 48th annual meeting, San Francisco, Calif., Oct. 29-Nov. 2, 1978 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).

Azores/economic geology/geothermal energy/geophysical methods/methods/applications/Atlantic Ocean/San Miguel Island/Agua de Pau/electrical surveys/geophysical surveys/resistivity/microearthquakes/seismic methods/passive methods/electrical methods/exploration/GEOREF.

3983. Greene HGI, Clarke SHJI, Field MEI. Southern California borderland; environmental geology. Geological Survey Professional Paper (Washington, D.C.). 1980(1175):p.100
Analytic; Serial; Abstract B; Bibliography and Index of Geology (1969-present). California/environmental geology/geologic hazards/structural geology/neotectonics/tectonophysics/plate tectonics/faults/displacements/wrench faults/United States/GEOREF.

3984. Reed WE, Kaplan IR, Sandstrom M. Petroleum and anthropogenic influence on the composition of sediments from the southern California Bight. Proceedings; 1977 Oil spill conference (prevention, behavior, control, cleanup). API-Publication. 1977(4284):p.183
Univ. Calif., Dep. Earth and Space Sci., Los Angeles, CA, United-States 1977 Oil spill conference, New Orleans, LA, March 8-10, 1977 Analytic; Serial; Conference publication B; Bibliography and Index of Geology (1969-present). California/environmental geology/pollution/sediments/geochemistry/hydrocarbons/petroleum/C alifornia Bight/United States/composition/Southern California/intertidal environment/waste disposal/organic materials/marine environment/industrial waste/oil spills/GEOREF.

3985. Field ME, Clarke SHJ. Small scale slumps and slides and their significance for basin slope processes, southern California borderland. Doyle, L. J., Pilkey, O. H. Geology of continental slopes. Special-Publication-Society-of-Economic-Paleontologists-and-Mineralogists. 1979(27):p.223-230
U. S. Geol. Surv., Menlo Park, CA, United-States Geology of continental slopes; a part of the AAPG-SEPM annual meeting, Oklahoma City, OK, April 9-12, 1978 Analytic; Serial; Conference publication B; Bibliography and Index of Geology (1969-present). California/oceanography/sedimentation/processes/slumping/United States/Southern California/continental slope/continental borderland/San Nicolas Island/basins/mass movements/seismic surveys/geophysical surveys/GEOREF.

3986. Nardin TR, Edwards BD, Gorsline DS. Santa Cruz Basin, California borderland; dominance of slope processes in basin sedimentation. Doyle, L. J., Pilkey, O. H. Geology of continental slopes. Special-Publication-Society-of-Economic-Paleontologists-and-Mineralogists. 1979(27):p.209-221
Univ. South. Calif., Dep. Geol. Sci., Los Angeles, CA, United-

States Geology of continental slopes; a part of the AAPG-SEPM annual meeting, Oklahoma City, OK, April 9-12, 1978 Analytic; Serial; Conference publication B; Bibliography and Index of Geology (1969-present).

California/oceanography/sedimentation/processes/slumping/United States/Southern California/continental slope/continental borderland/Santa Cruz Basin/seismic surveys/geophysical surveys/cores/sediments/turbidity currents/mass movements/basins/GEOREF.

3987. Thornton SE. Slope centered processes in Santa Barbara Basin, California borderland. AAPG Bulletin. 1980;64(5):p.791 Univ. South. Calif., Los Angeles, CA, United-States AAPG-SEPM-EMD annual meeting, Denver, CO, June 8-11, 1980 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).

California/oceanography/sedimentation/deposition/basins/United States/Southern California/continental borderland/Santa Barbara Basin/slumping/debris flows/marine transport/mass movements/submarine environment/bioturbation/biogenic structures/sedimentary structures/laminations/planar bedding structures/GEOREF.

3988. Ingle JCJ. Cenozoic paleobathymetry and depositional history of selected sequences within the southern California continental borderland. Sliter, W. V. Studies in marine micropaleontology and paleoecology; a memorial volume to Orville L. Bandy. Cushman-Found.-Foraminiferal-Res., -Spec.-Publ. 1980(19):p.163-195

Stanford Univ., Dep. Geol., Stanford, CA, United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present). California/stratigraphy/Cenozoic/sedimentation/environment/marine environment/foraminifera/faunal studies/United States/Phanerozoic/Tertiary/planktonic taxa/assemblages/biostratigraphy/faunal list/GEOREF.

3989. Marks JG, Marianos AW, Gonzaga FR, Pflum CE. Foraminiferal correlation of Quaternary sediments in the Santa Barbara Channel, California. Sliter, W. V. Studies in marine micropaleontology and paleoecology; a memorial volume to Orville L. Bandy. Cushman-Found.-Foraminiferal-Res., -Spec.-Publ. 1980(19):p.127-133

Exxon Prod. Res. Co., Houston, TX, United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present). California/stratigraphy/Quaternary/foraminifera/Rotaliina/sediments/lithostratigraphy/lithofacies/Santa Ynez Unit/Cenozoic/correlation/Santa Barbara Channel/United States/planktonic taxa/Neogloboquadrina pachyderma/coiling/benthonic taxa/zoning/assemblages/GEOREF.

3990. Koide M, Goldberg ED, Hodge VF. (241)Pu and (241)Am in sediments from coastal basins off California and Mexico. Earth Planet. Sci. Lett. 1980;48(2):p.250-256 Scripps Inst. Oceanogr., La Jolla, Calif., United-States; Univ. Mich., United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present).

California/environmental geology/pollution/Mexico/sediments/geochemistry/isotopes/analysis/radioactive isotopes/americium/Am 241/plutonium/Pu 241/United States/Southern California/Santa Barbara Basin/North America/Baja California/Soledad Basin/radioactive decay/coastal environment/basins/fallout/data/abundance/GEOREF.

3991. Edwards BD. Lebensspuren of dysaerobic, bathyal basin, California borderland. AAPG Bull. 1980;64(5):p.703
U. S. Geol. Surv., Menlo Park, Calif., United-States AAPG-SEPM-EMD annual meeting, Denver, Colo., June 8-11, 1980 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). California/sedimentary petrology/sedimentary structures/biogenic structures/lebensspuren/ecology/ichnofossils/dysaerobic environment/United States/Southern California/continental borderland/bioturbation/marine environment/bathyal environment/aerobic environment/Santa Cruz Basin/GEOREF.

3992. Woodford AO, Howell DG. Eocene conglomerate sedimentology and basin analysis, San Diego and the southern California borderland discussion and reply. J. Sediment. Petrol. 1980;50(2):p.655
Pomona Coll., Dep. Geol., Claremont, Calif., United-States; U. S. Geol. Surv., United-States Analytic; Serial For reference to paper by Howell, D. G., and Link, M. H., see J. Sediment. Petrol., Vol. 49, p. 517, 1979. B; Bibliography and Index of Geology (1969-present).
California/sedimentary petrology/sedimentary rocks/clastic rocks/conglomerate/San Diego County/Poway Conglomerate/United States/Southern California/San Nicolas Island/Eocene/Paleogene/Tertiary/continental borderland/sedimentation/GEOREF.

3993. Henry ME. Marine petroleum prospecting with airborne Fraunhofer line discriminator. AAPG Bull. 1980;64(5):p.722
U. S. Geol. Surv., Flagstaff, Ariz., United-States AAPG-SEPM-EMD annual meeting, Denver, Colo., June 8-11, 1980 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).
remote sensing/applications/petroleum/exploration/Santa Barbara Channel/California/United States/Southern California/spectroscopy/absorption/absorption lines/Fraunhofer lines/imagery/airborne methods/geophysical methods/offshore/digital simulation/GEOREF.

3994. Pipkin BW. Southern California continental borderland and extraction of natural resources. Friedheim RL. Managing ocean resources; a primer. ; 1979. p. p. 45-50.
Univ. South. Calif., Los Angeles, Calif., United-States Westview Press, Boulder, Colo. Analytic; Book B; Bibliography and Index of Geology (1969-present). California/oceanography/ocean floors/United States/Southern California/continental borderland/mineral resources/Los Angeles Basin/Cortez Bank/San Pedro Basin/Channel Islands/submarine canyons/marine geology/San Diego Trough/Santa Monica Basin/Santa Barbara Basin/San Miguel Gap/Santa Cruz Basin/GEOREF.

3995. Anonymous. Draft environmental impact statement on the proposed Channel Islands marine sanctuary.
Monographic; Report B; Bibliography and Index of Geology (1969-present) U. S. Dep. Commer. Natl. Ocean. and Atmos. Admin., Washington, D.C., United States. California/environmental geology/impact statements/Santa Barbara County/Channel Islands/United States/Santa Barbara Channel/marine environment/sanctuaries/wilderness areas/GEOREF.

3996. Simoneit BRT, Kaplan IR. Triterpenoids as molecular indicators of paleoseepage in Recent sediments of the Southern California Bight. Mar. Environ. Res. 1980;3(2):p.113

Univ. Calif., Inst. Geophys. and Planet. Phys., Los Angeles, Calif., United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present). Pacific Ocean/environmental geology/pollution/sediments/composition/organic materials/distribution/oil seeps/Southern California Bight/Holocene/Quaternary/triterpenoids/paleoseeps/indicators/petroleum/human activity/diterpanes/triterpanes/diterpenoids/hopanes/lipids/interpretation/GEOREF.

3997. Sweeney RE, Kaplan IR. Natural abundances of (15)N as a source indicator for near shore marine sedimentary and dissolved nitrogen. Mar. Chem. 1980;9(2):p.81

Univ. Calif., Dep. Earth and Space Sci., Los Angeles, Calif., United-States Analytic; Serial Univ. Calif. at Los Ang., Inst. Geophys. and Planet. Phys.; Publ. No. 1605. B; Bibliography and Index of Geology (1969-present).

California/geochemistry/isotopes/Pacific Ocean/sediments/pore water/organic

materials/identification/diagenesis/materials/nitrogen/N 15/N 14/United States/Southern California/Northeast Pacific/Santa Barbara

Basin/abundance/ratios/dissolved materials/biodegradation/marine environment/estuaries/ammonium/nearshore

environment/provenance/genesis/indicators/GEOREF.

3998. Shiller AM, Price NB. Geochemistry of particulate matter in the Santa Barbara Basin, California. Eos (Am. Geophys. Union, Trans.). 1980;61(17):p.269 Scripps Inst. Oceanogr., La Jolla, Calif., United-States American Geophysical Union, 1980 spring annual meeting, Toronto, Ont., May 22-27, 1980 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).

California/geochemistry/sea water/Pacific Ocean/suspended materials/United States/Santa Barbara Basin/Northeast

Pacific/particles/composition/turbidity/GEOREF.

3999. Karl DM. Adenosine triphosphate and guanosine triphosphate determinations in intertidal sediments. Litchfield, C. D., Seyfried, P. L. Methodology for biomass determinations and microbial activities in sediments. Am.-Soc.-Test.-Mater.,-Spec.-Tech.-Publ. 1979(673):p.5-20

Univ. Hawaii, Dep. Oceanogr., Honolulu, Hawaii, United-States Methodology for biomass determinations and microbial activities in sediments, Fort Lauderdale, Fla., Jan. 30-31, 1978 Analytic; Serial; Conference publication B; Bibliography and Index of Geology (1969-present).

California/oceanography/sediments/clastic sediments/sand/organic materials/geochemistry/coastal environment/United States/chemical analysis/methods/photometry/Corona Del Mar/Santa Catalina Island/San Nicolas Island/bacteria/algae/GEOREF.

4000. Venkatesan MI, Brenner S, Ruth E, Bonilla J, Kaplan IR. Hydrocarbons in age dated sediment cores from two basins in the Southern California Bight. Geochim. Cosmochim. Acta. 1980;44(6):p.789

Univ. Calif. at Los Ang., Inst. Geophys. and Planet. Phys., Los Angeles, Calif., United-States Analytic; Serial Univ. Calif. at Los Ang., Inst. Geophys. and Planet. Phys.; Contrib. No. 1964. B; Bibliography and Index of Geology (1969-present).

California/environmental geology/pollution/absolute age/dates/sediments/geochemistry/organic

materials/hydrocarbons/distribution/United States/Southern

California/Southern California Bight/San Pedro Basin/San Nicolas Basin/basins/cores/Pb 210/upper Holocene/Holocene/Quaternary/gas chromatograms/mass spectra/pollutants/toxic materials/pesticides/waste disposal/oil spills/marine environment/genesis/GEOREF.

4001. Veal R, Caire W. *Peromyscus eremicus*. Mamm. Species. 1979(118) Cent. St. Univ., Biol. Dep., Edmond, Okla., United-States Monographic; Serial B; Bibliography and Index of Geology (1969-present).
Mammalia/Rodentia/Cenozoic/Texas/paleontology/California/biogeography/Bexar County/Santa Barbara County/Tertiary/jaws/skulls/Pleistocene/Quaternary/upper Pleistocene/Friesenhahn Cave/United States/Santa Rosa Island/Phanerozoic/morphology/GEOREF.

4002. Thornton SE, Crissman S. Spatial distribution of mass movement in Santa Barbara Basin; sedimentologic evidence. Geol. Soc. Am., Abstr. Programs. 1979;11(7):p.527
Univ. South. Calif., Dep. Geol. Sci., University Park, Pa., United-States; Stephen, McClelland Eng., United-States The Geological Society of America, 92nd annual meeting, San Diego, Calif., Nov. 5-8, 1979 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).
California/oceanography/sedimentation/Pacific Coast/engineering geology/slope stability/Pacific Ocean/processes/slumping/United States/Southern California/Northeast Pacific/cores/sediments/mass movements/seismic surveys/geophysical surveys/laminations/planar bedding structures/sedimentary structures/basins/submarine environment/GEOREF.

4003. Edwards BD. Mass movement effects on a bathyal macrofaunal population, California borderland. AAPG Bull. 1980;64(3):p.441-442 U. S. Geol. Surv., Menlo Park, Calif., United-States AAPG-SEPM-SEG Pacific sections, annual meeting, Bakersfield, Calif., April 9-11, 1980 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).
California/paleontology/Invertebrata/ecology/substrates/Annelida/Polychaeta/Holocene/sedimentation/processes/slumping/United States/Southern California/Santa Cruz Basin/continental borderland/basins/benthonic taxa/bathyal environment/mass movements/trophic analysis/Crustacea/Arthropoda/Mollusca/habitat/populations/Quaternary/modern/GEOREF.

4004. Damassa SP. Palynomorphs from Holocene sediments of basins in southern California continental borderland. AAPG Bull. 1980;64(3):p.440 AAPG-SEPM-SEG Pacific sections, annual meeting, Bakersfield, Calif., April 9-11, 1980 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).
California/paleobotany/palynomorphs/floral studies/Holocene/United States/Southern California/Northeast Pacific/Pacific Ocean/continental borderland/Quaternary/Tanner Basin/Santa Monica Basin/San Pedro Basin/Santa Catalina Basin/San Nicolas Basin/basins/abundance/reworking/acritarchs/Dinoflagellata/GEOREF.

4005. Crouch JK. Speculations on hydrocarbon potential of deep water basins in outer southern California borderland. AAPG Bull. 1980;64(3):p.440 U. S. Geol. Surv., Menlo Park, Calif., United-States AAPG-SEPM-SEG Pacific sections, annual meeting,

Bakersfield, Calif., April 9-11, 1980 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).

California/economic geology/petroleum/United States/Southern California/continental borderland/possibilities/basins/deep water environment/seismic surveys/geophysical surveys/acoustical surveys/offshore/exploration/reservoir properties/traps/Northeast Pacific/Pacific Ocean/GEOREF.

4006. Arends RG. Diatoms and silicoflagellates from Holocene sediments, southern California continental borderland. AAPG Bull. 1980;64(3):p.348 Union Sci. and Technol. Div., Brea, Calif., United-States AAPG-SEPM-SEG Pacific sections, annual meeting, Bakersfield, Calif., April 9-11, 1980 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).

California/paleobotany/algae/diatoms/Holocene/Protista/Silicoflagellata/United States/Southern California/continental borderland/Santa Monica Basin/San Pedro Basin/Santa Catalina Basin/San Nicolas Basin/Tanner Basin/Quaternary/reworking/abundance/species diversity/Northeast Pacific/Pacific Ocean/GEOREF.

4007. Joshi LU, Ku TL. Measurement of (210)Pb from a sediment core off the coast of California. J. Radioanal. Chem. 1979;52(2):p.329-334 Univ. South. Calif., Dep. Geol. Sci., Los Angeles, Calif., United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present). California/environmental geology/pollution/isotopes/lead/Pb 210/United States/Santa Cruz Basin/marine environment/environment/pollutants/equations/cores/GEOREF.

4008. Ingle JC. Cenozoic climatic history and marine biostratigraphy of the Pacific Coast of North America. Shilo, N. A. XIV Pacific science congress; Stratigraphy and paleobiogeography of the Pacific ring's Cenozoic. Abstr.-Pap.-Pac.-Sci.-Congr.,-Comm.-B:-Solid-Earth. (14 Vol. 2). 1979:p.63-65 XIV Pacific science congress; Stratigraphy and paleobiogeography of the Pacific ring's Cenozoic, Khabarovsk, Aug. 1979 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). North America/stratigraphy/Cenozoic/paleoclimatology/Pacific region/Pacific Coast/United States/Phanerozoic/biostratigraphy/plankton/California Current/lithology/GEOREF.

4009. Junger A, Sylvester AG. Origin of Emery Seaknoll, southern California borderland. Eos (Am. Geophys. Union, Trans.). 1979;60(46):p.951 Univ. Calif., Dep. Geol. Sci., Santa Barbara, Calif., United-States American Geophysical Union; 1979 fall annual meeting, San Francisco, Calif., Dec. 3-7, 1979 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). California/oceanography/continental slope/Pacific Ocean/geophysical surveys/seismic surveys/bottom features/seamounts/knolls/seaknolls/continental borderland/United States/Southern California/Catalina Basin/Emery Seaknoll/reflection methods/seismic methods/faults/block structures/uplifts/laccoliths/intrusions/volcanism/genesis/Northeast Pacific/GEOREF.

4010. Field ME, Richmond WC. Sedimentary and structural patterns on the northern Santa Rosa Cortes Ridge, southern

California. Mar. Geol. 1980;34(1-2):p.79-98
U. S. Geol. Surv., Menlo Park, Calif., United-States Analytic;
Serial B; Bibliography and Index of Geology (1969-present).
California/oceanography/continental shelf/Pacific Coast/engineering
geology/geologic hazards/geophysical surveys/seismic
surveys/sedimentation/transport/marine transport/United
States/Southern California/Santa Rosa Cortes
Ridge/structure/continental borderland/petroleum/land
leases/reflection methods/seismic methods/active
faults/faults/folds/ridges/bottom
features/slumping/possibilities/outer
shelf/earthquakes/seismicity/GEOREF.

4011. Muhs DR. Marine terrace age assignments, uplift rates
and sea level events on San Clemente Island, California. Geol. Soc.
Am., Abstr. Programs. 1979;11(7):p.484
Univ. Colo., Dep. Geogr., Boulder, Colo., United-States The
Geological Society of America, 92nd annual meeting, San Diego,
Calif., Nov. 5-8, 1979 Analytic; Serial; Conference publication;
Abstract B; Bibliography and Index of Geology (1969-present).
California/geochronology/Quaternary/Pacific
Coast/geomorphology/changes of level/shore
features/terraces/absolute
age/dates/shells/racemization/correlation/Los Angeles County/United
States/San Clemente Island/uplifts/marine terraces/C
14/rates/Cenozoic/GEOREF.

4012. Palmer HD. The use of manned submersibles in the study
of ocean waste disposal. Geyer RA. Submersibles and their use in
oceanography and ocean engineering. ; 1977. p. p. 317-334.
Dames and Moore, Washington, D.C., United-States Elsevier Sci.
Publ. Co., Amsterdam Analytic; Book B; Bibliography and Index of
Geology (1969-present). Atlantic Ocean/engineering geology/waste
disposal/Pacific
Ocean/oceanography/instruments/submersibles/marine
geology/technology/manned submersibles/dredge spoils/industrial
waste/solid waste/radioactive waste/sewage/New York Bight/Southern
California Bight/Santa Monica Bay/GEOREF.

4013. Crandall G, Reichle M, Luyendyk BP, Prothero WA.
Marine seismic refraction study of the Santa Barbara Channel
(southern California borderlands). Eos (Am. Geophys. Union,
Trans.). 1979;60(46):p.886
Univ. Calif., Dep. Geol. Sci., Santa Barbara, Calif., United-States
American Geophysical Union; 1979 fall annual meeting, San
Francisco, Calif., Dec. 3-7, 1979 Analytic; Serial; Conference
publication; Abstract B; Bibliography and Index of Geology (1969-
present).
California/seismology/crust/geophysical surveys/seismic
surveys/geophysical methods/seismic methods/interpretation/velocity
structure/United States/Southern California/Santa Barbara
Channel/continental borderland/structure/tectonics/plate
tectonics/earthquakes/refraction methods/marine methods/inverse
problem/mathematical models/models/ocean bottom
seismographs/GEOREF.

4014. Pisiac NG. Model for paleoceanographic reconstructions
of the California Current during the last 8000 years. Quat. Res.
(Wash., Univ., Quat. Res. Cent.). 1979;11(3):p.373
Univ. R.I., Dep. Oceanogr., Kingston, R.I., United-States
Analytic; Serial B; Bibliography and Index of Geology (1969-
present).
Pacific Ocean/oceanography/ocean

circulation/paleoclimatology/Holocene/California/United States/Quaternary/Cenozoic/Radiolaria/temperature/anomalies/Santa Barbara Basin/reconstruction/CLIMAP/GEOREF.

4015. Kamerling MJ, Luyendyk BP. A model for Neogene tectonics of the inner southern California borderland constrained by paleomagnetic data. Geol. Soc. Am., Abstr. Programs. 1979;11(7):p.453
Univ. Calif., Dep. Geol. Sci., Santa Barbara, Calif., United-States The Geological Society of America, 92nd annual meeting, San Diego, Calif., Nov. 5-8, 1979 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).
California/structural geology/tectonics/Pacific Coast/tectonophysics/plate tectonics/paleomagnetism/Miocene/Los Angeles County/Santa Barbara County/United States/Southern California/Anacapa Island/Santa Cruz Island/San Miguel Island/Santa Catalina Island/Santa Barbara Islands/shear/rotation/igneous rocks/Neogene/Tertiary/Pacific Plate/North American Plate/GEOREF.

4016. Johnson KS. CaCO₃ dissolution in Santa Monica and Santa Cruz basins. Eos (Am. Geophys. Union, Trans.). 1979;60(46):p.861
Univ. Calif., Mar. Sci. Inst., Santa Barbara, Calif., United-States American Geophysical Union; 1979 fall annual meeting, San Francisco, Calif., Dec. 3-7, 1979 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).
California/geochemistry/sea water/Pacific Ocean/alkalinity/properties/solubility/United States/Southern California/Santa Monica Basin/Santa Cruz Basin/Northeast Pacific/calcium carbonate/solution/temperature/pH/GEOREF.

4017. Dymond J, Gardner W, Berger WH, Soutar A. Sediment trap intercomparison in the Santa Barbara Basin; MANOP. Eos (Am. Geophys. Union, Trans.). 1979;60(46):p.851
Oreg. State Univ., Sch. Oceanogr., Corvallis, Oreg., United-States; Lamont-Doherty Geol. Obs., United-States; Scripps Inst. Oceanogr., United-States American Geophysical Union; 1979 fall annual meeting, San Francisco, Calif., Dec. 3-7, 1979 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).
California/oceanography/sediments/Pacific Ocean/instruments/samplers/marine geology/United States/Southern California/Santa Barbara Basin/MANOP/offshore/Northeast Pacific/sampling/design/marine environment/GEOREF.

4018. Hein FJ, Thornton SE. Fine grained mass flow deposits in slope and slope apron settings; examples from the California borderland. Geol. Soc. Am., Abstr. Programs. 1979;11(7):p.441-442
Univ. South. Calif., Dep. Geol. Sci., Los Angeles, Calif., United-States The Geological Society of America, 92nd annual meeting, San Diego, Calif., Nov. 5-8, 1979 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).
California/oceanography/sedimentation/sediments/textures/fine grained materials/Pacific Coast/engineering geology/slope stability/processes/slumping/Pacific Ocean/United States/Southern California/Santa Barbara Basin/Santa Cruz Basin/continental slope/continental borderland/basins/mass movements/gravity flows/lithofacies/engineering properties/soft sediment deformation/sedimentary structures/submarine environment/Northeast

Pacific/GEOREF.

4019. Dunbar RB, Berger WH. Fecal pellet flux in Santa Barbara Basin (California) based on sediment trapping. Geol. Soc. Am., Abstr. Programs. 1979;11(7):p.416
Scripps Inst. Oceanogr., La Jolla, Calif., United-States The Geological Society of America, 92nd annual meeting, San Diego, Calif., Nov. 5-8, 1979 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). California/oceanography/sedimentation/Pacific Ocean/rates/pellets/Santa Barbara Basin/United States/Southern California/Northeast Pacific/fecal pellets/flux/provenance/biological processes/biogenic materials/organic materials/terrigenous materials/marine transport/GEOREF.

4020. Day PC, Doull ME. Geomorphology of shallow, high energy submarine bank tops, Tanner Cortes Banks, southern California borderland. Geol. Soc. Am., Abstr. Programs. 1979;11(7):p.411
Interstate Electron. Corp., Anaheim, Calif., United-States The Geological Society of America, 92nd annual meeting, San Diego, Calif., Nov. 5-8, 1979 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). California/oceanography/continental shelf/Pacific Coast/geophysical surveys/acoustical surveys/sedimentation/environment/high energy environment/United States/Southern California/Tanner Banks/Cortes Banks/morphology/topography/continental borderland/shallow water environment/bathymetry/sonar methods/geophysical methods/banks/biogenic structures/sedimentary structures/bottom features/GEOREF.

4021. Crissman SC, Ploessel MR. Seismic evidence of mass movement in the Santa Barbara Basin, offshore southern California. Geol. Soc. Am., Abstr. Programs. 1979;11(7):p.407
McClelland Eng., Ventura, Calif., United-States The Geological Society of America, 92nd annual meeting, San Diego, Calif., Nov. 5-8, 1979 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). California/oceanography/sedimentation/Pacific Coast/Pacific Ocean/geophysical surveys/seismic surveys/processes/slumping/United States/Southern California/Santa Barbara Basin/offshore/Northeast Pacific/geologic hazards/mass movements/submarine environment/basins/slope stability/reflection methods/seismic methods/GEOREF.

4022. Greene HGI, Clarke SHJI, Field MEI. Environmental geology of the southern California borderland. U. S. Geol. Surv., Prof. Pap. 1979(1150):p.147 Analytic; Serial; Abstract B; Bibliography and Index of Geology (1969-present). California/environmental geology/geologic hazards/United States/Southern California/continental borderland/GEOREF.

4023. Vedder JGI, Howell DGI. Geologic framework of the southern California borderland. U. S. Geol. Surv., Prof. Pap. 1979(1150):p.146
Analytic; Serial; Abstract B; Bibliography and Index of Geology (1969-present). California/tectonophysics/plate tectonics/United States/continental borderland/Southern California/GEOREF.

4024. Crisp PT, Brenner S, Venkatesan MI, Ruth E, Kaplan IR. Organic chemical characterization of sediment trap particulates from San Nicolas, Santa Barbara, Santa Monica and San Pedro basins,

California. Geochim. Cosmochim. Acta. 1979;43(11):p.1791-1802
Univ. Calif. at Los Ang., Inst. Geophys. and Planet. Phys., Los
Angeles, Calif., United-States Analytic; Serial Univ. Calif.,
Inst Geophys. and Planet. Phys.; Contrib. No. 1886. B;
Bibliography and Index of Geology (1969-present).
California/environmental geology/pollution/organic
materials/distribution/sediments/geochemistry/United
States/Southern California/San Nicolas Basin/Santa Barbara
Basin/Santa Monica Basin/San Pedro Basin/hydrocarbons/humic
acids/kerogen/natural materials/particles/mass spectra/gas
chromatograms/offshore/GEOREF.

4025. Cramer AJ, Pauly RD. Shore processes at a man made
headland. Shore Beach. 1979;47(3):p.2-7
Calif. Dep. Transp., Los Angeles, Calif., United-States Analytic;
Serial B; Bibliography and Index of Geology (1969-present).
California/engineering geology/shorelines/Santa Barbara
County/Ventura County/United States/Ventura/Punta Gorda/Santa
Barbara Channel/erosion/littoral drift/sedimentation/erosion
control/stabilization/GEOREF.

4026. Samaras WF, Gellura JA. Recognition of Quaternary wave
formed marine terraces on Santa Catalina Island. South. Calif.
Acad. Sci., Bull. 1979;78(1):p.20 Mus. Nat. Hist. Los Angeles
County, Los Angeles, Calif., United-States; Cherry Hill West High
Sch., United-States Analytic; Serial B; Bibliography and Index of
Geology (1969-present).
California/stratigraphy/Quaternary/changes of level/Los Angeles
County/Catalina Schist/United States/Santa Catalina
Island/Cenozoic/marine
environment/geomorphology/shore features/terraces/pebbles/clastic
sediments/roundness/sphericity/wave
action/subsidence/observations/GEOREF.

4027. Vedder JG, Howell PG, Forman JA. Miocene strata and
their relation to other rocks, Santa Catalina Island, California.
Armentrout, J. M., Cole, M. R., TerBest, H., Jr. Cenozoic
paleogeography of the western United States. Pac.-Coast-
Paleogeogr.-Symp. 1979(3):p.239
U. S. Geol. Surv., Menlo Park, Calif., United-States; Mobil Oil,
Dallas, Tex., United-States Pacific Coast paleogeography
symposium 3; Cenozoic paleogeography of the western United States,
Anaheim, Calif., March 15-16, 1979 Analytic; Serial; Conference
publication B; Bibliography and Index of Geology (1969-present).
California/stratigraphy/Miocene/metamorphic
rocks/lithostratigraphy/paleogeography/Catalina Schist/Fishermans
Cove Sequence/United States/sedimentary rocks/ichnofossils/biogenic
structures/sedimentary structures/igneous rocks/schist
breccia/andesite/andesite rhyolite family/basalt/basalt
family/intrusions/lava flows/Mount Banning/Cottonwood Canyon/Cactus
Peak/shelf environment/Santa Catalina
Island/Pliocene/Neogene/Tertiary/Cenozoic/Perdiron
Caves/foraminifera/Gastropoda/Mollusca/Bivalvia/Brachiopoda/Echin
oidea/Echinozo a/Echinodermata/Polychaetia/Annelida/Western
U.S./GEOREF.

4028. Ogle BA. Prospects for finding additional oil and gas
in California's onshore and offshore basins. Landwehr, M. L. New
ideas, new methods, new developments. Explor.-Econ.-Pet.-Ind.
1978;16:p.145
Ogle Pet., Santa Barbara, Calif., United-States Analytic; Serial
B; Bibliography and Index of Geology (1969-present).
California/economic geology/natural gas/petroleum/United

States/onshore/offshore/economics/exploration/prospecting/Los Angeles Basin/Outer Banks Basin/Ventura Santa Barbara Channel Basin/Santa Maria Basin/Salinas Basin/Bodega Santa Cruz Basin/Point Arena Basin/Eel River Basin/San Joaquin Basin/Yowlumne Oil Field/Sacramento Basin/GEOREF.

4029. Chase TE, Normark WR, Thomas JA, Holmes ML, Wilde P. Compilation of marine geologic and oceanographic data off the western United States; southern California continental borderland. Geol. Soc. Am., Abstr. Programs. 1979;11(7):p.400
U. S. Geol. Surv., Menlo Park, Calif., United-States The Geological Society of America, 92nd annual meeting, San Diego, Calif., Nov. 5-8, 1979 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present). California/oceanography/continental shelf/Pacific Ocean/marine geology/Pacific Coast/United States/Southern California/Northeast Pacific/data/review/sea water/GEOREF.

4030. Rohrback BG, Kaplan IR. The effects of source on production of low molecular weight hydrocarbons. Oltz DF. Symposium in geochemistry; Low temperature metamorphism of kerogen and clay minerals. ; 1978. p. p. 13-17. Univ. Calif., Dep. Earth and Space Sci., Los Angeles, Calif., United-States Soc. Econ. Paleontol. and Mineral., Pac. Sect., Los Angeles, Calif. Symposium in geochemistry; Low temperature metamorphism of kerogen and clay minerals, Los Angeles, Calif., Oct. 5, 1978 Analytic; Book; Conference publication B; Bibliography and Index of Geology (1969-present).
geochemistry/experimental studies/kerogen/organic materials/hydrocarbons/genesis/petroleum/source rocks/natural gas/Tanner Basin/Santa Barbara Basin/Banderas Bay/Staten Island/Laguna Mormona/sediments/GEOREF.

4031. Berger R. Geochronology of the Woolley Mammoth Site, Santa Rosa Island, California. Geol. Soc. Am., Abstr. Programs. 1979;11(7):p.387 Univ. Calif., Inst. Geophys., Los Angeles, Calif., United-States The Geological Society of America, 92nd annual meeting, San Diego, Calif., Nov. 5-8, 1979 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).
California/geochronology/Pleistocene/absolute age/dates/charcoal/Mammalia/Proboscidea/Santa Barbara County/United States/Santa Rosa Island/Channel Islands/Woolley Mammoth Site/Quaternary/Cenozoic/upper Pleistocene/C 14/fossiliferous materials/Mammuthus/Elephantidae/GEOREF.

4032. Arleth KF. Structure and seismic stratigraphy south of Santa Rosa and San Miguel islands, California. Geol. Soc. Am., Abstr. Programs. 1979;11(7):p.380 Amoco Prod. Co., Denver, Colo., United-States The Geological Society of America, 92nd annual meeting, San Diego, Calif., Nov. 5-8, 1979 Analytic; Serial; Conference publication; Abstract B; Bibliography and Index of Geology (1969-present).
California/stratigraphy/Miocene/Pacific Coast/structural geology/tectonics/Pacific Ocean/geophysical surveys/seismic surveys/Santa Barbara County/United States/Channel Islands/San Miguel Island/Santa Rosa Island/structure/grabens/anticlinoria/folds/en echelon folds/reflection methods/seismic methods/upper Mesozoic/Mesozoic/Cenozoic/Phanerozoic/unconformities/Neogene/Tertiary/Northeast Pacific/GEOREF.

4033. Crouch RW, Poag CW. *Amphistegina gibbosa* d'Orbigny

from the California borderlands; the Caribbean connection. J. Foraminiferal Res. 1979;9(2):p.85-105
633 Ramona Ave., Sp. 96, Los Osos, Calif., United-States; U. S. Geol. Surv., Mass., United-States Analytic; Serial B; Bibliography and Index of Geology (1969-present).
Pacific
Ocean/stratigraphy/Pliocene/foraminifera/biostratigraphy/paleogeography/Panama/ Amphistegina gibbosa/Neogene/Tertiary/Cenozoic/Santa Rosa Cortes Ridge/California/United States/Central America/Caribbean
Sea/Rotaliina/paleoecology/transgression/regression/continental borderland/GEOREF.

4034. Young DK, Jan TK, Heesen TC. Cycling of trace metal and chlorinated hydrocarbon wastes in the Southern California Bight. Wiley, M. L. Estuarine interactions. Int.-Estuarine-Res.-Conf. 1978(4):p.481
South. Calif. Coastal Water Res. Proj., El Segundo, Calif., United-States Fourth biannual international estuarine research conference; Estuarine interactions, Mount Pocono, Pa., Oct. 2-5, 1977 Analytic; Serial; Conference publication B; Bibliography and Index of Geology (1969-present).
California/environmental
geology/pollution/metals/geochemistry/trace elements/Southern California Bight/United States/marine
environment/hydrocarbons/organic
materials/ecology/contamination/ecosystems/GEOREF.

4035. Davis GE, Jameson SC, Dugan JE. O. T. Magoon, H. Converse, V. Tippie, L. T. Tobin, D. Clark. Potential Benefits of Harvest Refugia in Channel Islands National Park and Channel Islands National Marine Sanctuary; 1991 Jul; Long Beach, CA. New York: Coastal Zone '91, Proceedings of the 7th symposium on Coastal and Ocean Management; 1991. 4. p. 2962-2972.
harvest refugia/ fisheries/management.