Southern California Association of
Marine Invertebrate Taxonomists

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San Pedro, California 90731

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SCAMIT Newsletter

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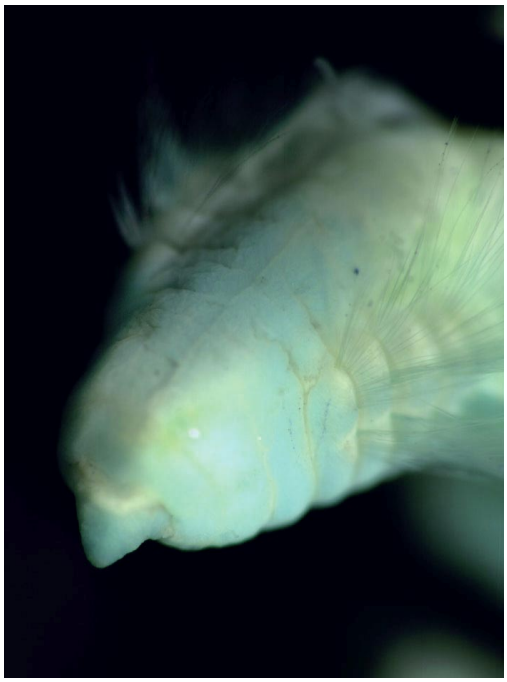
SUBJECT:	Definition of Polychaete problems for Bight '98 sampling
GUEST SPEAKER:	None - Ron Velarde (CSDMWWD) Discussion Leader
DATE:	Monday, 20 July 1998
TIME:	9:30 a.m. to 3:30 p. m.
LOCATION:	Library, MEC Analytical Services 2433 Impala Drive Carlsbad, California



Protocirrineris sp B SCAMIT, 1995, Anterior Dorsal View. From Santa Monica Bay, 60 m. Identified by C .A. Phillips. (Image by Rick Rowe CSDMWWD 7Jul98)

20 JULY MEETING

Our July meeting will be the first of a pair of meetings devoted to identifying and resolving differences in identification procedure in a series of polychaete worm genera. The genera listed below proved to be unequally treated by participants in the 1994 SCBPP. If we can agree on a standardized approach prior to Bight'98 sample analysis, our data will be improved. This first meeting will concentrate on determining where the problems lie, and how bad they are. The September meeting will attempt to provide solutions.

Genera to be considered are *Levinsenia* spp., *Protocirrineris* spp., *Cossura* spp., *Mediomastus* spp., *Ophelina* spp., *Sthenelais* spp., *Driloneris* spp., *Fauveliopsis* spp., *Terebellides* spp., and *Demonax* spp.

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SCAMIT ED. 3

The third edition of the SCAMIT Taxonomic Listing of Soft Bottom Macro- and Megainvertebrates is now available. It was a struggle to get the final problems ironed out, but we now have it ready to distribute. The 3rd Edition expands on the 2nd by the addition of newly reported taxa, emendations resulting from recent nomenclatural changes, and the inclusion of an abbreviated synonymy. The index has also been expanded to allow location of taxa by subgeneric names and specific names (including synonyms). At 167 pages, the 3rd Edition is approximately twice the size of its predecessor.

The document is in Portable Document Format (PDF) and is downloadable as a self-extracting zip file. The downloadable file is approximately 2.4Meg. Once extracted, the pfd document may be viewed, searched and/or printed using the Adobe® Acrobat® Reader. The reader is distributed by Adobe free of charge and may be downloaded from their web site (www.adobe.com). It is approximately 3.2Meg.

SCAMIT members will each receive a comb-bound, two-sided copy of the 3rd Edition.

If you are a non-member, but are interested in obtaining a printed copy you must first join us. This is one of the benefits of membership. We are happy to have anyone, member or non-member, avail themselves of the on-line PDF version. Edition 4 is expected to arrive about two years from now, in mid-2000.

TRAWL INTERCALIBRATION

On the 16th of June an intercalibration exercise was held in preparation for the upcoming Bight'98 sampling. Representatives of nearly all the agencies who will participate in the field sampling met onboard the CSDLAC monitoring vessel 'Ocean Sentinel' and spent the day pooling their information on field identification of fishes and invertebrates. The purpose of the exercise was to allow interchange of information and standardization of ID approach prior to the beginning of trawl sampling at the end of July. We opted for intercalibration under actual field conditions, where the animals had more natural appearance (and color and shape clues) lost after preservation.

The effort was coordinated and led by Dr. Jim Allen (SCCWRP) who took charge of the fish group. He was assisted by April Ford (CSDLAC) in demonstration of the collected fishes. A series of nine trawls were taken; seven offshore on the San Pedro Sea Shelf (200, 140, 80, 60, 40, 30, 20m) and two in outer Los Angeles Harbor. As each trawl came on board the fish were removed and given to the fish folk for their examination while the invertebrate group handled the remainder of the catch. We were trawling over fairly level sandy bottom with occasional hard outcrops outside the harbor, and in very muddy conditions inside the harbor. The fish catch was rather boring, with no really unusual species being encountered. One of the few noteworthy elements was Pacific Sand Dabs, which were HUGE in the trawl at 140m.

Invertebrates were separately handled by a group led by Dave Montagne and his assistant Don Cadien (CSDLAC). Most of the catch was rather routine; exactly what we were looking for. A few items of interest were taken, but most of the invertebrates were commonly taken members of the megafauna. This gave us all a chance to compare notes on the common animals we expect to encounter most during the actual field effort.

One surprise was the relative abundance of *Astropecten ornatissimus* on the shelf. This (in our experience) rare starfish occurred in every trawl between 200 and 80m, often with several specimens in each trawl. All were similar sized and rather pale golden orange, the color seen in this area on the few specimens taken in the SCBPP in 1994. A color photograph provided

by Dean Pasko (CSDMWWD) showed a larger individual from their area sporting a much more intense, almost scarlet, coloration. Our catch about tripled the number of specimens known from this portion of the Bight. We also got representatives of another more common starfish (*Mediaster aequalis*) in all trawls between 200 and 40m. At 200m a single individual of the uncommon *Hippasteria spinosa* was taken. There are actually two species in this genus locally, although our field literature only mentions one. The identity was verified in the laboratory. Comparative field material was available for all three local species of *Astropecten*, and side by side comparisons proved useful. Only two of the three *Luidia* species were taken, no specimens of *L. armatus* being seen. We were thus not able to directly consider the methods of separating these close species with live material. Representatives of *Sylasterias forreri* and *Sclerasterias heteropaes* were also lacking. These two species are occasionally confused by some workers.

Non-asteroid echinoderms were also routine. The only holothuroid taken on soft-bottom was *Parastichopus californicus*, but *Cucumaria salma* were removed from rocks at 30m. We took the one local crinoid species *Florometra serratissima* at 200m. The irregular echinoids *Brisaster latifrons* and *Spatangus californicus* were represented, but *Brissopsis pacifica* was not. In shallow water *Lovenia cordiformis* was taken. Regular echinoids found were *Allocentrotus fragilis*, *Strongylocentrotus purpuratus*, and *Lytechinus pictus*. Specimens of three ophiuroids were taken; *Ophiura luetkenii*, *Ophiopterus papillosa*, and *Ophiothrix spiculata*. The appearance of the *Ophiopterus* was noteworthy. Although the animals displayed the typical pattern of alternating bands of tan and pale chocolate brown on the arms, the lengths of the arm spines were atypical. This animal is usually characterized by having the arm spines longest at mid arm, and shorter both proximally and distally. This imparts a characteristic appearance to the arms which was lacking in all the individuals taken and examined in these trawls. Structure of each arm spine, ornamentation of the aboral disc, and oral papillae were all normal for the species.

The shrimp catch was small and little varied. Numerous *Sicyonia ingentis* were taken (even in the harbor trawls), but no *Sicyonia penicillata*. Hippolytids were absent, as were pandalids, and other penaeoids. Two species of crangonids were taken; *Neocrangon zacae* (as separated by CSDLAC) offshore, and *Crangon nigromaculata* inshore. *Crangon alaskensis, Neocrangon communis, N. resima, Metacrangon spinosissima*, and *Mesocrangon* spp. were all lacking.

Crabs were sparse, but varied. A few *Platymera gaudichaudii* were seen, pelagic red crabs *Pleuroncodes planipes* were taken intermittently in low numbers, *Pyromaia tuberculata* and *Portunus xantusii* were taken in low numbers in harbor trawls, and single specimens of *Podochela lobifrons*, *Loxorhynchus grandis*, and *L. crispatus* were caught. Both *Loxorhynchus* specimens were juveniles, providing a good opportunity to demonstrate the field method of separating these two species. If the crab is grabbed by the sides of the carapace just behind the rostral area, the sharp hepatic spines can be plainly felt. *Loxorhynchus crispatus* has but one hepatic spine, while *L. grandis* has two; one above and slightly in front of the other. The difference is easily felt, and using this technique eliminates the need for extensive cleaning of the animal to reveal the spines among a mass of hairs and attached decorations. Other methods are available, but less definitive and more time consuming.

Hermit crabs taken in this series of trawls were *Paguristes ulreyi*, *Pagurus spilocarpus*, and *Phimochirus californiensis*. Although field identifications were attempted, all hermit crabs were returned to the laboratory for confirmatory examination. Several young

specimens of *Munida quadrispina* were pulled from cavities in a rock taken at 30m. These ranged from 9-11mm in carapace length, and each bore two blue spots on the carapace; one at the posterio-medial corner of the cardiac region on each side. This is the shallowest record of the species , previously known from depths of 145-500m. If the cavity occupying behavior of these juveniles is typical, the young of this species may be common in relatively shallow water, just very difficult to sample remotely.

Few cnidarians were taken, but *Acanthoptilum* sp., and *Virgularia galapagensis*, and *Stylatula elongata* were sparsely represented. The only unusual cnidarian was an *Urticina columbiana* taken at 200m. Several large *Metridium* also came up in one trawl. At 80m we crossed over a patch of *Ptilosarcus gurneyi*, and brought up one intact individual, and the plumes of four more. The prostrate gorgonian *Thesea* sp B was taken in small numbers.

Mollusks were poorly represented, with no opisthobranchs taken at all except for a single *Navanax* in one of the harbor trawls and the near ubiquitous *Philine auriformis*. Even this robust invader was not much in evidence, with only a few taken offshore. In one of the harbor trawls they were quite common, but small. One small *Kelletia kelletii* was taken, and one *Neverita recluziana*. Only one *Octopus rubescens* was encountered, and it was oddly marked (presumably as a result of net damage and stress) with a number of large white blotches on the body and web. Only a single *Rossia pacifica* was caught, and no *Loligo opalescens*.

The most interesting catch of the day were two large rocks taken in the 30m trawl. They were very heavy, and resulted in a torn net and largely unproductive station. The rocks themselves were heavily bored by lithophagid clams, and supported a number of interesting small animals in the bore holes. A small *Aphrodita japonica* was found in one, several juvenile galatheids in others, and a variety of sponges, ectoprocts and tunicates on the rock surfaces. One flabelligerid polychaete was much in evidence, with it's cephalic setal cage extending out of small holes in the rock. Several of these were collected, and are being identified. Nearly all these rock-associated species were too small for recording, and, as part of the epifauna, would not be reportable organisms under Bight'98 protocols (but they were fun).

Although the encountered fauna was not spectacularly interesting, those on-board generally felt that the effort was worthwhile, and should be repeated in future (dissenting opinions welcome and solicited - contact the editor or Jim Allen).

NEW LITERATURE

Apropos of our trawling activity, the impact of trawling on a benthic community was investigated by Tuck et al (1998). They experimentally trawled in an area closed to fishing for over 25 years, and so essentially undisturbed (although truly long-term residual impacts of pre-closure activity may have remained). They found that the disturbance increased the numbers of both species and individuals, but diversity measures dropped. They identify groups which were sensitive to the disturbance, and others which were resistant to it. The interaction of these relative effects shifted the structure of the benthos over time as a result of the trawling disturbance. They tracked these changes over an 18 month study, with some effects still visible at the end of their observations.

A rather interesting paper on fresh-water species bears consideration by marine workers as well. Sickel (1998) reports observations that tissues of the larvae of *Corbicula fluminea* provoke uncontrolled gorging (to worm death) by predatory rhabdocoel worms. He proposes that this is a defense mechanism, with the altruistic loss of the consumed larvae leading to net population benefit through elimination of

predators. Well, nobody said flatworms were smart, but I never suspected that such a mechanism could be subject to evolutionary control. Comments?

Several other papers on the results of recent investigations in Costa Rica have been mentioned in previous Newsletters. Now Cortés (1997) reports on the cnidarian fauna of both coasts. In these days of translocation of southern species by ENSO current movement, knowledge of Central and even South American species becomes relevant. Nearly 130 species of cnidarians are reported from the Pacific coast of Costa Rica, including both benthic and pelagic forms. The list offers brief comments on distribution.

The pelagic red crab, *Pleuroncodes planipes*, has been extensively investigated, recently by a series of Mexican scientists. The latest contribution to this effort (Gómez-Gutiérrez & Sánchez-Ortíz 1997) synthesizes the available data on the population off Baja California, and proposes a conceptual model of the species' complex life history. Most of the reports to date have dealt with the adults of the species, either in their benthic or pelagic phases. Information on the larval distributions, developments, and ecology is largely taken from Gómez-Gutiérrez & Sánchez-Ortíz (1995). All of us should try to keep up with the continuing advances in the understanding of the population biology of this species, which makes such a major contribution to the secondary production of Eastern Pacific nearshore waters. During El Niño periods the subject becomes more timely, but it never loses its relevance.

Three oedicerotid amphipods; *Perioculodes longimanus*, *Pontocrates arcticus*, and *Synchelidium maculatum* have their life histories examined by Beare & Moore (1998). Although none of these species occur locally, they do contribute to the slender existing base of information on oedicerotid biology (mainly behavioral observations by Enequist 1950).

What to do with the scaphopods!! Steiner (1992, 1996) analyzed the group phylogeneticly and proposed that both the Dentaliida and Gadilida were monophyletic groups using a number of anatomical characters of the animals as well as the few shell characters available. Now Reynolds (1997) suggests that the data need reinterpretation, and more rigorous application of parsimony. He also suggests that data is incomplete in a number of areas which affect the analysis. His reanalysis and reconsideration of scaphopod phylogeny suggests that monophyly of the Dentaliida is not supported. Steiner has responded (Steiner 1998) to Reynolds comments in another article and another hard fought campaign like those that have previously graced the pages of Zoologica Scripta seems to have been launched. This controversy promises to get to the meat of methodological differences, much as the ongoing discussions of the Rouse & Fauchald polychaete phylogeny papers in the same journal do. The journal seems to have made an editorial decision to foster and offer a forum for such battles, as waged by informed and committed partisans of the various factional groups. This not only provides a service to the systematic community but…controversy always generates heat, and interest.

Hopefully another recent article from the pages of Zoologica Scripta (Pleijel 1998) will prove less controversial. Fred Pleijel has added to his pile of comprehensive reexaminations of polychaete groups, this time taking on the hesionids. He provides a full literature review (including a listing of all reported hesionid taxa and pertinent references for them), and cladistic analysis of the family reexamining all known genera. Another paper is in press discussing out-group relationships of the hesionids, and lower level papers discussing the species in individual genera are in progress.

Two of our local species *Hesionella mccullochae* and *Microphthalmus hystrix* are removed from the family, but are considered of uncertain affinity. No familial placement is suggested for these animals. One other change of note; *Podarke* is dropped down to a junior objective synonym of *Ophiodromus*. Hartman's designation of type for *Podarke* has no force, since one had already been designated previously. That type proves to be a synonym of the type species of *Ophiodromus* (Q.E.D.).

The information supporting the limits of the Hesionidae as defined by outgroups is not in the present paper, but is in press. It will be interesting to see what happens to *Hesionella* and *Microphthalmus* down the line, as of now they are Incertae Sedis. As has been standard in past Pleijel papers, the present one is chock full of spectacularly defined SEM photos of these small animals. Too bad they don't look like that under our dissecting microscopes! By the way, some of the illustrated animals were the fruits of labor in our local waters when Dr. Pleijel was through here (and spoke with us) in 1996.

MINUTES OF 26 JUNE MEETING

The agenda of the June 26 SCAMIT meeting was to standardize the taxonomic information used in the identification of *Photis* spp. A key was created by Dean Pasko (CSDMWWD), and once finalized it will be the **only** key used for *Photis* during the Bight '98 project. In this fashion, it is hoped identifications will be standardized.

President Ron Velarde (CSDMWWD) led us through a short business meeting. It began with a brief discussion of Jimmy Laughlin's recent inquiries concerning hierarchical groupings within taxonomic databases. He was inquiring as to our ability to sort and organize data at higher taxonomic levels (i.e., order, family) as an aid to analysis. Ron Velarde explained to those present the City of San Diego's method of assigning fixed numerical species codes and alphabetical taxa codes, which do not vary with name changes (at the species level). The name of the species forms an alpha code for the organism in CSDLAC data, and so is not insulated from the effects of name changes. This is handled through a mechanism which allows global modifications throughout the existing database if a name change becomes necessary. This, use of the name-as-code seems to form one end of the axis of practice, while a fully hierarchical numeric code such as NODC forms the other end. The CSDMWWD method falls somewhere in-between these two extremes.

Next, it was mentioned that Philip Lambert heard through the "grape vine"[actually member Charlie Low] of our difficulty in acquiring copies of his new sea cucumber book (Lambert, P. 1997. Sea Cucumbers of British Columbia, Puget Sound and Southeast Alaska. Vancouver: Royal BC Museum and University of BC Press). He personally sent a fax with information on how to obtain copies of the aforementioned publication. If there is sufficient interest among SCAMIT members in obtaining this publication, we can attempt to do a group order. If you are interested in this option, contact Don Cadien, who will coordinate. For those not interested in a group order, the author can be reached at PLAMBERT@RBML01.RBCM.GOV.BC.CA. via the web at http://rbcm1.rbcm.gov.bc.ca; by phone at (250) 387-6513; or fax at (250) 387-5360.

Ron then passed around a brief but interesting discussion from the Conchologists of America web page entitled "Mollusk vs Mollusc", by Gary Rosenberg. It discussed the historical usage of the two spellings and hypothesized which of the two was the "more correct", with Rosenberg favoring "Mollusk". You can examine this on-line at http://coa.acnatsci.org/conchnet/mollusck.html. Note that Gary has hedged his bets in the construction of the URL name, accommodating all points of view simultaneously.

Don Cadien passed around a draft copy of the just released third edition of the SCAMIT species list. Members present were much impressed with the synonymy listings and voiced their appreciation for this impressive and useful publication. Don stated that as many copies as possible will be hand-delivered at future meetings to save on the cost of mailings. This will unofficially be known as "the hard-boiled egg edition" due to the choice of paper colors adopted.

The upcoming Bight '98 project was touched upon, mostly to state that things seem to be falling into place. It has been decided by the Steering Committee that biomass will be measured for benthic and trawl samples following existing protocols. Perhaps a further demonstration of the inappropriateness for benthos of the blotted wet weight biomass method will come from Bight '98 data which will prove more persuasive than that produced from SCBPP data. We can at least hope that this will be the last time data of this nature is gathered, and that in future this effort can be reallocated more productively. The field index period remains much the same, but was extended one week further into September.

The potential for an upcoming La Niña effect was discussed. It was felt that we will see a return of the normal fish/benthic community structure, and possibly fall back into another seven year drought. The El Niño/La Niña system is of concern to us all, and not only in the way it affects our nearshore waters. It is but one manifestation of global atmosphere/ ocean system oscillations which have profound effects on the ecosphere. Some have speculated that the most severe human disasters of recent centuries (ie. influenza outbreaks killing millions, the Irish potato famine, the black death in Europe) are all at least partially a result of weather anomalies related to this system! Even more subtle links have been suggested between social phenomena such as the French Revolution and ENSO related crop failures. Maybe it's not just media hype after all (see websites listed later in this NL).

Reports have been coming in from up north (Megan Lilly, CSDMWWD, persn. comm.with Dr. Van Bonn, Upstream Associates) of marine mammal deaths due to ingestion of the diatom toxin domoic acid, a toxicant closely monitored by the California Dept. Of Health Services (for details see http://www.noaanews.noaa.gov/) They test concentrations of the diatoms which secrete the toxin (formerly *Nitzschia pungens*, now considered several species and referred to as *Pseudo-nitzschia* spp) in nearshore waters, and test directly for domic acid in the tissues of sentinel organisms. Normally concentrations in our area are not high enough to be of concern. In central and northern California waters, however, there have been several alerts and consumption bans as a result of this toxic agent (see Drum et al 1993, and Langlois et al 1993). One recent newsletter from the CDOHS indicated that an offshore bivalve sample from the Santa Barbara area tested positive for elevated domoic acid. This toxicant has been linked with deaths and neural damage to mussel consumers in western Atlantic waters (see Subba Rao et al 1988, Bates et al 1991, Wohlgeschaffen et al 1992). Interested parties can consult a domoic acid website with a much larger bibliography at:

http://www.mar.dfo-mpo.gc.ca/science/mesd/he/toxins/index.html

Finally, member Carol Paquette (MBC) has been observing Black Crowned Night Herons and mentioned that the colony numbers seem low. She has been examining scat and regurgitate and finding little evidence of the normal fish diet. She suspects northern anchovy and other fish normally utilized by the birds are diminished due to El Niño, and is seeking data to confirm or reject this

hypothesis. Interestingly she has been finding crayfish remains in heron regurgitate, evidence they are going inland to feed in fresh waters distant from seaside nesting areas.

The meeting was turned over to Dean Pasko (CSDMWWD) who distributed his most recent draft of keys to both male and female *Photis* species from the Southern California Bight. These were accompanied by a figure page meant to be distributed with the keys which illustrated a series of key character states. Dean also passed out to those in attendance a series of pages produced by the labs image system providing photomicrographs of a series of species. Several previously unillustrated provisional species were among those covered, facilitating the resulting discussion. Dean is also preparing a series of SCAMIT voucher sheets for local *Photis* provisionals which have not previously had sheets available.

Those present worked through the keys, looking for problems. We attempted to run specimens of several species less familiar to Dean through the keys, among them lots labeled *Photis conchicola* and *P. viuda*. About 4 lots identified as *P. conchicola* were examined. Several of them proved to be mixed. One, collected intertidally in 1979 at Point Loma, contained representatives of *P. parvidons*, but did not seem to have any *P. conchicola*. Authentic male and female *P. conchicola* were finally located in a lot from shallow water off Oxnard. These were still associated with their nests (see Carter 1982 for a discussion of shell use in this species), and the shells containing the nests were also retained in the sample. The key did seem to correctly place these specimens, but it became clear that the specific wording of the couplets was very important. The key characters of the palmar margin and inner margin of the gnathopod dactyls must be described with extreme caution as the differences can be quite subtle. The draft keys needed a bit of refinement in how the nature of the dactyls was expressed. It was clear to Dean, but less so to others attempting to use the keys.

Description of the bulges, sinuosities, teeth, knobs, etc. which line the inner dactylar margin are particularly troublesome since they undergo ontogenic change. One of the major benefits of Dean's keys are that they incorporate specific size information for species where such ontogenic changes occur. Juveniles and adults will often key separately as a result. Similar types of change also affect the palmar margins of the gnathopods, with size and shape of teeth and sinuses changing with growth. Given the exaggeration of the mature male gnathopods, such change is an unavoidable function of the species' sexual dimorphism. Since juvenile males usually resemble females more closely than they do adult males, major changes in gnathopod morphology must occur. Fortunately the developmental trends are all parallel. In all cases existing structures of the juvenile become larger and more accentuated in the adult. Sinuses become larger (generally both deeper and broader), and teeth become larger in later molts.

We also tested the keys with several adult male *P. viuda* taken during the SCBPP program. They also keyed appropriately. Dean will dissect and mount individuals of both *P. conchicola* and *P. viuda*, and collect images of them for the CSDMWWD image database. We also discussed the value of complete parallelism in the character descriptions in each half of a single couplet. Although Dean was aware of this, a few non-parallel areas were identified and will be modified in the final key.

This was scheduled as a workshop, but several important participants were unable to attend at the last minute. In their absence the meeting became Dean's one-man-show, with Ron Velarde, Carol Paquette and Don Cadien serving as beta testers for Dean's extensive efforts. Any success of the resulting keys will

be entirely his doing. We all owe him a debt of thanks for the work he did in preparation for the meeting, and in the ongoing modifications of the keys leading to a final version. Once completed in final form the keys will be distributed both through Bight '98 meetings, and through posting to the SCAMIT website in the Tools area. Identifications intended for the Bight'98 database will need to be generated from these keys. All other taxonomic aids and keys can be used as usual, but the final name usage must be in conformance with the new keys to achieve the standardization necessary.

MY LIFE AS A BIOLOGIST

by Donald J. Reish

Chapter 8: I become a polychaetologist!

When I arrived at OIMB [Oregon Institute of Marine Biology], one of the first things Dr. Pratt asked me was what group of animals was I going work on. I do not know to this day why I said polychaetes. Maybe it was seeing that large *Neanthes brandti* the year before; maybe I liked the challenge. I really do not know. People have asked how it happened, and of course, my decision to follow polychaetes has since influenced many others.

I signed up for research, seminar and invertebrate embryology. I gave the first seminar which was on the polychaetes of Coos Bay. There wasn't much of a library: a few papers by Moore, none by Hartman. I used Lights manual to identify the worms (key written by Hartman). This was the first published manual which was mimeographed and had a green soft cover. Invert embryo was exciting. It was strictly a lecture course; we did have a lab, but nobody really accomplished anything. We discovered a large burrowing animal inhabiting the beach flats by the barracks. We didn't know what phylum it belong to. I went to work on it and determined that it was an apodous holothurian—then called *Caudina chilensis*. I chose this animal to do my lab work for invert embryo. I didn't really see any development—it was too late in the season. However, I decided to do my masters on the seasonal reproduction of this holothurian. I started sending off for reprints; I received my last batch during my early years at CSULB. I made my collections and a September collection and started making slides. I had become frustrated with identification of polychaetes.

Coos Bay is about 125-150 miles from Corvallis and I didn't have a car. At the same time Dr. Pratt learned that S.F. Light had died, and there was no attempt to reissue the book (this was before Ralph Smith's time). Dr. Pratt had a meeting with his graduate students (6 or 7) and informed us that we were going to write a manual for Oregon. He told me "Don, you are going to do the polychaetes since you know more about them than any of us". I then made a decision: since I did not have a car and since I have been assigned to write a key to the polychaetes of Coos Bay, I might as well do it for my masters degree research. Thus, you can see how seemingly unrelated events come together—had I had a car or had Light not died or had Dr Pratt not decided for us to write a manual, I may never taken up polychaetes. Who knows? We completed the manual and mimeographed it. Dr. Pratt used it in his class, but it was never published nor revised. I still have a copy. Dr. Pratt later went back to parasitology, his chosen field.

I started on my masters the fall of 1947 at Oregon State. I started working up the literature on polychaetes and I wrote my first letter to Hartman. She wrote a very encouraging letter back. I also wrote the Berkeleys, and Moore; Treadwell had just died. I also wrote Fauvel; he replied in English on a postcard. I returned to OIMB the summer of 1948. I was a TA in invert zool for Dr. Pratt; in fact I had my friend John as a student. The rest of the time I was busy collecting polychaetes. I did most of my identification that fall at Oregon State. I had difficulty identifying one particular worm. Finally in desperation, I turned the worm around and used the posterior

end as the head. No problem, it was a maldanid! Later I was reading one of Fauvel's papers and he commented that many people had problems identifying this worm because its tail looks so much like a head. I didn't feel so foolish then. It was exciting to write to people far way and find them to be very encouraging to me in my studies on polychaetes.

The fall semester of 1948 I was a TA in invert zool and in the spring I was a TA in parasitology. I visited Hartman, but I will write about that in the next chapter. I took advanced parasitology and as my project, I studied the parasites of sea gulls. As I went to check the gall bladder, my partner said no parasite would live there. I found several. They were new host and distributional records, and formed the subject of my first publication. I also found an acanthocephalan which was identified by Van Cleve, the authority on this group. That summer I found larval stages in a sand crab. I fed them to mice. My friend said how stupid; trying to implant a marine parasite in a terrestrial mammal. It developed into the acanthocephalan. I repeated the experiment and it also took. This was another paper for me.

I learned from these two happenings not to accept preconceived ideas or thoughts. Both of these fellow students said that I was "lucky". I do not think so; I tried doing things rather than accepting the conventional wisdom that "it won't work". This experience lead me to develop my own trial and error science. I would rather attempt to try something than think about it. If I had not pursued this idea of trial and error science, I never would have had much luck in culturing polychaetes. I found that students like to get their hands wet and dirty and do things.

Next Time in Chapter 9: I complete my masters and head south: beginning of the Hartman years.

MATERIEL FOR AN E-MAIL

I am offering glass ware, reprints, etc. for free to interested parties. I have thousands of shell vials measuring from 0.5 to 4.0 drams with 1.5 dram being the most abundant. Many are new. I also have many, many 500 ml Erlenmeyer flasks. Some aquarium supplies such as gang lines and substage filters. Please indicate to me (see below) what you are interested in and I will get back to you.

I am disposing of my reprints with the exception of polychaetes and Barnard's papers (this latter for sentimental reasons). If you are interested, please indicate to me (see below) the animal or plant group (s) you are interested in. It will take me a month or two to sort through my reprints.

You can contact me by phone at (562) 985-4846 (you an leave a message on the machine if I am not present), FAX at 562-985-8878 or email me at DJReish@aol.com. No, I am not quitting science; I'm just trying to get some of clutter out of my scientific life.

— Dr. Donald Reish

YEAR OF THE OCEAN

Its now the middle of 1998, and we have yet to mention in the Newsletter that official recognition of that 70% of the earth's surface and well over 90% of the habitat volume of our globe known as the ocean has finally taken place. This is OFFICIALLY the Year of the Ocean. What this means, other than as a photo-op for our leaders in Santa Monica Bay, remains to be seen. It has resulted, so far, in a bit of good PR for salty liquids, more media attention (debatably a good thing), and a few useful articles. One of the most recent of these (Carlson 1998) just appeared in Scientific American, and draws attention to the increasing involvement (and value) of amateur observations in the marine environment. It also mentions something that we, as invert folks, are only peripherally involved in; fish. Although I

generally view these animals either as potential predators of the interesting marine species, or as hapless victims of clever invertebrate parasites, they do have considerable influence over most marine environments.

This is a round-about way of bringing up the NOAA Great American Fish Count, due to take place the first two weeks of July. I have never participated in this effort, although some of you probably have. One of the areas of concentration is in the Channel Islands, an area where SCAMIT members may be able to help out. Any of you who are divers, and would like to get involved with a marine equivalent of the Audubon Society's Christmas Bird Count should contact Christy Pattengill at 800-862-3260 or visit their website at:

www.fishcount.org.

Hopefully the main thrust of the Year of the Ocean will be educational. I assume that schools throughout the country are taking advantage of official support to increase the information on the oceans offered their students. Also hopefully, the accuracy of the provided information will be improved by official support. Increased public awareness is only of value when supplemented by accurate information. Heightened concern is of great value, but when such concern is misdirected into unproductive byways by misinformation all positive value is lost, and harm may be done.

I expect that, as usual, little of the information or debate arising from the Year of the Ocean programs will deal with invertebrates, although locally the potential for a disastrous crash of the *Loligo* population (and fishery) may garner some attention. You would think that the recent furor over the zebra mussel might spread to other note-worthy invertebrates, but this seems not to be happening in any broad sense. Well, SCAMIT folk can rest assured that your Newsletter will carry whatever marine invertebrate information is brought to attention of the NL staff. That is your job. If you have news or notes please contact Don Cadien or Megan Lilly so that your comments can be included in future.

WEATHER (OR NOT)

On a related note, we have begun to hear references in the media to signs of La Niña. Although there has been (according to the various sites on the web dealing with these phenomena) a decrease in the intensity of El Niño expression in recent months, we are still in an ENSO event. For those interested in hearing it directly from the knowledgeable sources the following list (selected - there are many more)of information sources on the web is provided:

http://www.elnino.noaa.gov
http://www.ceres.ca.gov/elnino/
http://www.wmo.ch/nino/nonoi.html
http://www.pfeg.noaa.gov/products/
upwell.html
http://pmel.noaa.gov/toga-tao/el-nino/
measurements.html
http://oar.noaa.gov/enrelease2.html

Unfortunately few of these sites provide any biological information to supplement the remote sensing of temperature and/or ocean height anomaly which generally forms the information base of ENSO forecasting and tracking. We have attempted, and will continue to attempt, to fill this gap for the Southern California Bight area. If you have additional comments on unusual animal occurrences in your area you would like to contribute to the NL please contact Don Cadien or Megan Lilly.

A preliminary indication of a water mass dislocation off California, perhaps a continuation of ENSO disturbance or a beginning signal of La Niña flow, is the recent catch of several unusually pelagic cephalopods nearshore. The first was a specimen of the squid *Gonatopsis borealis* at 305m off Palos Verdes on 21 May 1998 during routine trawl sampling. This small individual (ML about

35mm) had us scratching our heads for a while before we finally were able to match it to the description of the young of the species in Young (1972). Initial attempts using the key to juveniles in Sweeney et al. 1992 were unproductive. Although the species is known from the area, it is normally confined to offshore waters outside the channel islands, and doesn't come in near shore.

A second specimen came from the Orange County Marine Institute, taken recently in 60m of water. This was just a bit larger than the *Gonatopsis* specimen (at 45mm ML) and was also assumed to be a sub-adult individual. It proved to be a fully mature specimen of *Abraliopsis felis*. This animal is covered in photophores both dorsally and ventrally, and has large hooks on the tentacles and along the arms. It also has enlarged photophores, large dark ovals, at the end of the ventral pair of arms. Anytime you see a squid with these it will be one of the two species of *Abraliopsis* which occur in our area.

Both of these species have the third pair of arms expanded into a lateral keel to facilitate midwater cruising by the squid. While such midwater animals occasionally make it into our trawl catches, they should be excluded from our benthic trawl database. It is useful to remember, however, that the two bottom associated squids we do take and report - *Rossia pacifica* and *Loligo opalescens* are not the only squids in our area.. Young (1972) list 36 species of pelagic cephalopods reported from waters in or near the Southern California Bight. Their list did not include *Rossia*, *Loligo*, or two other squids which are sometimes seen in numbers nearshore - the jumbo squid *Dosidicus gigas*, and *Moroteuthis robustus*. They also did not mention two other swimming octopods, *Opisthoteuthis californicus* and *Opisthoteuthis* sp A. Adding to this the six or seven species of *Octopus* which occur in the area, we have a total of 48-49 species of cephalopods which might occur in our trawl nets. A sobering statistic; and one which dictates that if a trawl caught specimen looks even remotely different or out of the ordinary, it should be returned to the laboratory for identification or for confirmation of field identification.

CRABS: SWIMMING & PINCHING

A report was received from Carol Paquette (MBC Applied Environmental Sciences) that California Department of Fish and Game personnel had been fielding complaints from boaters and bathers in Newport Bay of attacks by crabs. Apparently most of the attacks took place in the vicinity of the Dunes recreation area in mid-bay, and not in the upper or lower bay. Bathers and barefoot kayak and small boat launchers were aggressively approached as they stood in shallow water just off the beach. Investigation by John Scholl of CDF& G soon revealed that the reports were true. He took several specimens of an agile swimming crab to MBC for identification. They proved to be *Callinectes arctuatus*, a southern species (south to Chile) reaching its northern range limit in southern California (at Los Angeles Harbor). Chuck Mitchell (MBC) visited the site several days later and found densities of about $2/m^2$. He reported that although none of the observed females were berried, several pairs in amplexus were seen. Ovigerous females have been reported from March through September in the past.

Nearly all of the swimming crabs taken in Southern California Bight waters over the years have been *Portunus xantusii*, but on occasion other species have been observed. In addition to *Callinectes arctuatus*, its congener *C. bellicosus* may be taken in the San Diego area (Garth & Stephenson 1966), and offshore *Euphylax dovii* has been rarely encountered (Word 1976).

In a follow-up to last months report on *Stenorhynchus debilis* in southern California, Carol also passed on a record from a diver who observed and photographed them in early June off Corona del Mar in about 30' of water. No

specimens were returned, but the photograph leaves no doubt as to the identity of the animal. This is the most northward report of the species on the mainland to date.

THE MALE IS WRONG

Member Tim Stebbins (CSDMWWD) recently sent an e-mail noting differences between the specimens he (and Dean Pasko) had been observing and the published description of *Campylaspis canaliculata* Zimmer 1928. No male was available for Zimmer's original description, and the male remained undescribed in the literature until the recent report of Watling & McCann (1997). Unfortunately, the male put forward by Watling & McCann as *C. canaliculata* is not. It appears to be a related species, but is not the male of *C. canaliculata* as known here in the Bight. Our local specimens of *C. canaliculata* display characteristically narrow and deep lateral carapace sulci in BOTH sexes. The male attributed to the species by Watling & McCann lacks this sulcus in the provided illustrations (Figure 2.24a, b), and is also described in the text as lacking a sulcus. In most other particulars the animal is similar to the sulcate male taken locally along with females. It also lacks, however, the sternal tooth found on the first three abdominal segments of *C. canaliculata* males. Presumptive males of the species should be examined for these teeth; they occur in an area not normally examined in the process of identification, and consequently are not often noted. They are clearly absent in Figure 2.24b of Watling & McCann, a lateral view of an entire male specimen.

Tim and Dean also noted a difference in the uropodal setation of their specimens from that reported by Watling & McCann. In the key to treated *Campylaspis* provided by those authors (pg. 160-161) they state that the uropodal exopod lacks lateral setation in *C. canaliculata*, and use this as a key character in separation from *C. biplicata*. Our specimens do not bear this out. Both the San Diego specimens and those from off Palos Verdes have two to three setae distally on the exopod lateral margin. The count is usually two, but a third subterminal seta occurs with some frequency. Despite the assertion in the text and in the key that these are lacking in *C. canaliculata*, Zimmer's original description makes no such statement. Zimmer gave little detail in his description of the uropods, and did not mention armature of either the lateral or mesial margins of the exopod. His illustration does not show the setae, but is not very large.

Both the San Diego and Palos Verdes specimens are from much closer to the type location of the species (off Corona del Mar) than are the specimens examined by Watling and McCann from off central California. Some clinal variation might be expected, and this may be represented in their concept of the species. Their statement that the species was previously known from only two specimens reflects reliance on the literature, and lack of local experience. Most agencies sampling in the Bight take this species routinely, and hundreds of specimens have been examined from local waters.

ALIEN ALERT

Member Mary Wicksten (TAMU) recently notified the editor via e-mail of a potential incursion by a southern shrimp species into our waters. The species, normally found in Panamanian waters, may extend northward during the present strong ENSO event, and we should be on the watch for it. It is an undescribed species of the hippolytid genus *Lysmata*, which Mary describes as "The other *Lysmata* is smaller than *L. californica*, has a distinct accessory branch to one flagellum of the first antenna and is colored red with distinct lines of silver spots." Anyone finding this animal should collect the specimens and notify Mary (wicksten@bio.tamu.edu). I'm sure she would appreciate both the record and any available specimens.

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