Southern California Association of Marine Invertebrate Taxonomists

3720 Stephen White Drive
San Pedro, California 90731

October, 1991 Vol. 10, No. 6

NEXT MEETING:	Sea Pens
GUEST SPEAKER:	Dr. Eric Hochberg of the Santa Barbara Museum of Natural History
DATE:	November 18, 1991 **Note this is the third Monday of the month.**
LOCATION:	The Santa Barbara Museum of Natural History Santa Barbara, California

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MINUTES FROM MEETING ON OCTOBER 28 & 29:

Dr. Jim Thomas began the meeting by responding to questions from a correspondence from Don Cadien. He described his relationship with the EPA regarding the development of appropriate biocriteria for the assessment of marine environmental quality. Dr. Thomas' role has been to advise the EPA on the importance of taxonomy in the selection of species as indicators. Indicator species must satisfy the following requirements in order to function as a biocriteria species. They must be ecologically significant, numerically abundant, and sensitive to a wide range of pollutants. His work with Dr. Barnard among the coral reefs of New Guinea suggests that Amphipods may be an appropriate group to use for biocriteria. A committee has been set up to work on east coast species. A similar panel should be set up for the west coast. Dr. Thomas suggested that SCAMIT should get involved.

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He also proposed that SCAMIT apply for money from UNESCO to get taxonomist from other countries to host a workshop at a future meeting. This is especially encouraged for scientist from both eastern block and underdeveloped countries. UNESCO has visiting scientist funds available for this kind of project.

Amphipod Workshop: Ron Velarde, Don Cadien, Tony Phillips, and myself will be preparing the notes from the workshop. This will include a complete list of the specimens examined as well as their ultimate resolution. An address for requesting copies should appear in the November newsletter. All those in attendance will automatically receive a copy.

Dr. Elizabeth Harrison-Nelson of the Smithsonian Institution was also in attendance. A copy of her "Notes on Stenothoidae of Southern California" has been included in the newsletter. A list of the specimens looked at will be included in the workshop notes.

Other Information of Interest to SCAMIT Members: A draft of Don Cadien's "List of the Marine Amphipod fauna of the Temperate and Boreal Northeastern Pacific Ocean..." has been included with the newsletter for review and comment. A copy of Senate bill 58 establishing a national policy for the conservation of biodiversity has also been included.

FOURTH INTERNATIONAL POLYCHAETE CONFERENCE:

It will be held in Angers, France, July 27 through August 2, 1992. The following subjects will be covered:

- Taxonomy and comparative morphology.
- Biogeography and population genetics.
- Biology of populations.
- Culture, exploitation, and valorization.
- Reproduction and larval biology.
- Cytophysiology, cytotoxicology, and endocrinology.

A tentative schedule and registration form have been included in the newsletter.

CHRISTMAS PARTY DECEMBER 7:

Don't forget the Christmas party at the Cabrillo Marine Museum. It will be from 6 to 9 pm on December 7. Mark you calendars and bring the kids.

FUTURE MEETINGS:

On December 9 Karen Green will be leading a meeting on Sponges. It will be held at the Cabrillo Marine Museum. Please send any problem animals to:

Karen Green
1537 Camino Corto
Fallbrook, CA 92028.

The January meeting is on the sixth. Ron Velarde will be leading the meeting on Mysids. It will be held at the San Diego Museum of Natural History. Send your problem specimens to:

Ron Velarde
4918 North Harbor Dr. #101
San Diego, CA 92106.

Note this is the **first** monday of the month.

SCAMIT OFFICERS:

If you need any other information concerning SCAMIT please feel free to contact any of the officers.

President	Ron Velarde	(619)226-0164
Vice-President	Larry Lovell	(619)945-1608
Secretary	Kelvin Barwick	(619)226-8175
Treasurer	Ann Martin	(213)648-5317

Dates :

Monday July 27	Scientific session. Arrangement of posters. "Reception at the University".
Tuesday July 28	Scientific session. First poster session.
Wednesday July 29	Mid-conference excursions to the Bourgneuf Bay and the Châteaux d'Anjou.
Thursday Julay 30	Scientific session. Second poster session. After dinner meeting : Exploitation and valorisation of polychaetes.
Friday July 31	Scientific session. Conference banquet.
Saturday August 1	Scientific session in the morning. Coaches leave Angers at about 2 pm for excursions.
Sunday August 2	Excursions to the Mont St Michel Bay.

4 TH INTERNATIONAL POLYCHAETE CONFEREI
ANGERS, 1992
(Preliminary Registration form)

NAME .....

ADDRESS.....

.....

TITLE OF PAPER (Provisional) .....

.....

TITLE OF POSTER (Provisional) .....

.....

- Registration 800 FF
- Lunch Center of Congress 100 FF

• Dormitory "Centre du Lac de Maine"

☐ single 97 FF
☐ double 69 FF
☐ four persons 56 FF

Do you accept to be with another person in your room : ☐ yes ☐ no

• Hotels :

Anjou *** (Ancient style)
☐ single 350 FF
☐ double 495 FF

Mercure *** (Modern style)
☐ single
☐ double

Boule d'Or **
☐ single 205 FF
☐ double 240 FF

• Excursions :

Mid Conference		Post Conference	
☐ Bourgneuf Bay	300 FF	☐ Mont St Michel	750 FF
☐ Guérande	300 FF		
☐ Châteaux and Troglodyte Sites :	300 FF		

Return to : Patrick GILLET
Laboratoire d'Ecologie Animale - I.R.F.A.
3 Place A. Leroy
49008 ANGERS CEDEX 01 - FRANCE (Fax : 41.81.66.09)

List of the Marine Amphipod fauna of the Temperate and Boreal Northeastern Pacific Ocean
including literature records of occurrence between Bahia San Quintin, Baja California and the south side of the Aleutian Islands
incorporating nomenclatural changes listed in Barnard and Karaman 1991 (comments keyed to Klink 1980)

Donald B. Cadien, Marine Biology Laboratory -JWPCP, September 1991

Ampeliscidae Bate, 1857

Ampelisca Krøyer, 1842

Ampelisca agassizi (Judd, 1896)

Ampelisca compressa Holmes, 1903

Ampelisca vera J. L. Barnard, 1954

Ampelisca amblyopsoides J. L. Barnard, 1960

[1]***Ampelisca brachycladus*** Roney, 1990 **C**

Ampelisca brevisimulata J. L. Barnard, 1954

[1]***Ampelisca careyi*** Dickinson, 1982

Ampelisca coeca Holmes, 1908 **C**

Ampelisca cristata Holmes, 1908

Ampelisca cristata microdentata J. L. Barnard, 1954

Ampelisca eoa Gurjanova, 1951

Ampelisca catalinensis J. L. Barnard, 1954

Ampelisca eschrichti Krøyer, 1842 **B**

Ampelisca pelagicus Stimpson, 1853

Ampelisca ingens Bate, 1862

Ampelisca dubia Boeck, 1871

Ampelisca propinqua Boeck, 1871

Ampelisca pacificus Gurjanova, 1955

[1]***Ampelisca fageri*** Dickinson, 1982

Ampelisca schellenbergi Shoemaker, 1933 of J. L. Barnard, 1954

Ampelisca furcigera Bulycheva, 1936

Ampelisca hancocki J. L. Barnard, 1954

[2]***Ampelisca hessleri*** Dickinson, 1982 **B**

Ampelisca indentata J. L. Barnard, 1954 **C**

Ampelisca lobata Holmes, 1908

Ampelisca articulata Stout, 1913

Ampelisca macrocephala Liljeborg, 1852

Ampelisca latipes Stephensen, 1928

Ampelisca milleri J. L. Barnard, 1954

Ampelisca pacifica Holmes, 1908 **C**

Ampelisca plumosa Holmes, 1908 **C**

Ampelisca pugetica Stimpson, 1864

Ampelisca californica Holmes, 1908

Ampelisca gnathia J. L. Barnard, 1954

Ampelisca macrodonta J. L. Barnard, 1954

Ampelisca mora J. L. Barnard, 1967

Ampelisca romigi J. L. Barnard, 1954 **C**

Ampelisca isocornea J. L. Barnard, 1954

Ampelisca romigi ciego J. L. Barnard, 1966

[4]***Ampelisca unsocalae*** J. L. Barnard, 1960

Byblis Boeck, 1871
Byblis barbarensis J. L. Barnard, 1960
Byblis bathyalis J. L. Barnard, 1966
[1]***Byblis brevirama*** Dickinson, 1983
[1]***Byblis longispina*** Dickinson, 1983
[1]***Byblis millsi*** Dickinson, 1983
[1]***Byblis mulleni*** Dickinson, 1983
Byblis tannerensis J. L. Barnard, 1966
Byblis thyabilis J. L. Barnard, 1971
Byblis veleronis J. L. Barnard, 1954
Haploops Liljeborg, 1856
[1]***Haploops lodo*** J. L. Barnard, 1961
Haploops tubicola Liljeborg, 1856
Haploops carinata Liljeborg, 1856
Haploops spinosa Shoemaker, 1931
Amphilochidae Boeck, 1871
Amphilochus Bate, 1862
Amphilochus litoralis Stout, 1912
Amphilochus "neapolitanus" Della Valle, 1893 of J. L. Barnard, 1962
Amphilochus picadurus J. L. Barnard, 1962 **C**
Gitana Boeck, 1871
Gitana calitemplado J. L. Barnard, 1962 **C**
Gitanopsis Sars, 1895
Gitanopsis vilordes J. L. Barnard, 1962 **C**
Ampithoidae Stebbing, 1899
Ampithoe Leach, 1814
Pleonexes Bate, 1857
Ampithoe aptos (J. L. Barnard, 1969) **C**
Pleonexes aptos J. L. Barnard, 1969
[1]***Ampithoe kussakini*** Gurjanova, 1955 **B**
Ampithoe lacertosa Bate, 1858
Ampithoe longimana Smith, 1873
Ampithoe plumulosa Shoemaker, 1938
Ampithoe ramondi Audouin, 1826 **C**
[2]***Ampithoe sectimanus*** Conlan and Bousfield, 1982 **B**
Ampithoe pollex Kunkel, 1910 of J. L. Barnard, 1954
Ampithoe simulans Alderman, 1936
[4]***Ampithoe dalli*** Shoemaker, 1938 **B**
Ampithoe simulans Alderman 1936 of J. L. Barnard, 1965
Ampithoe valida Smith, 1873
Ampithoe shimijuensis Stephensen, 1944
Cymadusa Savigny, 1816
Cymadusa uncinata (Stout, 1912)
Acanthogrubia uncinata Stout, 1912
Paragrubia uncinata Shoemaker, 1941

Key - 1. = not included 2.= new name 3. = family changed 4. = status changed 5. = new orthography
B = boreal occurrance only C= Californian occurrance only

Peramphithoe Conlan and Bousfield, 1982
Peramphithoe humeralis (Stimpson, 1864)
Peramphithoe lindbergi (Gurjanova, 1938)
Ampithoe lindbergi Gurjanova, 1938
Ampithoe femorata Krøyer, 1845 of J. L. Barnard, 1952
[1]***Peramphithoe mea*** (Gurjanova, 1938) **B**
Ampithoe mea Gurjanova, 1938
[2]***Peramphithoe plea*** (J. L. Barnard, 1965)
Amphithoe plea J. L. Barnard, 1965
[2]***Peramphithoe tea*** (J. L. Barnard, 1965)
Amphithoe tea J. L. Barnard, 1965
Anamixidae Stebbing, 1897
Anamixis Stebbing, 1897
Leucothoides Shoemaker, 1933
[2]***Anamixis pacifica*** (J. L. Barnard, 1955) **C**
Leucothoides pacifica J. L. Barnard, 1955
[4]**Anamixis linsleyi** J. L. Barnard, 1955
Anisogammaridae Bousfield, 1977
Anisogammarus Derzhavin, 1927
[1]***Anisogammarus pugettensis*** (Dana, 1853)
Carineogammarus Bousfield, 1979
≠Carinogammarus Stebbing, 1899 [baikalian]
[1]***Carineogammarus makarovi*** (Bulyscheva, 1952)**B**
Anisogammarus schmitti Shoemaker, 1964
Eogammarus Birstein, 1933
[3]***Eogammarus confervicolus*** (Stimpson, 1856)
[1]***Eogammarus oclairi*** Bousfield, 1979 **B**
[1]***Eogammarus psammophilus*** Bousfield, 1979 **B**
Locustogammarus Bousfield, 1979
[1]***Locustogammarus levingsi*** Bousfield, 1979 **B**
[1]***Locustogammarus locustoides*** (Brandt, 1851) **B**
Spinulogammarus Tzvetkova, 1972
[1]***Spinulogammarus subcarinatus*** (Bate, 1862) **B**
Aoridae Stebbing, 1899
Acuminodeutopus J. L. Barnard, 1959
Acuminodeutopus heteruropus J. L. Barnard, 1959 **C**
Aoroides Walker, 1898
Aoroides columbiae Walker, 1898
Aoroides californica Alderman, 1936
[1]***Aoroides exilis*** Conlan and Bousfield, 1982
[1]***Aoroides inermis*** Conlan and Bousfield, 1982
[1]***Aoroides intermedia*** Conlan and Bousfield, 1982
[1]***Aoroides spinosa*** Conlan and Bousfield, 1982
Aoroides columbiae Walker, 1898 of J. L. Barnard, 1954
Arctolembos Myers, 1979
[1]***Arctolembos arcticus*** (Hansen, 1887) **B**
Lembos arcticus (Hansen, 1887)

Bemlos Shoemaker, 1925
[2]***Bemlos audbettius*** (J. L. Barnard, 1962) **C**
Lembos audbettius J. L. Barnard, 1962
[2]***Bemlos concavus*** (Stout, 1913) **C**
Lembos concavus Stout, 1913
[2]***Bemlos macromanus*** Shoemaker, 1925 **C**
Columbaora Conlan and Bousfield 1982
[1]***Columbaora cyclocoxa*** Conlan and Bousfield, 1982
Grandidierella Coutiére, 1904
[1]***Grandidierella japonica*** Stephensen, 1938
Paramicrodeutopus Myers, 1988
[2]***Paramicrodeutopus schmitti*** (Shoemaker, 1942) **C**
Microdeutopus schmitti Shoemaker, 1942
Neohela Smith, 1881
[1]***Neohela intermedia*** Coyle and Mueller, 1981 **B**
[1]***Neohela pacifica*** Gurjanova, 1953 **B**
Neomegamphopus Shoemaker, 1942
Neomegamphopus roosevelti Shoemaker, 1942 **C**
Rudilemboides J. L. Barnard, 1962
Rudilemboides stenopropodus J. L. Barnard, 1959 **C**
Argissidae Walker, 1904
Argissa Boeck, 1871
Argissa hamatipes (Norman, 1869)
Bateidae Stebbing, 1906
Batea Müller, 1865
Batea lobata Shoemaker, 1926
Batea transversa Shoemaker, 1926
Cheluridae Allman, 1847
Chelura Philippi, 1839
Chelura terebrans Philippi, 1839
Colomastigidae Stebbing, 1899
Colomastix Grube, 1861
Colomastix pusilla Grube 1864 of J.L. Barnard 1969
Corophiidae Dana, 1849
Corophium Latreille, 1806
Corophium acherusicum Costa, 1857
Corophium baconi Shoemaker, 1934
[1]***Corophium brevis*** Shoemaker, 1949 **B**
Corophium californianum Shoemaker, 1934 **C**
[1]***Corophium crassicorne*** Bruzelius, 1859 **B**
Corophium insidiosum Crawford, 1937
[1]***Corophium salmonis*** Stimpson, 1857 **B**
[1]***Corophium spinicorne*** Stimpson, 1857 **B**
Corophium uenoi Stephensen, 1932

Key - 1. = not included 2.= new name 3. = family changed 4. = status changed 5. = new orthography
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Dexaminidae Stebbing, 1888
Atylidae Liljeborg, 1865
Anatylidae Bulycheva, 1955
Lepechinellidae Schellenberg, 1925
Atylus Leach, 1815
[1]***Atylus brüggeni*** (Gurjanova, 1938) **B**
[1]***Atylus collingi*** (Gurjanova, 1938) **B**
[1]***Atylus laevidensus*** J. L. Barnard, 1956
Atylus tridens (Alderman, 1936) **C**
Nototropis tridens Alderman, 1936
Guernea Chevreux, 1887
Dexamonica J. L. Barnard, 1957
[1]***Guernea nordenskioldi*** (Hansen, 1888) **B**
Guernea reduncans (J. L. Barnard, 1957)
Dexamonica reduncans J. L. Barnard, 1957
Lepechinella Stebbing, 1908
[3]***Lepechinella bierli*** J. L. Barnard, 1957
Polycheria Haswell, 1880
Polycheria osborni Calman, 1898
Dogielinotidae Gurjanova, 1953
Proboscinotus Bousfield in Bousfield & Tzvetkova, 1982
[2]***Proboscinotus loquax*** (J.L. Barnard, 1966)
Dogielinotus loquax J. L. Barnard, 1966
Eophliantidae J. L. Barnard, 1964
Lignophliantis J. L. Barnard, 1969
Lignophliantis pyrifera J. L. Barnard, 1969 **C**
Eusiridae Stebbing, 1888
Calliopiidae Sars, 1893
Pontogeneidae Stebbing, 1906
Accedomoera J. L. Barnard, 1964
Accedomoera vagor J. L. Barnard, 1969
[1]***Accedomoera sp. A*** of Paquette [1990] **B**
Eusiroides Stebbing, 1888
Eusiroides monoculoides (Haswell, 1880)
Eusirus Krøyer, 1845
Eusirus longipes Boeck, 1871
Oligochinus J. L. Barnard, 1969
Oligochinus lighti J. L. Barnard, 1969
Oradarea Walker, 1903
[1]***Oradarea longimana*** (Boeck, 1871)
Paracalliopiella Tzvetkova & Kudryashov, 1975
Callaska J. L. Barnard, 1978
[1]***Paracalliopiella bungei*** (Gurjanova, 1951) **B**
Halirages bungei Gurjanova, 1951
Paracalliopiella pratti (J.L. Barnard, 1954)
Calliopiella pratti J. L. Barnard, 1954
Callaska pratti (J. L. Barnard, 1954)

Paramoera Miers, 1875
[1]***Paramoera bousfieldi*** Staude, 1987 (nomen nudum) **B**
[1]***Paramoera bucki*** Staude, 1987 (nomen nudum) **B**
[1]***Paramoera carlottensis*** Bousfield, 1958 **B**
[1]***Paramoera columbiana*** Bousfield, 1958 **B**
[1]***Paramoera leucophthalma*** Staude, 1987 (nomen nudum) **B**
Paramoera mohri J. L. Barnard, 1952
[1]***Paramoera serrata*** Staude, 1987 (nomen nudum) **B**
[1]***Paramoera suchaneki*** Staude, 1987 (nomen nudum) **B**
Pontogeneia Boeck, 1871
[1]***Pontogeneia inermis*** (Krøyer, 1838)
Pontogeneia intermedia Gurjanova, 1938
[1]***Pontogeneia ivanovi*** Gurjanova, 1951 **B**
Pontogeneia opata J. L. Barnard, 1979
Pontogeneia minuta J. L. Barnard, 1959
Pontogeneia rostrata Gurjanova, 1938
Rhachotropis Smith, 1883
Rhachotropis cervus J. L. Barnard, 1957
Rhachotropis clemens J. L. Barnard, 1967
Rhachotropis distincta (Holmes, 1908)
Rhachotropis inflata (Sars, 1882)
Rhachotropis nataor (Holmes, 1908)
Rhachotropis oculata (Hansen, 1887)
[1]***Rhachotropis sp. A*** SCAMIT, 1987
Gammaridae Leach, 1813
Gammarus Fabricius, 1775
Lagunogammarus Sket, 1971
[1]***Gammarus setosus*** Dementieva, 1931 **B**
Lagunogammarus setosus (Dementieva, 1931)
Gammaroporeiidae Bousfield, 1979
Gammaroporeia Bousfield, 1979
[1]***Gammaroporeia alaskensis*** (Bousfield and Hubbard 1968) **B**
Micruropus alaskensis Bousfield and Hubbard 1968
Haustoriidae Sars, 1882
Eohaustorius J. L. Barnard, 1957
[1]***Eohaustorius brevicuspis*** Bosworth, 1973 **B**
[1]***Eohaustorius estuarinus*** Bosworth, 1973 **B**
[1]***Eohaustorius sawyeri*** Bosworth, 1973
Eohaustorius sencillus J. L. Barnard, 1962 **C**
Eohaustorius washingtonianus (Thorsteinson, 1941)
Hyalidae Bulycheva, 1957
Allorchestes Dana, 1849
Allorchestes angusta Dana, 1856
[1]***Allorchestes bellabella*** J. L. Barnard, 1974 **B**
[1]***Allorchestes carinata*** Iwasa, 1939 **B**
[1]***Allorchestes sp. A*** of Cadien [1991] **B**

Key - 1. = not included 2.= new name 3. = family changed 4. = status changed 5. = new orthography
B = boreal occurrance only C= Californian occurrance only

Hyale Rathke, 1837
Hyale anceps (J.L. Barnard, 1969)
Allorchestes anceps J. L. Barnard, 1969
Hyale californica J. L. Barnard, 1969
Hyale grandicornis californica J. L. Barnard, 1969
Hyale canalina J. L. Barnard, 1979 C
Hyale rubra rubra Thomson, 1879 of J. L. Barnard 1969
Hyale frequens (Stout, 1913)
Allorchestes frequens Stout, 1913
Hyale rubra frequens (Stout 1913)
Hyale nigra Haswell, 1880 of J. L. Barnard 1962
Hyale plumulosa (Stimpson, 1857)
[1]***Hyale pugettensis*** (Dana, 1853)
Parallorchestes Shoemaker, 1941
Parallorchestes ochotensis (Brandt, 1851)
Iphimediidae Boeck, 1871
Acanthonotozomatidae Stebbing, 1906
Coboldus Krapp-Schickel, 1974
[2]***Coboldus hedgpethi*** (J.L. Barnard, 1969)
Iphimedia hedgpethi (J. L. Barnard, 1969)
Panoploea hedgpethi J. L. Barnard, 1969
Epimeria Costa, 1851
[1]***Epimeria cora*** J. L. Barnard, 1971
[1]***Epimeria yaquinae*** McCain, 1971
Iphimedia Rathke, 1843
Panoploea Thomson, 1880
Iphimedia rickettsi (Shoemaker, 1931)
Panoploea rickettsi Shoemaker, 1931
Odius Liljeborg, 1865
[1]***Odius kelleri*** Brüggen, 1907
Isaeidae Dana, 1853
Ampelisciphotis Pirlot, 1938
Gaviota J. L. Barnard, 1958
Ampelisciphotis podophthalma (J.L. Barnard, 1958) C
Gaviota podophthalma J.L. Barnard, 1958
Amphideutopus J. L. Barnard, 1959
Amphideutopus oculatus J. L. Barnard, 1959
Cheirimedeia J. L. Barnard, 1962
[1]***Cheirimedeia macrocarpa americana*** Conlan, 1983 B
[1]***Cheirimedeia macrodactyla*** Conlan 1983 B
[1]***Cheirimedeia similicarpa*** Conlan 1983 B
[1]***Cheirimedeia zotea*** J. L. Barnard 1962 C
Cheiriphotis Walker, 1904
[4]***Cheiriphotis "megacheles"*** (Giles, 1885) of J. L. Barnard, 1962
Chevalia Walker, 1904
[4]***Chevalia inaequalis*** (Stout, 1913) C
Chevalia aviculae Walker, 1904 of J. L. Barnard, 1962

Gammaropsis Liljeborg, 1855
Eurystheus Bate, 1857
Gammaropsis (s.s.) Liljeborg, 1855
[5]***Gammaropsis effrena*** (J.L. Barnard, 1964) C
Megamphopus effrenus J. L. Barnard, 1964
[1]***Gammaropsis ellisi*** Conlan, 1983 B
Gammaropsis martesia (J. L. Barnard, 1964)C
Megamphopus martesia J. L. Barnard, 1964
[1]***Gammaropsis shoemakeri*** Conlan, 1983 B
Gammaropsis lobata Shoemaker, 1942
≠ Gammaropsis lobata (Chevreux, 1920)
Gammaropsis thompsoni (Walker, 1898)
Maeroides thompsoni Walker, 1898
Eurystheus thompsoni (Walker, 1898)
Gammaropsis tenuicornis Holmes, 1904
Gammaropsis (Megamphopus) Norman, 1869
[5]***Gammaropsis mamola*** (J. L. Barnard, 1962) C
Megamphopus mamolus J. L. Barnard, 1962
Gammaropsis (Podoceropsis) Boeck, 1861
[1]***Gammaropsis amchitkensis*** Conlan, 1983 B
[1]***Gammaropsis angustimana*** Conlan, 1983 B
[1]***Gammaropsis barnardi*** Kudryashov and Tzvetkova, 1975
[1]***Gammaropsis chionoecetophila*** Conlan, 1983 B
Gammaropsis ociosa (J. L. Barnard, 1962)C
Kermystheus ociosa J. L. Barnard, 1962
[1]***Gammaropsis setosa*** Conlan, 1983 B
Pareurystheus Tzvetkova, 1977
Paraeurystheus Tzvetkova, 1977 of Conlan, 1983
[1,2]***Pareurystheus alaskensis*** (Stebbing, 1910) B
Eurystheus dentatus Holmes, 1908
≠ Eurystheus dentatus Chevreux, 1900
Cheirimedia alaskensis (Stebbing, 1910) of J. L. Barnard and Karaman, 1991
Paraeurystheus dentatus (Holmes, 1908) of Conlan 1983
[1]***Pareurystheus tzvetkovae*** Conlan 1983 B
Photis Krøyer, 1842
Photis bifurcata J. L. Barnard, 1962
Photis brevipes Shoemaker, 1942
Photis californica Stout, 1913 of J. L. Barnard, 1954
Photis californica Stout, 1913
[1]***Photis chiconola*** J. L. Barnard, 1962
Photis conchicola Alderman, 1936
Photis elephantis J. L. Barnard, 1962
[1]***Photis fishmanni*** Gurjanova, 1938 B
Photis lacia J. L. Barnard, 1962
[1]***Photis macinerneyi*** Conlan 1983
Photis macrotica J. L. Barnard, 1962
[1]***Photis oligochaeta*** Conlan, 1983 B
[1]***Photis pachydactyla*** Conlan, 1983 B
[1]***Photis parvidons*** Conlan, 1983
[1]***Photis reinhardi*** Krøyer, 1842 B

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Photis Kroyer, 1842 [continued]
[1]***Photis spinicarpa*** Shoemaker, 1942
[1]***Photis sp. A*** of MBC [1976] C
[1]***Photis sp. B*** of Paquette [1987] C
[1]***Photis sp. C*** of Diener [1988] C
Photis viuda J. L. Barnard, 1962
Protomedeia Krøyer, 1842
Protomedeia articulata J. L. Barnard, 1962
[1]***Protomedeia fasciata*** Krøyer, 1842 B
[1]***Protomedeia grandimana*** Brüggen, 1905 B
[1]***Protomedeia penates*** J. L. Barnard, 1966
[1]***Protomedeia prudens*** J. L. Barnard, 1966
[1]***Protomedeia stephenseni*** Shoemaker, 1955 B
Ischyroceridae Stebbing, 1899
Bonnierella Chevreux, 1900
Bonnierella linearis californica J. L. Barnard, 1966
Cerapus Say, 1817
[4]***Cerapus "tubularis"*** Say, 1817 [at least two new species in California]
Ericthonius Milne-Edwards, 1830
Ericthonius brasiliensis (Dana, 1853)
[2]***Ericthonius rubricornis*** (Stimpson, 1853)
Ericthonius difformis Milne-Edwards, 1830 of NEP authors
Ericthonius hunteri (Bate, 1862) of NEP authors
Ischyrocerus Krøyer, 1838
Ischyrocerus anguipes Krøyer, 1838
[2]***Ischyrocerus claustris*** (J. L. Barnard, 1969)
Microjassa claustris J. L. Barnard, 1969
[2]***Ischyrocerus litotes*** (J. L. Barnard, 1954)
Microjassa litotes J. L. Barnard, 1954
Ischyrocerus pelagops J. L. Barnard, 1962
[1]***Ischyrocerus serratus*** Gurjanova, 1938 B
[1]***Ischyrocerus sp. A*** J. L. Barnard, 1969
[1]***Ischyrocerus sp. B*** J. L. Barnard, 1969
Jassa Leach, 1814
[1]***Jassa borowskyae*** Conlan, 1990 B
[1"]***Jassa "californica*** Boeck 1871 [to as yet undescribed new genus]
[1]***Jassa carltoni*** Conlan, 1990 B
[2,4]***Jassa marmorata*** Holmes, 1903
Jassa falcata (Montagu, 1808) of J. L. Barnard, 1958 [in part]; J. L. Barnard, 1969 [in part]
[2,4]***Jassa morinoi*** Conlan, 1990
Jassa falcata (Montagu, 1808) of J. L. Barnard, 1958 [in part]; J. L. Barnard, 1969 (thick form from stations other than 38-D-3)
[2,4]***Jassa myersi*** Conlan, 1990
Jassa falcata (Montagu, 1808) of J. L. Barnard, 1969 (thin form)
[1]***Jassa oclairi*** Conlan, 1990 B
[1]***Jassa shawi*** Conlan, 1990 B
[2,4]***Jassa slatteryi*** Conlan, 1990
Jassa falcata (Montagu, 1808) of J. L. Barnard, 1958 [in part]; J. L. Barnard and Reish, 1959; J. L. Barnard, 1960; J. L. Barnard, 1969 (thick form from Station 38-D-3)
[1]***Jassa staudei*** Conlan, 1990 B

Parajassa Stebbing, 1899
Parajassa angularis Shoemaker, 1942
Ventojassa J. L. Barnard, 1970
Ventojassa ventosa (J. L. Barnard, 1962)
Eurystheus ventosa J. L. Barnard, 1962
Leucothoidae Dana, 1852
Leucothoe Leach, 1814
Leucothoe alata J. L. Barnard, 1959
Leucothoe spinicarpa (Abildgaard, 1789)
Liljeborgiidae Stebbing, 1899
Liljeborgia Bate, 1862
[2]***Liljeborgia pallida*** Bate, 1857
Liljeborgia brevicornis (Bruzelius, 1859)
Liljeborgia cota J. L. Barnard, 1962
Liljeborgia geminata J. L. Barnard, 1969
Liljeborgia kinahani Bate, 1862 of J. L. Barnard 1962
Listriella J. L. Barnard, 1959
Listriella albina J. L. Barnard, 1959
Listriella diffusa J. L. Barnard, 1959
Listriella eriopisa J. L. Barnard, 1959
Listriella goleta J. L. Barnard, 1959
Listriella melanica J. L. Barnard, 1959
[1]***Listriella sp. A*** SCAMIT, 1987
Lysianassidae Dana, 1849
Acidostoma Liljeborg, 1865
Acidostoma hancocki Hurley, 1963
Allogaussia Schellenberg, 1926
Allogaussia recondita Stasek, 1958
Anonyx Krøyer, 1838
Lakota Holmes, 1908
Anonyx adoxus Hurley, 1963
[1]***Anonyx comecrudus*** J. L. Barnard, 1971
[1]***Anonyx laticoxae*** Gurjanova, 1962 **B**
[5]***Anonyx lilljeborgi*** Boeck, 1871
Lakota carinata Holmes, 1908
Aristias Boeck, 1871
[1]***Aristias veleronis*** Hurley, 1963
[1]***Aristias*** **sp. A** SCAMIT, 1985
Aruga Holmes, 1908
[4]***Aruga holmesi*** (J.L. Barnard, 1955)
[4]***Aruga oculata*** Holmes, 1908
Centromedon Sars 1895
[1]***Centromedon pavor*** J.L. Barnard, 1966
Cyclocaris Stebbing, 1888
[1]***Cyclocaris guilelmi*** Chevreux, 1899
Cyphocaris Stebbing, 1888
[1]***Cyphocaris anonyx*** Boeck, 1871
[1]***Cyphocaris challengeri*** Stebbing 1880
[1]***Cyphocaris faurei*** K. H. Barnard, 1916
[1]***Cyphocaris richardi*** Chevreux, 1905

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Dissiminassa J. L. Barnard and Karaman, 1991
[2]***Dissiminassa dissimilis*** (Stout, 1913)
Lysianassa dissimilis (Stout, 1913)
Eurythenes S.I. Smith, 1882
Katius Chevreux, 1905
[1]***Eurythenes obesus*** (Chevreux, 1905)
Katius obesus Chevreux, 1905
Hippomedon Boeck, 1871
Hippomedon coecus (Holmes, 1908)
[1]***Hippomedon columbianus*** Jarrett & Bousfield, 1982
[1]***Hippomedon subrobustus*** Hurley, 1963
Hippomedon tenax J. L. Barnard 1966
[1]***Hippomedon sp. A*** of Diener [1990]
[1]***Hippomedon tricatrix*** J. L. Barnard, 1971
Hippomedon zetesimus Hurley, 1963
Hirondellea Chevreux, 1889
Hirondellea fidenter J.L. Barnard 1966
Koroga Holmes, 1908
[1]***Koroga megalops*** Holmes, 1908
Lepidepecreella Schellenberg, 1926
Lepidepecreella charno J.L. Barnard, 1966
Lepidepecreoides K. H. Barnard, 1931
[1]***Lepidepecreoides nubifer*** J. L. Barnard, 1971
Lepidepecreum Bate & Westwood, 1868
Lepidepecreum garthi Hurley, 1963
Lepidepecreum gurjanovae Hurley, 1963
[1]***Lepidepecreum kasatka*** Gurjanova, 1962
[1]***Lepidepecreum*** sp. **A** of SCAMIT, 1985 **C**
Macronassa J. L. Barnard and Karaman, 1991
[2]***Macronassa macromera*** (Shoemaker, 1916)
Lysianassa macromera (Shoemaker, 1916)
[2]***Macronassa pariter*** (J. L. Barnard, 1969)
Lysianassa pariter J.L. Barnard, 1969
Metacyphocaris Tattersall, 1906
[1]***Metacyphocaris helgae*** Tattersall, 1906
Ocosingo J.L. Barnard, 1964
Fresnillo J.L. Barnard, 1969
Ocosingo borlus J.L. Barnard, 1964
[4]**Fresnillo fimbriatus** J.L. Barnard, 1969
Opisa Boeck, 1876
[1]***Opisa eschrichti*** (Krøyer, 1842) **B**
Opisa tridentata Hurley, 1963

Orchomene Boeck, 1871
Tryphosa Boeck, 1871
[1]***Orchomene abyssorum*** (Stebbing, 1888)
[5]***Orchomene anaquelus*** J.L. Barnard, 1964
Orchomene decipiens (Hurley, 1963)
Orchomene holmesi (Hurley, 1963)
[1]***Orchomene limodes*** Meador & Present, 1985
Orchomene magdalenensis (Shoemaker, 1942)
[1]***Orchomene minutus*** (Krøyer, 1846) **B**
[1]***Orchomene nugax*** (Holmes, 1904) **B**
Orchomene obtusus (Sars, 1895)
Orchomenella affinis Holmes, 1908
[5]***Orchomene pacificus*** (Gurjanova, 1938)
Orchomene pinguis (Boeck, 1861)
Pachynus Bulycheva, 1955
Pachynus barnardi Hurley, 1963
Paracallisoma Chevreux, 1903
[1]***Paracallisoma coecum*** (Holmes, 1908)
Scopelocheirus coecus Holmes, 1908
Prachynella J.L. Barnard, 1964
Prachynella lodo J.L. Barnard, 1964
Psammonyx Bousfield, 1973
[1]***Psammonyx longimerus*** Jarrett and Bousfield, 1982 **B**
Rimakoroga Barnard & Karaman, 1987
[2]***Rimakoroga rima*** (J.L. Barnard, 1964) **C**
Pseudokoroga rima J.L. Barnard 1964
Schisturella Norman, 1900
Thrombasia J.L. Barnard, 1966
Schisturella cocula J.L. Barnard, 1966
Schisturella dorotheae (Hurley, 1963)
Anonyx dorotheae Hurley, 1963
Schisturella tracalero (J.L. Barnard, 1966)
Thrombasia tracalero J.L. Barnard, 1966
[1]***Schisturella totorami*** J.L. Barnard, 1967
Schisturella zopa J.L. Barnard, 1966
Socarnes Boeck, 1871
Socarnes hartmani Hurley, 1963
Socarnoides Stebbing, 1888
Socarnoides illudens Hurley, 1963
Sophrosyne Stebbing 1888
[1]***Sophrosyne robertsoni*** Stebbing & Robertson, 1891
Tryphosella Bonnier, 1893
[2]***Tryphosella index*** (J.L. Barnard, 1966)
Tryphosa index J.L. Barnard, 1966
Uristes Dana, 1849
Uristes californicus Hurley, 1963 **C**
[1]***Uristes dawsoni*** Hurley, 1963 **C**
Uristes entalladurus J.L. Barnard, 1963 **C**
[1]***Uristes perspinus*** J. L. Barnard, 1971

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Valettiopsis Holmes, 1908
[5]***Valettiopsis dentata*** Holmes, 1908
Wecomedon Jarrett and Bousfield, 1982
[1]***Wecomedon similis*** Jarrett and Bousfield, 1982 **B**
[1]***Wecomedon wecomus*** (J. L. Barnard, 1971)
Hippomedon wecomus J. L. Barnard, 1971
Megaluropidae Thomas and Barnard, 1986
Gibberosus Thomas and Barnard, 1986
[2,3]***Gibberosus devaneyi*** Thomas and Barnard, 1986 **C**
Megaluropus longimerus Schellenberg 1925 of NEP authors [part]
[2,3]***Gibberosus myersi*** (McKinney, 1980)
Megaluropus myersi McKinney, 1980
Megaluropus longimerus Schellenberg 1925 of NEP authors [part]
Resupinus Thomas and Barnard, 1986
[1]***Resupinus coloni*** Thomas and Barnard, 1986 **C**
n. gen. of SCAMIT, 1987
[1]**n.gen. n. sp.** of SCAMIT, 1987 **C**
Megaluropus agilis Hoek, 1889 of J. L. Barnard, 1963
Melitidae Bousfield, 1973
Ceradocus Costa, 1853
[3]***Ceradocus spinicaudus*** (Holmes, 1908)
Dulichiella Stout, 1912
[3]***Dulichiella appendiculata*** (Say, 1818)
Melita appendiculata (Say, 1818)
Dulzura J. L. Barnard, 1969
[3]***Dulzura sal*** J. L. Barnard, 1969 **C**
Elasmopus Costa, 1853
[3]***Elasmopus antennatus*** (Stout, 1913) **C**
[3]***Elasmopus bampo*** J. L. Barnard, 1979 **C**
Elasmopus rapax Costa 1853 of J. L Barnard, 1962 in part
[3]***Elasmopus holgurus*** J. L. Barnard, 1962 **C**
[3]***Elasmopus mutatus*** J. L. Barnard, 1962 **C**
Elasmopus rapax mutatus J. L. Barnard 1962
[3]***Elasmopus serricatus*** J. L. Barnard, 1969 **C**
Elasmopus rapax serricatus J. L. Barnard 1969
Eriopisa Stebbing, 1890
[1]***Eriopisa elongata*** (Bruzelius, 1859)
Hornellia Walker, 1904
[2,3]***Hornellia occidentalis*** (J. L. Barnard, 1959) **C**
Metaceradocus occidentalis J. L. Barnard, 1959
Lupimaera Barnard and Karaman 1982
[2,3]***Lupimaera lupana*** (J. L. Barnard, 1969)
Maera lupana J. L. Barnard, 1969 **C**

Maera Leach, 1814
[3]***Maera danae*** (Stimpson, 1853)
Maera loveni Bruzelius, 1859 of J. L. Barnard, 1962
[1]***Maera grossimana*** (Montagu, 1808) **B**
[1]***Maera prionochira*** Brüggen 1907 **B**
[3]***Maera reishi*** J. L. Barnard, 1979
Maera inaequipes Costa, 1851 of J. L. Barnard, 1959
[3]***Maera simile*** Stout, 1913
Maera inaequipes Costa, 1851 of J. L. Barnard, 1954
[1]***Maera vigota*** J. L. Barnard, 1969 **C**
Melita Leach, 1814
[1]***Melita californica*** Alderman, 1936
[3]***Melita dentata*** (Krøyer, 1842)
[3]***Melita desdichada*** J. L. Barnard, 1962
[1]***Melita kodiakensis*** J. L. Barnard, 1964 **B**
[1]***Melita obtusata*** (Montagu, 1813) **B**
[3]***Melita oregonensis*** J. L. Barnard, 1954
[3]***Melita sulca*** (Stout, 1913)
Netamelita J. L. Barnard, 1962
[3]***Netamelita cortada*** J. L. Barnard, 1962
Melphidippidae Stebbing, 1899
Melphidippa Boeck, 1871
Melphidippa amorita J. L. Barnard, 1966
Melphisana J. L. Barnard, 1962
Melphisana bola J. L. Barnard, 1962 **C**
Mesogammaridae Bousfield, 1977
Paramesogammarus Bousfield, 1979
[1]***Paramesogammarus americanus*** Bousfield, 1979 **B**
Najnidae J. L. Barnard, 1972
Najna Derzhavin, 1937
Najna kitamati J. L. Barnard, 1962
Najna ?consiliorum Derzhavin, 1937 of J. L. Barnard, 1962
Oedicerotidae Liljeborg, 1865
Aceroides Sars, 1895
[1]***Aceroides latipes*** (Sars, 1882) **B**
[1]***Aceroides sp. A*** of MBC, 1984
Arrhis Stebbing, 1906
[1]***Arrhis luthkei*** Gurjanova, 1936 **B**
Bathymedon Sars, 1895
Bathymedon covilhani J. L. Barnard, 1961
[1]***Bathymedon flebilis*** J. L. Barnard, 1967
Bathymedon kassites J. L. Barnard, 1966
Bathymedon pumilus J. L. Barnard, 1962
Bathymedon roquedo J. L. Barnard, 1962
Bathymedon vulpeculus J. L. Barnard, 1971
Finoculodes J. L. Barnard, 1971
[1]***Finoculodes omnifera*** J. L. Barnard, 1971

Monoculodes Stimpson, 1853
[1]***Monoculodes carinatus*** (Bate, 1856) **B**
[1]***Monoculodes crassirostris*** Hansen, 1888 **B**
Monoculodes emarginatus J. L. Barnard, 1962
Monoculodes glyconica J. L. Barnard, 1962
Monoculodes hartmanae J. L. Barnard, 1962
Monoculodes latissimânus Stephensen, 1931
Monoculodes murrius J. L. Barnard, 1962
Monoculodes necopinus J. L. Barnard, 1967
Monoculodes norvegicus (Boeck, 1861)
Monoculodes perditus J. L. Barnard, 1966
[1]***Monoculodes recandesco*** J. L. Barnard, 1967
Monoculodes spinipes Mills, 1962
Oediceroides Stebbing, 1888
[2]***Oediceroides morosa*** (J. L. Barnard, 1966)
Oediceropsis morosa J. L. Barnard, 1966
[2]***Oediceroides trepadora*** (J. L. Barnard, 1961)
Oediceropsis trepadora J. L. Barnard, 1961
Oediceropsis Liljeborg, 1865
Oediceropsis elsula J. L. Barnard, 1966
Synchelidium Sars, 1895
Synchelidium micropleon J. L. Barnard, 1977 **C**
Synchelidium rectipalmum Mills, 1962
Synchelidium shoemakeri Mills, 1962
Westwoodilla Bate, 1862
Westwoodilla caecula (Bate, 1857)
[4]**Westwoodilla acutifrons** (Sars, 1895)
Pardaliscidae Sars, 1882
Caleidoscopsis Karaman, 1974
[1]***Caleidoscopsis tikal*** (J. L. Barnard, 1963)
Pardaliscopsis tikal J. L. Barnard, 1963
Halice Boeck, 1871
[1]***Halice ulcisor*** J. L. Barnard, 1971
Halicoides Walker, 1896
[1]***Halicoides lolo*** (J. L. Barnard, 1971)
Pardisynopia lolo J. L. Barnard, 1971
[2]***Halicoides synopiae*** (J. L. Barnard, 1962)
Pardisynopia synopiae J. L. Barnard, 1962
Halice synopiae (J. L. Barnard, 1962)
Nicippe Bruzelius, 1859
Nicippe tumida Bruzelius, 1859
Pardalisca Krøyer, 1842
[1]***Pardalisca cuspidata*** Krøyer, 1842
[1]***Pardalisca tenuipes*** Sars, 1895
Pardaliscella Sars, 1895
Pardaliscella symmetrica J. L. Barnard, 1959
[1]***Pardaliscella yaquina*** J. L. Barnard, 1971
Pardaliscoides Stebbing, 1888
Pardaliscoides fictotelson J. L. Barnard, 1966

Rhynohalicella Karaman, 1974

[1]***Rhynohalicella halona*** (J. L. Barnard, 1971)

Halicella halona J. L. Barnard, 1971

Tosilus J. L. Barnard, 1966

Tosilus arroyo J. L. Barnard, 1966

Phliantidae Stebbing, 1906

Pariphinotus Kunkel, 1910

Heterophlias Shoemaker, 1933

[2,4,5]*Pariphinotus escabrosus* (J. L. Barnard, 1962) **C**

Heterophlias seclusus escabrosa J. L. Barnard, 1962

Phoxocephalidae Sars, 1891

Coxophoxus J. L. Barnard, 1966

Coxophoxus hidalgo J. L. Barnard, 1966 **C**

Eobrolgus J. L. Barnard, 1979

[1]***Eobrolgus chumashi*** J. L. Barnard and C. M. Barnard, 1981

[1]***Eobrolgus pontarpioides*** (Gurjanova, 1953) **B**

Eobrolgus spinosus (Holmes, 1903)

Paraphoxus spinosus Holmes, 1903

Eyakia J. L. Barnard, 1979

[5]***Eyakia calcarata*** (Gurjanova, 1938) **B**

Paraphoxus calcaratus (Gurjanova, 1938)

[5]***Eyakia robusta*** (Holmes, 1908)

Paraphoxus robustus Holmes, 1908

Foxiphalus J. L. Barnard, 1979

[1]***Foxiphalus aleuti*** J. L. Barnard and C. M. Barnard, 1982

[1]***Foxiphalus apache*** J. L. Barnard and C. M. Barnard, 1982

Foxiphalus cognatus (J.L. Barnard, 1960)

Paraphoxus cognatus J. L. Barnard, 1960

[1]***Foxiphalus golfensis*** J. L. Barnard and C. M. Barnard, 1982

Foxiphalus major (J. L. Barnard, 1960)

Paraphoxus obtusidens major J. L. Barnard, 1960

Foxiphalus obtusidens (Alderman, 1936)

Paraphoxus obtusidens (Alderman, 1936)

Foxiphalus similis (J. L. Barnard, 1960)

Paraphoxus similis (J. L. Barnard, 1960)

[1]***Foxiphalus xiximeus*** J. L. Barnard and C. M. Barnard, 1982 **C**

Grandifoxus J. L. Barnard, 1979

[1]***Grandifoxus acanthinus*** Coyle, 1982 **B**

[1]***Grandifoxus aciculatus*** Coyle, 1982 **B**

[1]***Grandifoxus grandis*** (Stimpson, 1856) **B**

Paraphoxus milleri Thorsteinson, 1941

[1]***Grandifoxus lindbergi*** (Gurjanova, 1953) **B**

[1]***Grandifoxus longirostris*** (Gurjanova, 1953) **B**

[1]***Grandifoxus vulpinus*** Coyle 1982 **B**

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Harpiniopsis Stephensen, 1925
Harpiniopsis emeryi J. L. Barnard, 1960
Harpiniopsis epistomata J. L. Barnard, 1960
Harpiniopsis fulgens J. L. Barnard, 1960
Harpiniopsis galera J. L. Barnard, 1960
Harpiniopsis naiadis J. L. Barnard, 1960
[1]***Harpiniopsis percellaris*** J. L. Barnard, 1971
Harpiniopsis petulans J. L. Barnard, 1966
Harpiniopsis profundis J. L. Barnard, 1960
[1]***Harpiniopsis triplex*** J. L. Barnard, 1971
Heterophoxus Shoemaker, 1925
Heterophoxus oculatus (Holmes, 1908)
Leptophoxus Sars, 1895
Leptophoxus falcatus icelus J. L. Barnard, 1960
Mandibulophoxus J. L. Barnard, 1957
Mandibulophoxus gilesi J. L. Barnard, 1957 **C**
Metaphoxus Bonnier, 1896
Metaphoxus frequens J. L. Barnard, 1960
Metharpinia Schellenberg, 1931
[1]***Metharpinia coronadoi*** J. L. Barnard, 1980 **C**
Metharpinia floridana (Shoemaker, 1933)
Paraphoxus floridanus (Shoemaker, 1933)
Metharpinia jonesi (J. L. Barnard, 1963)
Paraphoxus jonesi J. L. Barnard, 1963 **C**
Parametaphoxus Gurjanova, 1977
[2]***Parametaphoxus fultoni*** (Scott, 1890)
Metaphoxus fultoni (Scott, 1890)
[2]***Parametaphoxus homilis*** (J. L. Barnard, 1960)
Phoxocephalus homilis J. L. Barnard, 1960
Paraphoxus Sars, 1895
Paraphoxus oculatus (Sars, 1879)
Pseudharpinia Schellenberg, 1931
Pseudharpinia excavata (Chevreux, 1887)
Harpiniopsis excavata (Chevreux, 1887)
Harpiniopsis sanpedroensis J. L. Barnard, 1960
Rhepoxynius J. L. Barnard, 1979
Rhepoxynius abronius (J. L. Barnard, 1960)
Paraphoxus abronius J. L. Barnard, 1960
Rhepoxynius bicuspidatus (J. L. Barnard, 1960)
Paraphoxus bicuspidatus J. L. Barnard, 1960
Rhepoxynius daboius (J. L. Barnard, 1960)
Paraphoxus daboius J. L. Barnard, 1960
Rhepoxynius fatigans (J. L. Barnard, 1960)
Paraphoxus fatigans J. L. Barnard, 1960
Rhepoxynius heterocuspidatus (J.L. Barnard, 1960)
Paraphoxus heterocuspidatus J. L. Barnard, 1960
[1]***Rhepoxynius homocuspidatus*** J. L. Barnard and C. M. Barnard, 1982
Rhepoxynius lucubrans (J. L. Barnard, 1960)
Paraphoxus lucubrans J. L. Barnard, 1960

Rhepoxynius J. L. Barnard, 1979 [continued]
[2]***Rhepoxynius menziesi*** J. L. Barnard and C. M. Barnard, 1982
[4]**Rhepoxynius epistomus** (Shoemaker, 1938)
Paraphoxus epistomus (Shoemaker, 1938) of J. L. Barnard, 1960
Trichophoxus epistomus (Shoemaker, 1938)
Rhepoxynius stenodes (J. L. Barnard, 1960)
Paraphoxus stenodes J. L. Barnard, 1960
[1]***Rhepoxynius sp. A*** SCAMIT, 1987 **C**
Rhepoxynius tridentatus (J. L. Barnard, 1954)
Paraphoxus tridentatus (J. L. Barnard, 1954)
[1]***Rhepoxynius tridentatus pallidus*** (J. L. Barnard, 1960)
Rhepoxynius variatus (J. L. Barnard, 1960)
Paraphoxus variatus J. L. Barnard, 1960
[1]***Rhepoxynius vigitegus*** (J. L. Barnard, 1971)
Paraphoxus vigitegus J. L. Barnard, 1971
Platyischnopidae Barnard and Drummond, 1979
Eudevenopus Thomas and Barnard, 1983
[1]***Eudevenopus metagracilis*** (J. L. Barnard, 1964) **C**
Platyischnopus metagracilis J. L. Barnard, 1964
Tiburonella Thomas and Barnard, 1983
[1]***Tiburonella viscana*** (J. L. Barnard, 1969) **C**
Platyischnopus viscana J. L. Barnard, 1969
Pleustidae Stebbing, 1888
Dactylopleustes Karaman and J. L. Barnard, 1979
[1]***Dactylopleustes echinoicus*** (Tzvetkova, 1975) **B**
[1]***Dactylopleustes sp. A*** of Paquette, 1986 **C**
Parapleustes Buchholz, 1874
Incisocalliope J. L. Barnard 1959
[2]***Parapleustes behningi*** (Gurjanova, 1938)
[4]**Parapleustes nautilus** J. L. Barnard, 1969
Parapleustes commensalis Shoemaker, 1952 **C**
Parapleustes den J. L. Barnard, 1969
[1]***Parapleustes gracilis*** Buchholtz, 1874 **B**
Parapleustes oculatus (Holmes, 1908)
Neopleustes oculatus Holmes, 1908
Parapleustes pugettensis (Dana, 1853)
Incisocalliope newportensis J. L. Barnard, 1959
Parapleustes bairdi Boeck, 1871
Pleusirus J. L. Barnard, 1969
Pleusirus secorrus J. L. Barnard 1969
Pleustes Bate, 1858
[1]***Pleustes cataphractus obtusirostris*** Gurjanova, 1938 **B**
[1]***Pleustes cataphractus typicus*** Gurjanova, 1951 **B**
[5]***Pleustes depressus*** Alderman, 1936
[1]***Pleustes panoplus*** (Krøyer, 1838) **B**
Pleustes platypa J. L. Barnard & Given, 1960
Pleusymtes J. L. Barnard, 1969
Pleusymtes coquilla J. L. Barnard, 1971
Pleusymtes subglaber (J. L. Barnard & Given, 1960)
Sympleustes subglaber J. L. Barnard & Given, 1960

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Stenopleustes Sars, 1895
Stenopleustes monocuspis J. L. Barnard & Given, 1960
Podoceridae Dana, 1849
Dulichia Krøyer, 1843
[1]***Dulichia rhabdoplastis*** McCloskey, 1970 **B**
[1]***Dulichia tuberculata*** Boeck, 1871 **B**
Dulichiopsis Laubitz, 1977
[1]***Dulichiopsis remis*** (J. L. Barnard, 1964) **B**
Dulichia remis J. L. Barnard, 1964
Dyopedos Bate, 1857
[1]***Dyopedos arcticus*** (Murdoch, 1885)
[1]***Dyopedos bispinus*** (Gurjanova, 1930) **B**
[1]***Dyopedos monacanthus*** (Metzger, 1875)
Dulichia monacantha Metzger, 1875
Paradulichia Boeck, 1871
[1]***Paradulichia typica*** Boeck, 1871 **B**
Podocerus Leach, 1814
Podocerus brasiliensis (Dana, 1853)
Podocerus cristatus (Thomson, 1879)
Podocerus fulanus J. L. Barnard, 1962 **C**
[1]***Podocerus spongicolus*** Alderman, 1936
Pontoporeiidae Dana, 1855
Pontoporeia Krøyer, 1842
[1]***Pontoporeia femorata*** Krøyer, 1842 **B**
Stegocephalidae Dana, 1855
Stegocephalus Krøyer, 1842
[1]***Stegocephalus hancocki*** Hurley, 1956 **C**
Stenothoidae Boeck, 1871
Mesometopa Gurjanova, 1938
[1]***Mesometopa esmarki*** (Boeck, 1871)
Mesometopa neglecta roya J. L. Barnard, 1966 **C**
[1]***Mesometopa sinuata*** Shoemaker, 1964
Metopa Boeck, 1871
[1]***Metopa cistella*** J. L. Barnard, 1969
Metopa dawsoni J. L. Barnard, 1962
[1]***Metopa glacialis*** (Krøyer, 1842) **B**
Metopa samsiluna J. L. Barnard, 1962
[1]***Metopa sp. A*** of Cadien [1988] **C**
Metopella Sars, 1895
Metopella aporpis J. L. Barnard, 1962
[1]***Metopella sp. A*** of Cadien [1989] **B**
Parametopella Gurjanova, 1938
Parametopella ninis J. L. Barnard, 1962
Proboloides Della Valle, 1893
[1]***Proboloides pacifica*** (Holmes, 1908) **B**
Proboloides tunda J. L. Barnard, 1962 **C**
Stenothoe Dana, 1852
Stenothoe estacola J. L. Barnard, 1962
Stenothoe frecanda J. L. Barnard, 1962
[1]***Stenothoe marina*** Bate, 1857
Stenothoe valida Dana, 1852

Stenothoides Chevreux, 1900
Stenothoides bicoma J. L. Barnard, 1962
[1]***Stenothoides burbanki*** J. L. Barnard, 1969
Stenula J. L. Barnard, 1962
[1]***Stenula incola*** J. L. Barnard, 1969
Stenula modosa J. L. Barnard, 1962
Zaikometopa J. L. Barnard and Karaman, 1987
[1]***Zaikometopa erythrophthalmus*** (Coyle and Mueller, 1981) **B**
Metopelloides erythrophthalmus Coyle and Mueller, 1981
Stilipedidae Holmes, 1908
Astyridae Pirlot, 1934
Astyra Boeck, 1871
[1]***Astyra abyssi*** Boeck, 1871
Stilipes Holmes, 1908
[1]***Stilipes distincta*** Holmes, 1908
Synopiidae Dana, 1853
Tironidae Boeck, 1871
Bruzelia Boeck, 1871
Bruzelia ascua J. L. Barnard, 1966
Bruzelia tuberculata Sars, 1883
Garosyrrhoe J. L. Barnard, 1964
Garosyrrhoe bigarra (J. L. Barnard, 1962)
Syrrhoites bigarra J. L. Barnard, 1962
Syrrhoe Goës, 1866
Syrrhoe crenulata Goës, 1866
Syrrhoe longifrons Shoemaker, 1964
[1]***Syrrhoe oluta*** J. L. Barnard, 1972
[1]***Syrrhoe sp. A*** SCAMIT, 1987 **C**
Syrrhoites Sars, 1895
[1]***Syrrhoites columbiae*** J. L. Barnard, 1972
[1]***Syrrhoites sp. B*** of Cadien [1986] **C**
Tiron Liljeborg, 1865
Tiron biocellata J. L. Barnard, 1962
Tiron tropakis J. L. Barnard, 1972
Talitridae Leach, 1813
Megalorchestia Bousfield, 1982
[2]***Megalorchestia benedicti*** (Shoemaker, 1930)
Orchestoidea benedicti Shoemaker, 1930
[2]***Megalorchestia californiana*** (Brandt, 1851)
Orchestoidea californiana (Brandt, 1851)
[2]***Megalorchestia columbiana*** (Bousfield, 1958)
Orchestoidea columbiana Bousfield, 1958
[2]***Megalorchestia corniculata*** (Stout, 1913)
Orchestoidea corniculata Stout, 1913
[2]***Megalorchestia minor*** (Bousfield, 1958)
Orchestoidea minor Bousfield, 1958
[2]***Megalorchestia pugettensis*** (Dana, 1853)
Orchestoidea pugettensis (Dana, 1853)

Key - 1. = not included 2.= new name 3. = family changed 4. = status changed 5. = new orthography
B = boreal occurrance only C= Californian occurrance only

Paciforchestia Bousfield, 1982

[1]***Paciforchestia klawei*** (Bousfield, 1961) **C**

Parorchestia klawei Bousfield, 1961

Platorchestia Bousfield, 1982

[1]***Platorchestia chathamensis*** Bousfield, 1982 **B**

Transorchestia Bousfield, 1982

[1]***Transorchestia enigmatica*** (Bousfield and Carlton, 1967)

Orchestia enigmatica Bousfield and Carlton, 1967

Orchestia chilensis Milne-Edwards, 1840 of Bousfield, 1975

Traskorchestia Bousfield, 1982

[2]***Traskorchestia georgiana*** (Bousfield, 1958)

Orchestia georgiana Bousfield, 1958

[1]***Traskorchestia ochotensis*** (Brandt, 1851) **B**

Orchestia ochotensis Brandt, 1851

[2]***Traskorchestia traskiana*** (Stimpson, 1857)

Orchestia traskiana Stimpson, 1857

Urothoidae Bousfield, 1978

Urothoe Dana, 1852

[1]***Urothoe denticulata*** Gurjanova, 1951 **B**

[1]***Urothoe rotundifrons*** J. L. Barnard, 1962

[3]***Urothoe varvarini*** Gurjanova, 1953

102D CONGRESS
1ST SESSION

S. 58

To establish a national policy for the conservation of biological diversity; to support environmental research and training necessary for conservation and sustainable use of biotic natural resources; to establish mechanisms for carrying out the national policy and for coordinating related activities; and to facilitate the collection, synthesis, and dissemination of information necessary for these purposes.

IN THE SENATE OF THE UNITED STATES

JANUARY 14 (legislative day, JANUARY 3), 1991

Mr. MOYNIHAN introduced the following bill; which was read twice and referred to the Committee on Environment and Public Works

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A BILL

To establish a national policy for the conservation of biological diversity; to support environmental research and training necessary for conservation and sustainable use of biotic natural resources; to establish mechanisms for carrying out the national policy and for coordinating related activities; and to facilitate the collection, synthesis, and dissemination of information necessary for these purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the "National Biological Diversity Conservation and Environmental Research Act".

SEC. 2. FINDINGS.

The Congress finds that—

(1) the Earth's biological diversity is being reduced at a rate without precedent in human history;

(2) most losses of biological diversity caused by human activity are unintended and largely avoidable;

(3) while the most rapid loss of biological diversity is occurring outside the United States, it is also a serious problem within this country;

(4) reduced biological diversity may have serious consequences for human welfare as resources for research and agricultural, medicinal, and industrial development are irretrievably lost;

(5) reduced biological diversity may also endanger the functioning of ecosystems and critical ecosystem processes that moderate climate, govern nutrient cycles and soil conservation and production, control pests and diseases, and degrade wastes and pollutants;

(6) reduced biological diversity will diminish the raw materials available for scientific and technical advancement, including the development of improved varieties of cultivated plants and domesticated animals;

(7) existing information regarding the abundance and distribution of biological diversity is inadequate, often inaccessible, and frequently inapplicable to con-

servation management, thus hampering the efficiency of resource policy and management decisions;

(8) existing conservation laws focus on the protection of individual species that have already suffered declines, rather than emphasizing ecosystem management to sustain diversity across a range of species;

(9) existing laws and programs relevant to the loss of biological diversity in the United States are largely uncoordinated and inadequate, and sometimes result in duplication of efforts, conflicts in goals, and gaps in geographic and taxonomic coverage;

(10) a comprehensive and coordinated Federal strategy is needed to arrest the loss of biological diversity and also, where possible, to restore biological diversity both through natural recovery and active management;

(11) increased biological and ecological research is needed to provide the knowledge to maintain biological diversity, to protect and manage ecosystems, and to ensure the sustainable use of natural resources; and

(12) maintaining biological diversity through habitat preservation is often less costly and more effective than efforts to save species once they become endangered.

SEC. 3. DEFINITIONS.

For purposes of this Act—

(1) the term "biological diversity" means the full range of variety and variability within and among living organisms and the ecological complexes in which they occur, and encompasses ecosystem or community diversity, species diversity and genetic diversity;

(2) the terms "conserve", "conserving", and "conservation" refer to protective measures for maintaining existing biological diversity and active measures for restoring diversity through management efforts, in order to protect, restore, and enhance as much of the variety of native species and communities as possible in abundances and distributions that provide for their continued existence and functioning, including, at a minimum, the viability of existing populations;

(3) the term "ecosystem or community diversity" means the distinctive assemblages of species and ecological processes that occur in different physical settings of the biosphere and distinct parts of the world;

(4) the term "genetic diversity" means the differences in genetic composition within and among populations of a given species;

(5) the term "regional ecosystem" means an area which is sufficiently large that it is capable of sustaining multiple biological communities and associated species;

(6) the term "species diversity" means the richness and variety of native species in a particular location of the world; and

(7) the term "State" means each of the several States, the District of Columbia, the Commonwealth of Puerto Rico, the United States Virgin Islands, Guam, the Commonwealth of the Northern Mariana Islands, American Samoa, and any other commonwealth, territory, or possession of the United States.

SEC. 4. PURPOSES.

It is the purpose of this Act—

(1) to conserve biological diversity;

(2) to require explicit assessment of effects on biological diversity in all environmental impact statements required to be prepared pursuant to the National Environmental Policy Act of 1969;

(3) to establish a Federal strategy for the conservation of biological diversity;

(4) to establish mechanisms for encouraging and coordinating Federal, State, and private efforts to conserve biological diversity and natural environments;

(5) to undertake a nationally coordinated effort to collect, synthesize, and disseminate adequate data and information for—

(A) the understanding of biological diversity;

(B) assessing the rate and scale of the depletion of biological diversity; and

(C) identifying elements of biological diversity that are in significant decline or otherwise warrant special attention;

(6) to support basic and applied research necessary for the conservation of biological diversity; and

(7) to promote better understanding of the importance of biological diversity and foster actions that prevent biological impoverishment and conserve biological diversity and natural resources.

SEC. 5. NATIONAL BIOLOGICAL DIVERSITY AND ENVIRONMENTAL POLICY.

(a) POLICY.—It is the public policy of the United States that conservation of biological diversity is a national goal, and conservation efforts are a national priority.

(b) CONSISTENCY OF FEDERAL ACTION.—The actions, policies, and programs of all Federal agencies shall be consistent with the goal of conservation of biological diversity, to the maximum extent practicable.

(c) CONSERVATION OF BIOLOGICAL DIVERSITY ON FEDERAL LANDS AND WATERS.—All Federal lands and waters shall be managed to conserve biological diversity within the context of the purposes for which those areas w established.

(d) ENVIRONMENTAL IMPACT STATEMENTS.—

(1) REGULATIONS.—Not later than one year after the date of the enactment of this Act, the Council on Environmental Quality shall issue regulations which establish requirements for agencies to assess the impacts of Federal agency actions on biological diversity in preparing environmental impact statements under section 102 of the National Environmental Policy Act of 1969.

(2) IDENTIFICATION OF COMMUNITIES, SPECIES, AND POPULATIONS IN SIGNIFICANT DECLINE.—In preparing the regulations required under paragraph (1), the Council on Environmental Quality shall identify, in consultation with the National Center for Biological Diversity and Conservation Research established under section 9 (hereafter in this Act referred to as the "Center") those biotic communities, species, and populations that appear to be in significant decline or in imminent danger of loss of viability, or are otherwise of special concern.

(e) AGENCY REVIEW PROCESS.—Each Federal department or agency shall, with the advice and assistance of the Council on Environmental Quality, within 1 year after the date of the enactment of this Act—

(1) review its programs, both individually and cumulatively, for consistency with the conservation of biological diversity in accordance with this Act, paying particular attention to biotic communities, species, and populations identified under subsection (d)(2); and

(2) report the results of such review to the President, the Council on Environmental Quality, and the Congress.

(f) REVIEW OF ENVIRONMENTAL IMPACT STATEMENT BY EPA.—In reviewing environmental impact statements under the National Environmental Policy Act of 1969, the Administrator of the Environmental Protection Agency shall take into account the impacts of the proposed action on biological diversity.

SEC. 6. EFFECT ON OTHER LAWS.

Nothing in this Act shall be construed to amend or otherwise alter any requirement to maintain biological diversity under any other Act.

SEC. 7. INTERAGENCY WORKING COMMITTEE ON BIOLOGICAL DIVERSITY.

(a) ESTABLISHMENT.—There is established an Interagency Working Committee on Biological Diversity (hereafter in this Act referred to as the "Interagency Committee").

(b) MEMBERSHIP.—The Interagency Committee shall consist of 1 representative each from—

(1) the Bureau of Land Management;

(2) the National Park Service;

(3) the Fish and Wildlife Service;

(4) the Forest Service;

(5) the Department of Defense;

(6) the National Oceanic and Atmospheric Administration;

(7) the Environmental Protection Agency;

(8) the Department of Energy;

(9) the Center;

(10) the Council on Environmental Quality; and

(11) any other agency or department of the United States that the President, or the Chairman of the Interagency Committee, considers appropriate.

Each such representative shall be designated by the head of the entity named.

(c) CHAIRMAN.—The member of the Interagency Committee representing the Council on Environmental Quality shall serve as Chairman of the Interagency Committee.

(d) FUNCTION.—The function of the Interagency Committee shall be to prepare a coordinated Federal strategy for conservation of biological diversity described in section 8.

(e) DISSOLUTION.—The Interagency Committee shall be dissolved after the submission to the Congress of the Federal strategy required under section 8.

SEC. 8. FEDERAL BIOLOGICAL DIVERSITY STRATEGY.

(a) DEVELOPMENT.—The Interagency Committee shall develop a coordinated Federal strategy for the conservation of biological diversity (hereafter in this Act referred to as the "Strategy").

(b) CONTENTS.—The Strategy shall contain—

(1) a coordinated interagency plan for conserving biological diversity in the United States, particularly on federally-managed lands, including a specific description of the roles and responsibilities of each agency represented on the Interagency Committee for implementing the plan;

(2) the identification of regional ecosystems within the United States, and an interagency plan for coordinating Federal management of such ecosystems for the purpose of conserving biological diversity;

(3) a comprehensive set of criteria (including time frames and objective measures) for evaluating the

progress of the agencies represented on the Interagency Committee in implementing the Strategy;

(4) specific management measures to be taken by each agency represented on the Interagency Committee pursuant to plans and criteria developed under paragraphs (1), (2), and (3) with respect to—

(A) conservation through protective measures to maintain existing biological diversity, and through active measures to restore biological diversity;

(B) provisions for the long-term viability of ecosystems and ecosystem processes;

(C) maintenance of gene pools through a combination of in situ and ex situ techniques;

(D) use of demonstration areas, such as biosphere reserves;

(E) consistency of policies in international actions of Federal agencies;

(F) the identification of priorities for conservation;

(G) economic incentives to encourage the conservation of biological diversity;

(H) the development of broad-based education programs on the importance of biological diversity and the necessity of conservation;

(I) cooperation and coordination with non-Federal sectors; and

(J) training and education of agency personnel in ecological reserach, monitoring, and systematics; and

(5) an interagency plan for conducting research on biological diversity, identifying the roles and responsibilities of each agency represented on the Interagency Committee, other Federal agencies, and the Center, including—

(A) the identification of research priorities which affect more than one agency;

(B) the development of coordinated research programs for the conservation and restoration of biological diversity;

(C) enhancement of scientific knowledge through improved biological surveys;

(D) research to identify factors limiting population viability or persistence;

(E) improvements of management techniques based on scientific knowledge; and

(F) the identification of habitats of special concern, and the development of plans to protect those areas.

(c) PUBLIC PARTICIPATION.—The public shall be provided with opportunities to participate in the preparation of, and to comment on, the Strategy and any regional ecosystem management plans.

(d) REPORTS.—(1) Within two years the date of the enactment of this Act, the Secretary shall be submitted to the President and the Congress by the Chairman of the Interagency Committee.

(2) At least once every two years after the submission of a report under paragraph (1), the head of each agency represented on the Interagency Committee shall submit to the Congress a report detailing progress in the implementation of the Strategy, including written comments by the public.

SEC. 9. NATIONAL CENTER FOR BIOLOGICAL DIVERSITY AND CONSERVATION RESEARCH.

(a) ESTABLISHMENT AND PURPOSE.—There is established within the Smithsonian Institution, in cooperation with the Environmental Protection Agency, a National Center for Biological Diversity and Conservation Research (the Center), whose purpose shall be to set research priorities, to provide leadership and coordination for the understanding and promotion of knowledge of the biota and the effect of human activities on the biota, and to make this knowledge accessible to the people of the United States and others working to con-

serve biological diversity throughout the world. The Center shall be administered by a Director.

(b) FUNCTIONS.—The functions of the Center shall be—

(1) to summarize and enhance the knowledge of the distribution, status, and characteristics of the biota in a manner that can be used in conservation and management;

(2) to prepare, with the assistance of agencies and other sources, lists and, where appropriate, maps of—

(A) biotic communities, species, and populations that appear to be in significant decline or in imminent danger of loss of viability, or are otherwise of special concern;

(B) areas of outstanding ecological or biotic importance; and

(C) factors, including ownership status and applicable laws, affecting the protection of such communities, species, and populations;

(3) to publish information, such as floral and faunal treaties, resource inventories, vegetation maps, atlases, and guides for practical use of biological information, and especially publications that synthesize information relevant to national goals of understanding and conserving biological diversity;

(4) to identify taxonomic groups, ecological communities, and geographical areas in need of study, and to develop a strategic plan for, initiate, and provide financial support toward an ongoing survey of the biota;

(5) to provide for the conducting of research, through grants, contracts, or otherwise, by Federal, State, and private agencies, institutions, organizations, and individuals;

(6) to provide information useful to the Interagency Committee in the preparation of the Strategy;

(7) to make recommendations to Federal agencies and others on the technical management of data collection, storage, and retrieval;

(8) to provide training and technical assistance to Federal agencies and others regarding collection and interpretation of biological data; and

(9) to raise additional funds as necessary to support the activities of the Center.

(c) STRUCTURE AND MEMBERSHIP.—

(1) ADVISORY BOARD.—The Center shall have an advisory board, which shall independently assist in setting the policies for and directing the Center.

(2) MEMBERSHIP.—(A) the advisory board shall consist of 17 members, including—

(i) 1 representative of the Smithsonian Institution;

(ii) 1 representative of the Fish and Wildlife Service;

(iii) 1 representative of the National Oceanic and Atmospheric Administration;

(iv) 1 representative of the National Park Service;

(v) 1 representative of the Department of Energy;

(vi) 1 representative of the National Science Foundation;

(vii) 1 representative of the Agricultural Research Service;

(viii) 1 representative of the Environmental Protection Agency;

(ix) 1 representative of the Forest Service;

(x) 1 representative of the Bureau of Land Management;

(xi) 1 representative of the Army Corps of Engineers;

(xii) 1 representative of the State biological surveys;

(xiii) 1 representative of private organizations that maintain large data bases oriented toward biological conservation;

(xiv) 2 scientists from nonprofit research institutions or universities; and

(xv) 2 representatives from institutions with collections of biological specimens.

(B) Members listed under clauses (xii) through (xv) of subparagraph (A) shall be appointed by the President from a list of nominees recommended by the National Academy of Sciences.

(3) TERMS.—Members of the advisory board shall serve for terms of 5 years, and may serve more than one term.

(4) COMPENSATION OF MEMBERS.—

(A) NONGOVERNMENT MEMBERS.—Each member of the advisory board that is not otherwise in the service of the Federal Government shall, to the extent provided for in advance in appropriations Acts, be paid actual travel expenses and per diem in lieu of subsistence expenses in accordance with section 5703 of title 5, United States Code, when such member is away from the member's usual place of residence.

(B) GOVERNMENT MEMBERS.—Each member of the advisory board that is otherwise in the service of the Federal Government shall serve without compensation in addition to that received for such other service, but while engaged in the work of the Advisory Board, such member shall, to the extent provided for in advance in appropriations Acts, be paid actual travel expenses, and per diem in lieu of subsistence expenses in accordance with subchapter I of chapter 57 of title 5, United States Code, when away from the member's usual place of residence.

(5) CHAIRMAN.—The members of the advisory board shall select 1 member to serve as chairman.

(6) FUNDING ARRANGEMENTS.—The Director of the Center shall make appropriate arrangements for necessary administrative and clerical support of the advisory board, in consultation with the chairman of the advisory board.

(7) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated to carry out this section $10,000,000 for fiscal year 1991, $10,000,000 for fiscal year 1992, and $10,000,000 for fiscal year 1993, to be derived from funds otherwise authorized for the Federal agencies represented on the

advisory board, and to remain available until expended as specified in appropriations Acts.

SEC. 10. NATIONAL ACADEMY OF SCIENCES.

The Council on Environmental Quality shall retain the National Academy of Sciences—

(1) to provide scientific and technical advice and counsel in the preparation of the Strategy to ensure that the best possible scientific information is used in developing the Strategy; and

(2) to provide a general reference and scientific and technical advisory resource for the Nation in matters relating to conservation and biological diversity.

SEC. 11. BUY-AMERICAN REQUIREMENT.

(a) DETERMINATION BY ADMINISTRATOR.—If the Administrator, with the concurrence of the Secretary of Commerce and the United States Trade Representative, determines that the public interest so requires, the Administrator is authorized to award to a domestic firm a contract made pursuant to the issuance of any grant made under this Act that, under the use of competitive procedures, would be awarded to a foreign firm, if—

(1) the final product of the domestic firm will be completely assembled in the United States;

(2) when completely assembled, not less than 51 percent of the final product of the domestic firm will be domestically produced; and

(3) the difference between the bids submitted by the foreign and domestic firms is not more than 6 percent.

In determining under this subsection whether the public interest so requires, the Administrator shall take into account United States international obligations and trade relations.

(b) LIMITED APPLICATION.—This section shall not apply to the extent to which—

(1) such applicability would not be in the public interest;

(2) compelling national security considerations require otherwise; or

(3) the United States Trade Representative determines that such an award would be in violation of the General Agreement on Tariffs and Trade or an international agreement to which the United States is a party.

(c) LIMITATION.—This section shall apply only to contracts made related to the issuance of any grant made under this Act for which—

(1) amounts are authorized by this Act to be made available; and

(2) solicitations for bids are issued after the date of the enactment of this Act.

(d) REPORT TO CONGRESS.—The Administrator shall report to the Congress on contracts covered under this section and entered into with foreign entities in fiscal years 1990 and 1991 and shall report to the Congress on the number of contracts that meet the requirements of subsection (a) but which are determined by the United States Trade Representative to be in violation of the General Agreement on Tariffs and Trade or an international agreement to which the United States is a party. The Administrator shall also report to the Congress on the number of contracts covered under this Act and awarded based upon the parameters of this section.

(e) DEFINITIONS.—For purposes of this section—

(1) the term "Administrator" means the Administrator of the Environmental Protection Agency;

(2) the term "domestic firm" means a business entity that is incorporated in the United States and that conducts business operations in the United States; and

(3) the term "foreign firm" means a business entity not described in paragraph (2).

SEC. 12. INTERNATIONAL CONSERVATION ACTIVITIES.

(a) The Agency for International Development, Department of State, Fish and Wildlife Service, National Park

Service, National Marine Fisheries Service, Environmental Protection Agency, Forest Service, and Department of Agriculture are directed to encourage conservation of biological diversity globally through—

(1) fully supporting and coordinating implementation of existing obligations and programs that contribute to the conservation of biological diversity globally, including—

(A) Convention on Trade in Endangered Species (CITES);

(B) World Heritage Convention;

(C) Convention on Nature Protection and Wildlife Preservation in the Western Hemisphere;

(D) Convention on Wetlands of International Importance, Especially as Waterfowl Habitat (Ramsar); and

(E) Man and the Biosphere Program—United States;

(2) supporting basic and applied research towards understanding ecological systems and applying that knowledge for sustainable development and the conservation of biological diversity internationally, including cooperative research and scientific exchange with governmental, educational and research institutions;

(3) increasing training, education, and technical assistance related to conservation of biological diversity and sustainable development;

(4) providing assistance that promotes sustainable development and global environmental stability including research on and implementation of—

(A) alternative land use practices in areas adjacent to natural areas of significant ecological value;

(B) measures to increase productivity of degraded and altered lands and waters in order to relieve the pressures on natural ecosystems; and

(5) cooperating with one another and with appropriate international organizations and governments in developing and in implementing these obligations, research, and conservation programs.

(b) The Agency for International Development is directed to hire, as opportunity permits through attrition or otherwise, United States direct-hire technical staff in environmental and natural resources with extensive formal training in conservation of biological diversity and sustainable development.

(c) The Congress finds that sections 118 and 119 of the Foreign Assistance Act provide a significant basis for addressing the problems of tropical deforestation and loss of

biological diversity. The Congress reaffirms its support for these provisions and directs that AID give high priority to their implementation.

○

NOTES ON STENOTHOIDAE OF SOUTHERN CALIFORNIA

Paula Rothman and Elizabeth Harrison-Nelson

The writers searched Barnard and Barnard, 1990, for Stenothoid amphipods reported from the study area and reviewed the pertinent literature. They have provided a key to the genera listed for southern California and included copies of selected articles with figures.

A list of genera of Stenothoids found along the western North American coast from Alaska to Baja California is provided, however detailed information is not given for this expanded list.

Stenothoids from the southern California coast (Pt. Concepcion to Mexican Border):

Mesometopa neglecta roya
Metopa dawsoni
Metopa (Prometopa) samsiluna
Metopa sp.
Metopella aporpis
Parametopella ninis
Proboloides tundra
Stenothoe estacola
  S. frecanda
  S. valida
Stenothoides bicoma

Stenothoids from North American coast from Alaska to Baja California:

Mesometopa esmarki
Metopella aporpis
Proboloides pacifica
Stenothoe adhaerans
  S. aequicornis
  S. alinga
Stenothoides bicoma
  S. burbanki
Stenula incola
  S. nodosa

LITERATURE CITED FOR SOUTHERN CALIFORNIA STENOTHOIDS

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_____. 1962b. Benthic Benthic Marine Amphipoda of Southern California: Families Amphilochidae, Leucothoidae, Stenothoidae, Argissidae, Hyalidae, Pacific Naturalist, 3:116-163, 23 figures.

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Barnard, J.L. and C.M. Barnard. 1990. Geographic Index to Marine Gammaridea (Amphipoda). Washington, D.C. 20560: Division of Crustacea, Department of Invertebrate Zoology, NMNH, Smithsonian Institution.

Barnard, J.L. and Gordan S. Karaman. 1991. The Families and Genera of Marine Gammaridean Amphipoda (except marine Gammaroids). Records of the Australian Museum, Supplement 13 (parts 1,2).

Key to the Genera of Stenothoidae reported from Southern California

(Abbreviated from Barnard and Karaman, 1991)

*Not reported from study area.

1. Article 2 of pereopod 7 rectolinear 2
   Article 2 of pereopod 7 expanded 8

2. Telson thickened and fleshy . . . . . .*
   Telson flat and laminar 3

3. Article 2 of pereopods 5-7 weakly expanded, not fully rectolinear . . . . . *Goratelson
   Article 2 of pereopods 5-7 fully rectolinear 4

4. Pleonite 4 with dorsal process. . . . . *
   Pleonite 4 lacking dorsal process. 5

5. Palp of maxilla 1 biarticulate. . . . . Probolisca
   Palp of maxilla 1 uniarticulate 6

6. Mandibular palp absent . . . . . .Parametopella
   Mandibular palp present 7

7. Mandibular palp 2-3 articulate . . . . . .Metopella
   Mandibular palp 1-articulate. . . . . *

8. Article 2 of pereopod 6 not expanded or expanded less than on pereopod 7. 9
   Article 2 of pereopod 6 expanded as widely as on pereopod 7. 13

9. Article 2 of pereopods 5-7 evenly but weakly expanded. . . . . .Goratelsor
   Article 2 of pereopods 5-7 diversely expanded 10

10. Pleonite 3 with dorsal process . . . . . Mesoproboloides
    Pleonite 3 smooth 11

11. Mandibular palp 0-1 articulate. . . . . Stenothoides
    Mandibular palp 2-3 articulate. 12

12. Article 2 of pereopod 7 tapering, basally expanded. . . . . Mesometopa
    Article 2 of pereopod 7 evenly expanded . . . . Mesoproboloides excavata, Metopella

13. Palp of maxilla 1 uniarticulate. 14
    Palp of maxilla 1 biarticulate 16

14. Mandibular palp absent. . . . . *
    Mandibular palp present. 15

15. Mandibular palp 2-3 articulate. . . . . Metopa
    Mandibular palp 1-articulate. . . . . .Stenula

16. Mandibular palp absent. 17
Mandibular palp present. 18

17. Antenna 2 as long as antenna 1, coxa 2 bladeled anteroventrally. . . . . .Stenothoe
Antenna 2 half as long as antenna 1, coxa 2 subquadrate and protrusive anteroventrally. . . . . *Knysmetopa

18. Mandibular palp 1-articulate . . . . . .*Prostenothoe
Mandibular palp 2-3 articulate 19

19. Accessory flagellum 2-articulate. . . . . Metopoides
Accessory flagellum 0-1 articulate 20

20. Carpus of gnathopod 1 relatively short and lobate, propodus elongate and expanded . . . . . .*Aurometopa
Carpus of gnathopod 1 relatively long, not lobate, propodus short and barely expanded . . . . . Proboloides

Mesometopa neglecta roya, new subspecies

(Fig. 41)

References to typical subspecies:

[*Metopa neglecta* Hansen.—Sars 1895: 274-275, pl. 97, fig. 2.
Metopella neglecta (Hansen).—Gurjanova 1951: 473-474, fig. 310.
Mesometopa neglecta (Hansen).—Shoemaker 1955a: 24, figs. 8a-f.]

Description: Lateral cephalic lobe sharp as in *Mesometopa neglecta* Hansen (Sars. 1895: pl. 97, fig. 2), eye small, composed of 8 to 10 large ommatidia loosely arranged; antennae reaching to end of fifth pereonite; mandibular palp 2-articulate, appearing to be absent on one mandible and present on other; palp of maxilla 1 uniarticulate; gnathopod 1 simple, article 7 not setose; gnathopod 2 small, article 6 trapezoidal, expanded distally, palm oblique, sharply defined by a small cusp, bearing two large defining spines; article 2 of pereopods 3-4 very slender; article 2 of pereopod 5 broad proximally, suddenly constricted on distal half; articles 4 and 5 of pereopods 3-5 very slender, not produced distally; third pleonal epimeron projecting strongly posteriorly; telson with 2 marginal spines on each side.

Holotype: AHF No. 5920, female, 3.0 mm.

Type locality: Station 6806, Santa Cruz Canyon, California, 33°-56′-06″ N, 118°-52′-17″ W, 221 m, December 22, 1959.

Material: Four specimens from the type locality.

Remarks: Mesometopa gibbosa Shoemaker (1955a) should be removed to the genus *Metopella* Sars because the second article of pereopod 5 is slender. The remaining 3 species, *Mesometopa esmarki* (Boeck), *M. extensa* Gurjanova and *M. neglecta* (Hansen), differ among themselves more than the present material differs from *M. neglecta*, so these specimens are relegated to subspecific status. The larger, fewer, and more loosely compacted ommatidia of the new subspecies differ from the more numerous, smaller, more compacted ommatidia of the stem species and the proximal and distal portions of article 2 on pereopod 5 are more sharply differentiated. The palm of gnathopod 2 has a small medial cusp, not reported for *M. neglecta neglecta*. Probably the eye differences are a reflection of the greater depth recorded for the new subspecies.

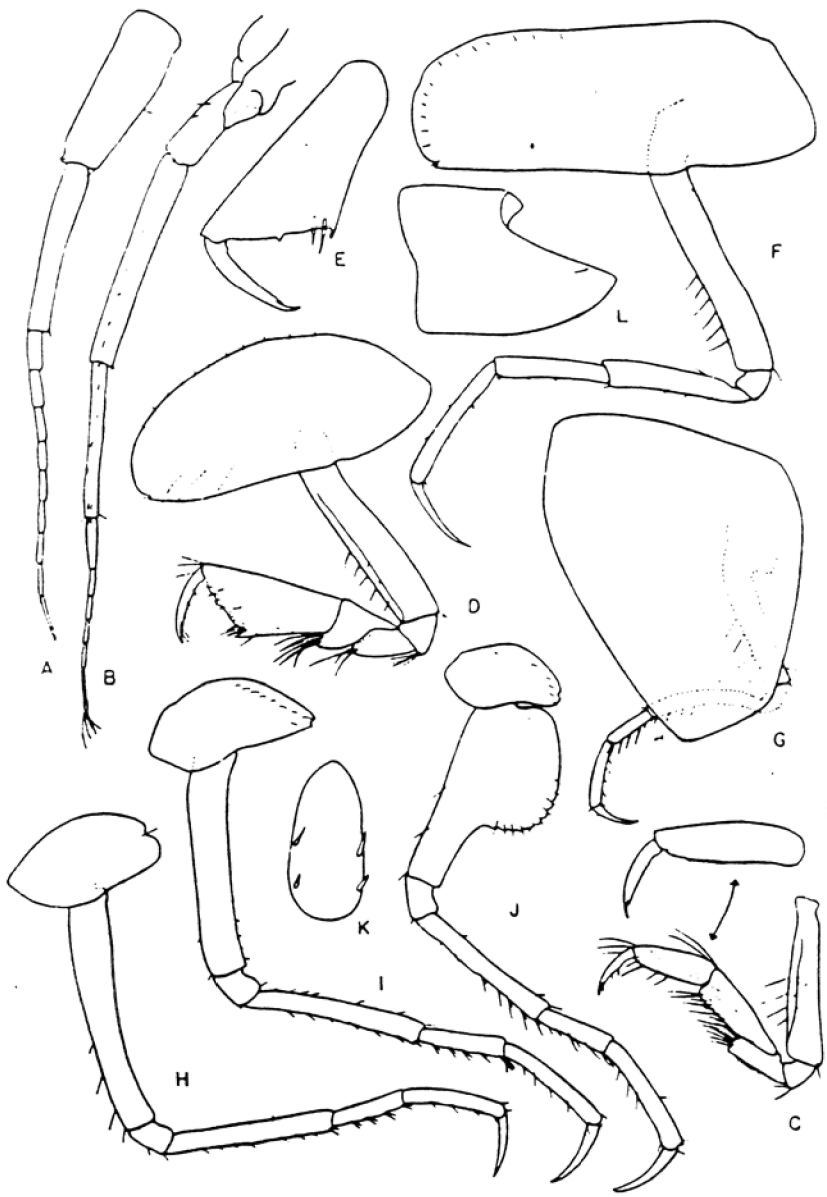

Figure 41

Mesometopa neglecta roya, new subspecies. Holotype, female, 3.0 mm, sta. 6806: A,B, antennae 1, 2; C, gnathopod 1; D,E, gnathopod 2; F,G,H,I,J, pereopods 1, 2, 3, 4, 5, pereopod 2 *reduced in size;* K, telson; L, third pleonal epimeron.

Genus Metopa Boeck

Metopa dawsoni, new species
Figs. 10, 11

DIAGNOSIS OF MALE: Gnathopod 1 with article 6 about half as long as article 5 and both articles with their edges parallel, its article 7 short, about a third as long as article 6, bearing 4-5 setules along inner margin, its article 2 slender, its article 4 not strongly produced behind; gnathopod 2 with nearly transverse palm defined by a large deflexed tooth which points medially when not flattened on the microscopic slide, its palm with a large excavation and a multitoothed process near finger hinge, its article 7 failing to reach the defining tooth, its article 3 produced anteriorly, its article 4 unusual in forming a thin, transparent process on the medial side of article 5 and bearing an anterior spine, its article 5 bearing minute denticulation along anterior edge; antenna 1 slightly longer than antenna 2; accessory flagellum forming a minute bump; coxa 4 not sinuate along lower margin; third pleonal epimeron slightly attenuated and quadrate at lower corner; telson with 3 lateral spines on each side; fourth article of peraeopods 4-5 stout.

FEMALE: Article 6 of gnathopod 2 longer than in the male, about two thirds as long as article 5; gnathopod 2 like that of male but principal palmar excavation much smaller, the defining tooth much smaller and not deflexed so that the palm is largely formed of the toothed portion seen in the male, the finger nearly reaching end of palm, its article 3 more strongly produced than in male.

HOLOTYPE: AHF No. 598, male, 3.0 mm.

TYPE LOCALITY: Station 6098, off Pt. Fermin, 33-38-45 N, 118-14-45 W. 24 fms, February 19, 1959.

MATERIAL: 36 specimens from 12 stations.

RELATIONSHIP: The genus *Metopa* is large, with 46 species. A key to

Distribución: Pt. Argüello, de California a Bahía de San Cristóbal, Baja California, 12-160 metros.

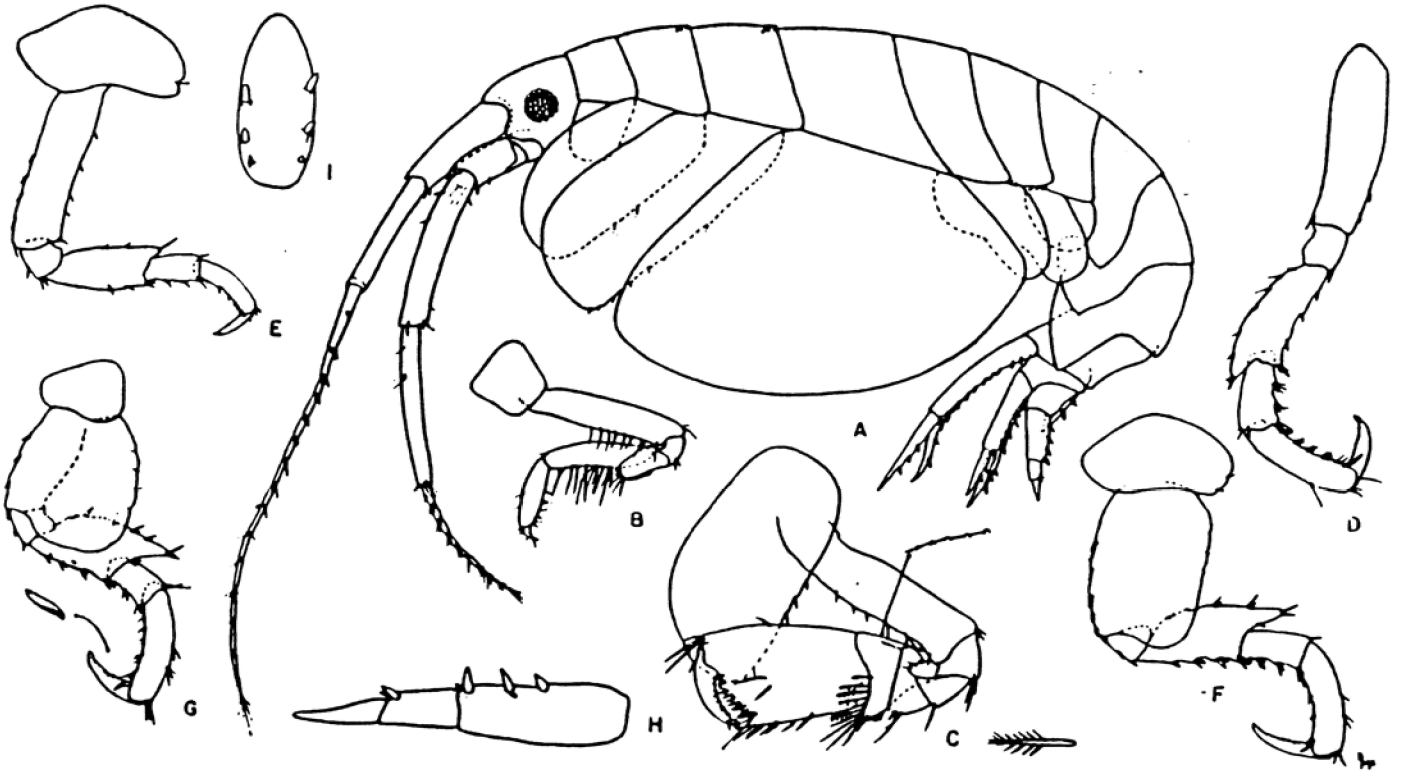

Fig. 10. *Metopa dawsoni*, n. sp. Female, 3.8 mm, sta. 5828: A, lateral view; B,C, gnathopods 1, 2; D,E,F,G, peraeopods 2, 3, 4, 5; H, uropod 3; I, telson.

the species was published by Gurjanova (1951). The genus *Prometopa* Schellenberg (1926) is referred to *Metopa* by Gurjanova (1948) but separated in her generic key again in 1951. *Prometopa* differs from *Metopa* by the presence of an indistinctly biarticulate accessory flagellum. The new species herein has a minute, 1-jointed accessory flagellum. By retaining the genus *Prometopa*, it is possible to state that the genus *Metopa* is confined to the northern hemisphere.

Metopa dawsoni differs from several other species in the genus by minor characteristics as follows: From its closest relative, *Metopa wiesei* Gurjanova (see 1951), it differs by the different angle of projection of the last tooth on the finger-hinge process of male gnathopod 2, (in *M. wiesei* it projects posteriorly whereas in *M. dawsoni* it projects distally) and by the much more elongated fifth article of gnathopod 1 and shorter article 7. From *Metopa alderi* (Bate) (see Sars 1895: pl. 86) it differs by the much more elongated fifth article of gnathopod 1, with more slender sixth article, the shorter seventh article, and the presence of telsonic spines. In gnathopod 1, *M. dawsoni* differs in like respect from *M. spectabilis* (see Sars 1895: pl. 87) and *M. boeckii* (see Sars 1895: pl. 88). The female of *M. dawsoni* resembles closely the female of *M. robusta* Sars (1895: pl. 96, fig. 1) but differs by the stouter first gnathopod and less strongly produced fourth articles of peraeopods 4-5.

Ecology: This species has an overall density of 0.9 animals per square meter on the coastal shelf. It ranges in depth from 31 to 100 fathoms.

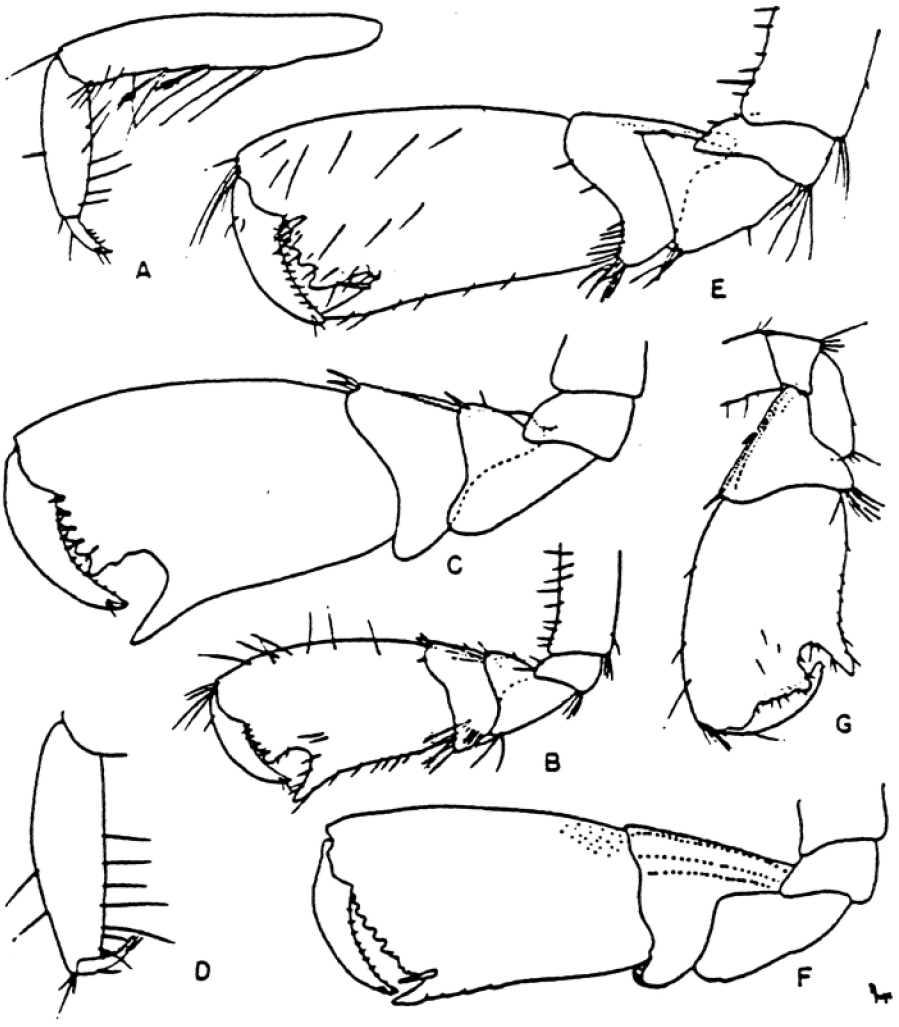

Fig. 11. *Metopa dawsoni*, n. sp. Male, 4.3 mm, sta. 6105: A,B,C, gnathopods 1, 2, 2. Female, 3.8 mm, sta. 5828: D,F, gnathopods 1, 2. Female, 5.0 mm, sta. 6132: E, gnathopod 2. Male, holotype, 3.0 mm, sta. 6098: G, gnathopod 2.

Metopa (Prometopa) samsiluna, new species

(Fig. 42)

Diagnosis: Assigned to the subgenus *Prometopa* Schellenberg by possession of a vestigial accessory flagellum; mandibular palp 3-articulate, first maxillary palp uniarticulate; eyes absent; antennae very long, subequal, peduncular articles of both antennae elongated, article 2 of antenna 1 longer than article 1; coxa 2 very broad; gnathopod 1 short, with distinct palm, article 6 expanded, article 7 short, fitting palm, not setose, article 4 strongly projecting posteriorly along article 5, article 2 strongly setose anteriorly; palm of gnathopod 2 with a large medial tooth, defining corner with large tooth; lobe on article 2 of pereopods 4 and 5 narrowing posterodistally, article 4 narrow, scarcely decurrent, telson spinose.

Holotype: AHF No. 6013, female, 4.5 mm. Unique.

Type locality: Station 0840, San Clemente Rift Valley, California, 32°-44'-35" N, 118°-12'-45" W, 1620 m, January 30, 1960.

Relationship: This species differs from *M. boeckii* Sars (1895: pl. 88) in the presence of the medial palmar tooth on the second gnathopodal palm, the narrower distoposterior lobes on article 2 of pereopods 4-5, the broader second coxa and the shorter first gnathopod with a more projecting fourth article and more distinct palm.

From *M. spectabilis* Sars (1895: pl. 87) this species differs in the equal antennae.

Metopa alderi (Spence Bate) (Sars 1895: pl. 86) is closely related and *M. samsiluna* may be a form of *M. alderi* but it differs in the lack of eyes, the spinose telson, the longer antennae, the better developed medial palmar tooth of gnathopod 2 and the narrower distoposterior lobes on article 2 of pereopods 4-5.

The new species resembles *M. aequicornis* Sars (1885), especially in the long, equal antennae and large coxa 2, but differs in the narrow, scarcely decurrent fourth articles of pereopods 4 and 5 and the spinose telson.

Metopa lavi Gurjanova (see 1951) has short articles 1 and 2 of antenna 1.

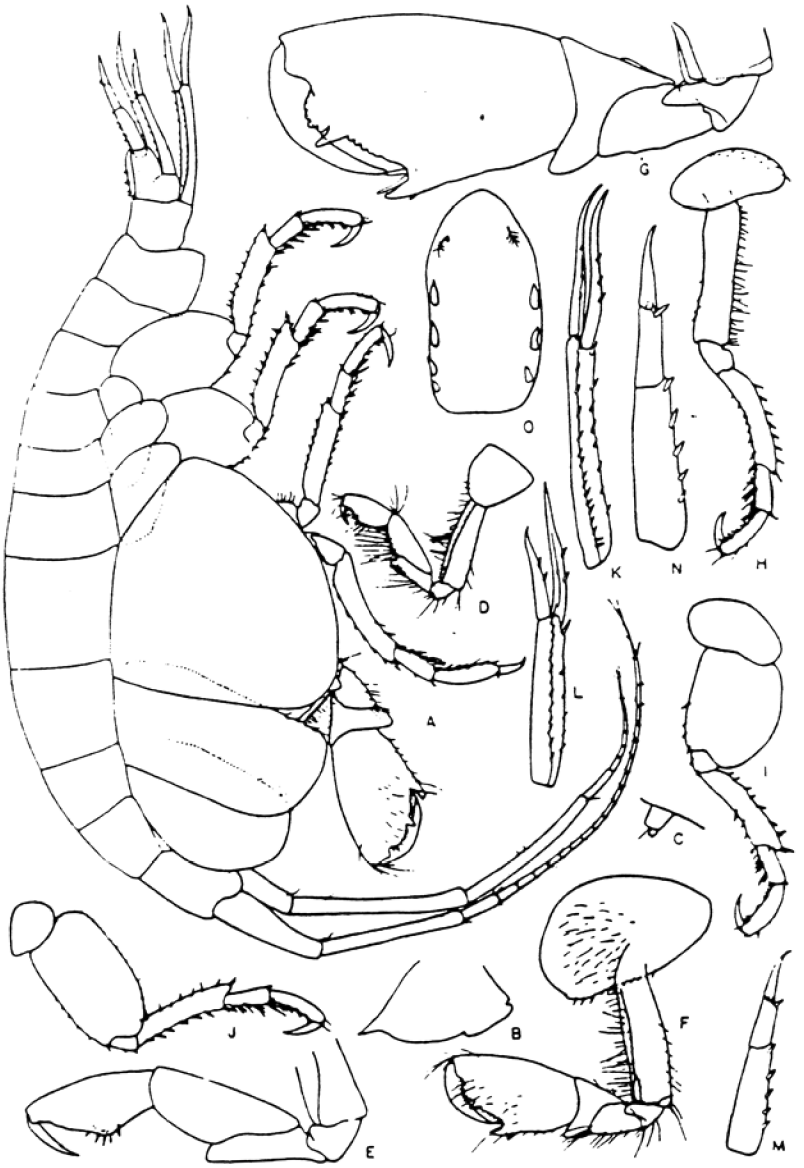

Figure 42

Metapa samsiluna, new species. Holotype, female, 4.5 mm, sta. 6840: A, lateral view; B, epistome; C, accessory flagellum; D,E, gnathopod 1; F,G, gnathopod 2; H,I,J, pereopods 3, 4, 5; K,L,M,N, uropods 1, 2, 3, 3; O, telson.

Metopa sp.

(Fig. 43)

Material: One female, 2.2 mm, from Station 6499, Monterey Canyon.

Relationship: This specimen has affinities with ***Metopa pusilla*** Sars (1895: pl. 90, fig. 1) and may be identified with it although minor differences are noted as follows: the first gnathopod is slightly stouter and article 4 does not project posteriorly as much; coxa 4 is more elongated antero-posteriorly.

From *M. longicornis* Sars (1895: pl. 90, fig. 2) this species differs in the strongly projecting posterodistal corner of article 4 on pereopod 5. The female gnathopod 2 of *M. tenuimana* Sars (1895: pl. 91, fig. 1) is more slender and the palm more oblique than in the present material, but the figures of that species in Stephensen (1931) are close to the material at hand. Article 2 of pereopod 4 is stouter in *M. brazzii* Goës (Sars 1895: pl. 92, fig. 1) than in the present specimen. The posterior lobe of article 5 on female gnathopod 2 is much stouter and longer in *M. incalida* Sars (1895: pl. 94, fig. 2). Article 4 of pereopod 5 is much stouter in *M. aequicornis* Sars (1858: pl. 15, fig. 5). Article 6 of gnathopod 1 is less tumid medially than in *M. boeckii* Sars (1895: pl. 88).

The specimen also bears comparison to *M. layi* Gurjanova (see 1951) but article 6 of gnathopod 1 in that species is slightly stouter.

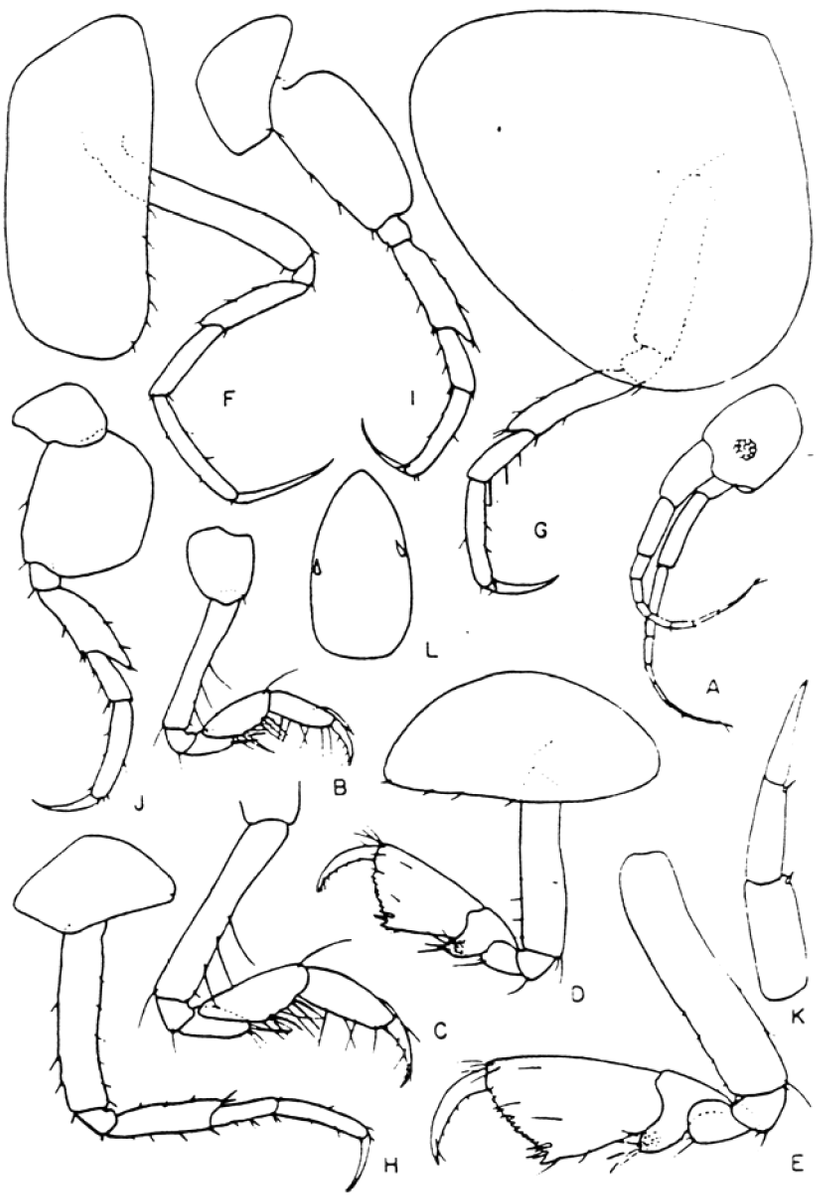

Figure 43

Metopa sp. Female, 2.2 mm, sta. 6499: A, head; B,C, gnathopod 1; D,E, gnathopod 2; F,G,H,I,J, pereopods 1, 2, 3, 4, 5; K, uropod 3; L, telson.

Metopella aporpis, new species
Figs. 12, 13

DIAGNOSIS OF MALE: Articles of antenna 1 not produced; article 6 of gnathopod 1 shorter than article 5, simple, its edges parallel, its posterior edge with 4-5 long setae; article 7 of gnathopod 1 half as long as article 6, with 3-4 setae on posterior edge; palm of gnathopod 2 oblique, formed of a shallow quadrate excavation bounded on both sides by a long, sharp tooth, the posterior one forming the defining tooth, the anterior tooth being an extension from a minutely toothed process near the finger hinge; gnathopod 2 with article 7 nearly reaching end of palm, its article 4 forming a medial translucent lobe projecting anteriorly and appressed to the side of article 5, the anterior edge of article 5 with rows of minute denticles; peraeopod 1 much longer than peraeopod 2 and poorly spinose, peraeopod 2 having numerous stout posterior spines on article 5 and 6; telson with 2 lateral spines on each side near base.

Mandibular palp long, apparently biarticulate; first maxillary palp uniarticulate.

FEMALE: Gnathopod 2 with palm oblique, irregularly toothed, with one large medial tooth and a large defining tooth, the finger failing to reach end of palm; telson with 4 spines on each side near base.

HOLOTYPE: AHF No. 5729, male, 2.4 mm.

TYPE LOCALITY: Station 4834, near Pt. Mugu, 34-00-20 N, 119-01-45 W, 77 fms, rock bottom, February 6, 1957.

RELATIONSHIP: This species is closely related to *Metopella pacifica* (Holmes 1908), from Monterey, California, but differs by the simple, not subchelate, first gnathopod. The resemblance of second gnathopods is amazing, and one wonders if the configuration of gnathopod 1 as drawn for *M. pacifica* were correct.

The new species differs from *M. buynitzkii* Gurjanova (see 1951), *M. macrochira* Gurjanova (see 1951) and *M. carinata* (Hansen) (Gurjanova 1951) by the elongated fifth article of gnathopod 1 and by the quite different configuration of male gnathopod 2. It differs from *M. nasuta* (Boeck) (in Sars 1895) by the unproduced first article of antenna 1; from *M. neglecta* (Hansen) (see Sars 1895) by the parallel edges of article 2 on peraeopod 5; from *M. longimana* (Boeck) (see Sars 1895) by the second male gnathopod, which in *M. longimana* has a nearly transverse palm; and from *M. angusta* Shoemaker (1949) by the palmar processes on male gnathopod 2.

MATERIAL: 5 specimens from 3 stations.

ECOLOGY: Known from 2 stations in southern California at depths of 46 and 77 fms and from Monterey Bay at 14 fms.

Distribution: Monterey Bay to San Cristobal Bay, Baja California, 24–140 m, south of Point Conception not shallower than 84 m.

Metopella (?) aporpis J. L. Barnard

Metopella aporpis J. L. Barnard 1962c: 142-145, figs. 12, 13.

Canyon material: 6805(3).

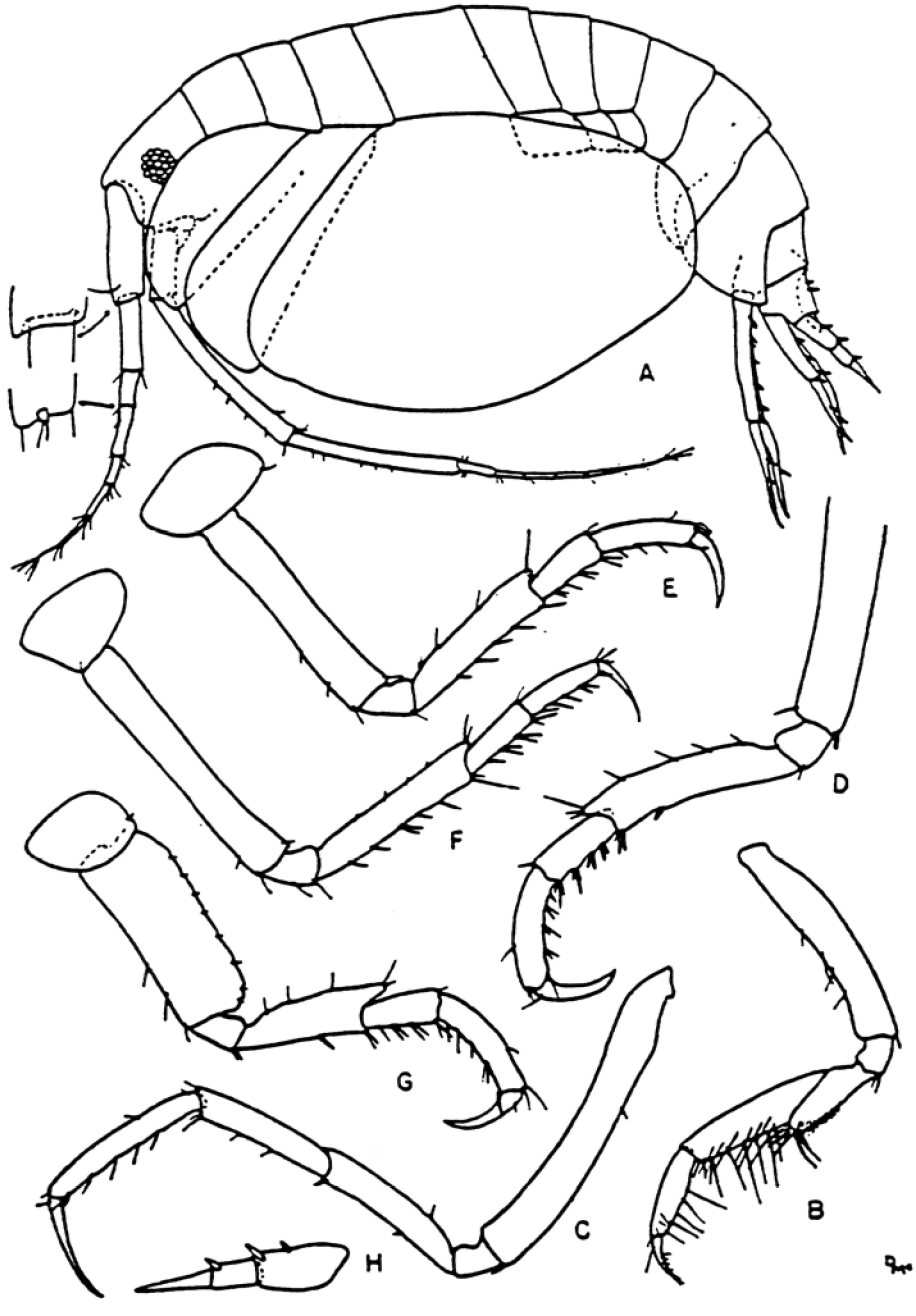

Fig. 12. *Metopella aporpis*, n. sp. Male, holotype, 2.4 mm, sta. 4834: A, lateral view; B, gnathopod 1; C,D,E,F,G, peraeopods 1, 2, 3, 4, 5; H, uropod 3.

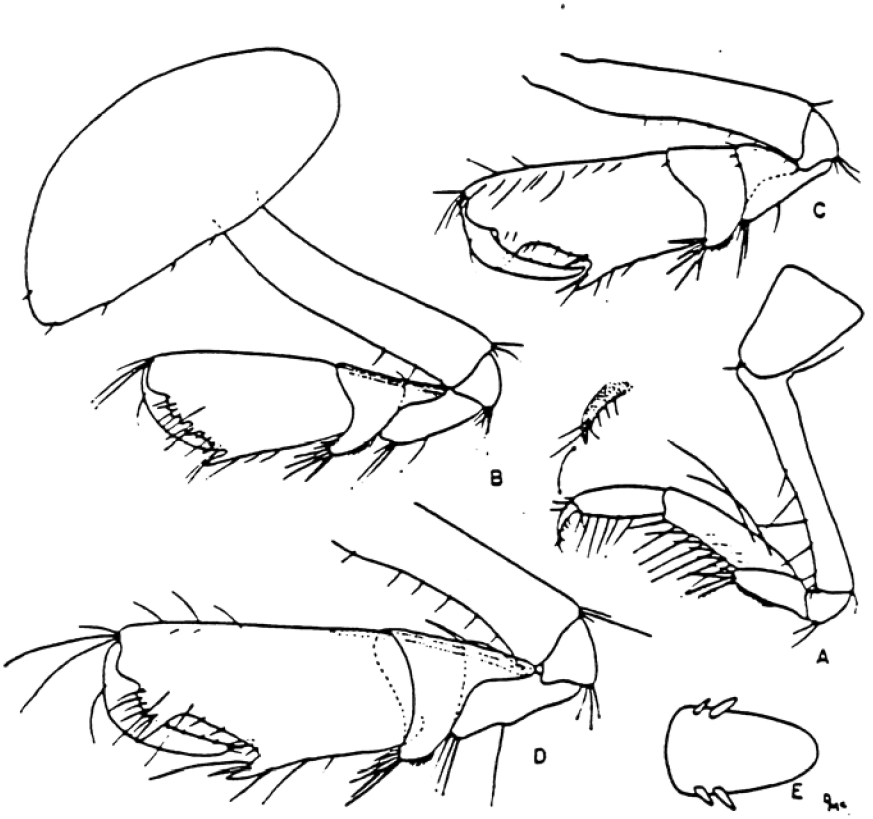

Fig. 13. *Metopella aporpis*, n. sp. Female, 2.5 mm, sta. 4834: A,B, gnathopods 1, 2. Male, holotype, 2.4 mm: C,D, medial and lateral view of gnathopod 2; E, telson.

Parametopella ninis, new species
Figs. 14, 15

DIAGNOSIS OF FEMALE: Gnathopod 1 slender, simple, its articles 5 and 6 equal in length, the hind margin of article 6 with 4 slender setae, the hind margin of article 7 with 3 slender setae; gnathopod 2 small, slender, its article 5 nearly two thirds as long as article 6, with broad hind lobe, becoming subacute at apex, the palm oblique, straight, defined by 2 spines; articles of antennae simple, not produced; telson with 2 lateral spines on each side.

MALE: Unknown.

HOLOTYPE: AHF No. 586, female, 1.9 mm.

TYPE LOCALITY: Station 5711, Santa Monica Bay, 33-55-54 N, 118-31-16 W, 31 fms, April 18, 1958.

RELATIONSHIP: This species differs from *P. stelleri* (see Gurjanova 1951) by the more slender first gnathopod, the slimness of the posterior setae of article 6, and the unproduced articles of the antennae as well as the second gnathopods which are known for the male in *P. stelleri*. It differs from *P. cypris* (Holmes 1905: 484) by the slightly longer fifth article of gnathopod 2 which has a broad hind lobe, not a slender, apically rounded, slightly constricted lobe as seen in *P. cypris*.

The writer cannot clearly discern the line separating urosome segments 5 and 6. Despite the large number of specimens no male was found; all specimens have brood plates.

MATERIAL: 37 specimens from 24 stations.

ECOLOGY: This species has an overall density of 0.5 animals per square meter on the coastal shelf. It is restricted to depths between 31 and 100 fathoms.

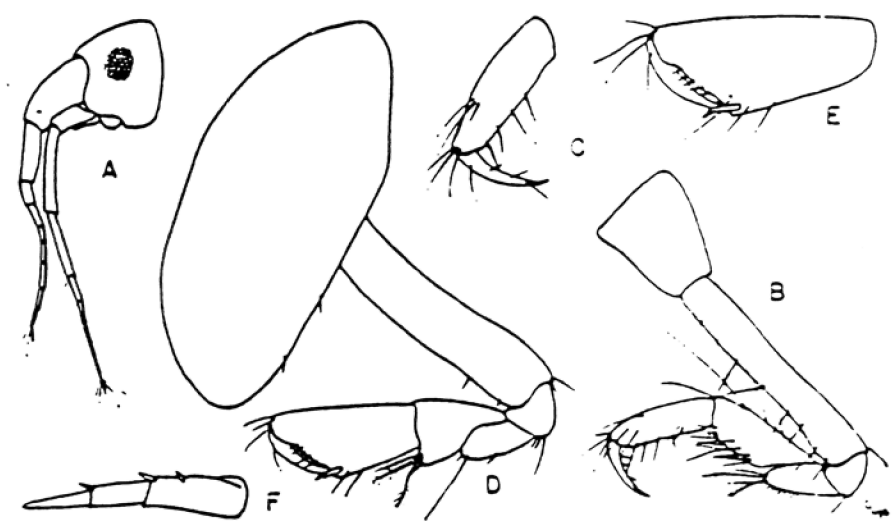

Fig. 15. *Parametopella ninis*, n. sp. Female, 2.3 mm, sta. 5163: A, head; B,C, gnathopod 1; D,E, gnathopod 2; F, uropod 3.

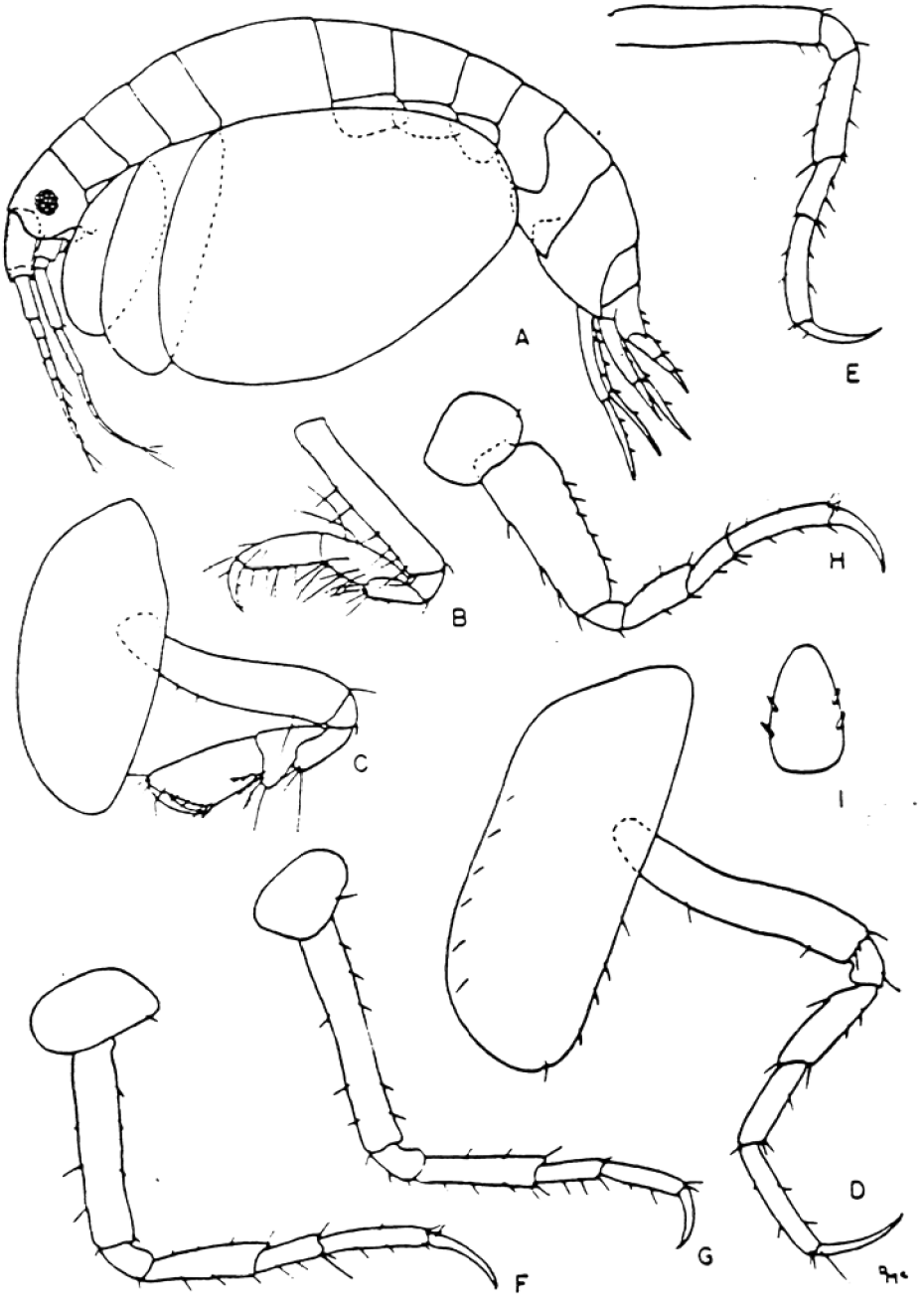

Fig. 14. *Parametopella nitis*, n. sp. Female, holotype, 1.9 mm, sta. 5711: A, lateral view; B,C, gnathopods 1, 2; D,E,F,G,H, peraeopods 1, 2, 3, 4, 5; I, telson.

Genus Proboloides Della Valle

Proboloides tunda, new species

Fig. 16

DIAGNOSIS: Eyes absent; antennae quite long; article 2 of first antenna 1.6 times as long as article 1; accessory flagellum absent; first gnathopod with article 6 three fourths as long as article 5, bearing a distinct palm which is defined by a group of 5 stout dispersed spines, its article 4 not strongly produced; gnathopod 2 with medial side of article 3 sharply produced forward, its article 4 with a sharp distally produced tooth, its article 6 of intermediate slenderness, its palm quite distinct, oblique, shorter than hind margin of article 6, with a flat-bottomed excavation for half its length, the entire length sculptured into bead-like processes, defined by a slight process bearing 2 spines; fourth articles of peraeopods 3-5 narrow, scarcely produced; telson with 3 lateral spines on each side.

Palp of mandible triarticulate, palp of maxilla 1 biarticulate.

HOLOTYPE: AHF No. 5910, male, 5 mm; no brood plates, no penial projections.

TYPE LOCALITY: Station 6809, off Santa Cruz Island, 33-54-39 N, 119-46-24 W, 302 fathoms, December 22, 1959, bottom of shale, mud, sand.

MATERIAL: Station 6809, (3 specimens; the two besides the holotype are in fragments).

RELATIONSHIP: Most species of *Proboloides* are distributed in the southern Hemisphere and most of them belong to the subgenus *Metopoides* which has a small accessory flagellum. In the northern Hemisphere apparently the only other species to have the narrow, unproduced fourth article of peraeopod 3 is *P. grandimanus* (Bonnier 1896, Bay of Biscay, 950 m) another deep water species like the present one. Bonnier has drawn that species with an eye on one drawing and none on the other, and mentions small round eyes in his description, but one wonders whether this might be part of the brain which resembles an eye on the present specimens. The second gnathopods of the new species differ considerably from those of *P. grandimanus*, and the latter is aberrant for its large first coxa and small second one.

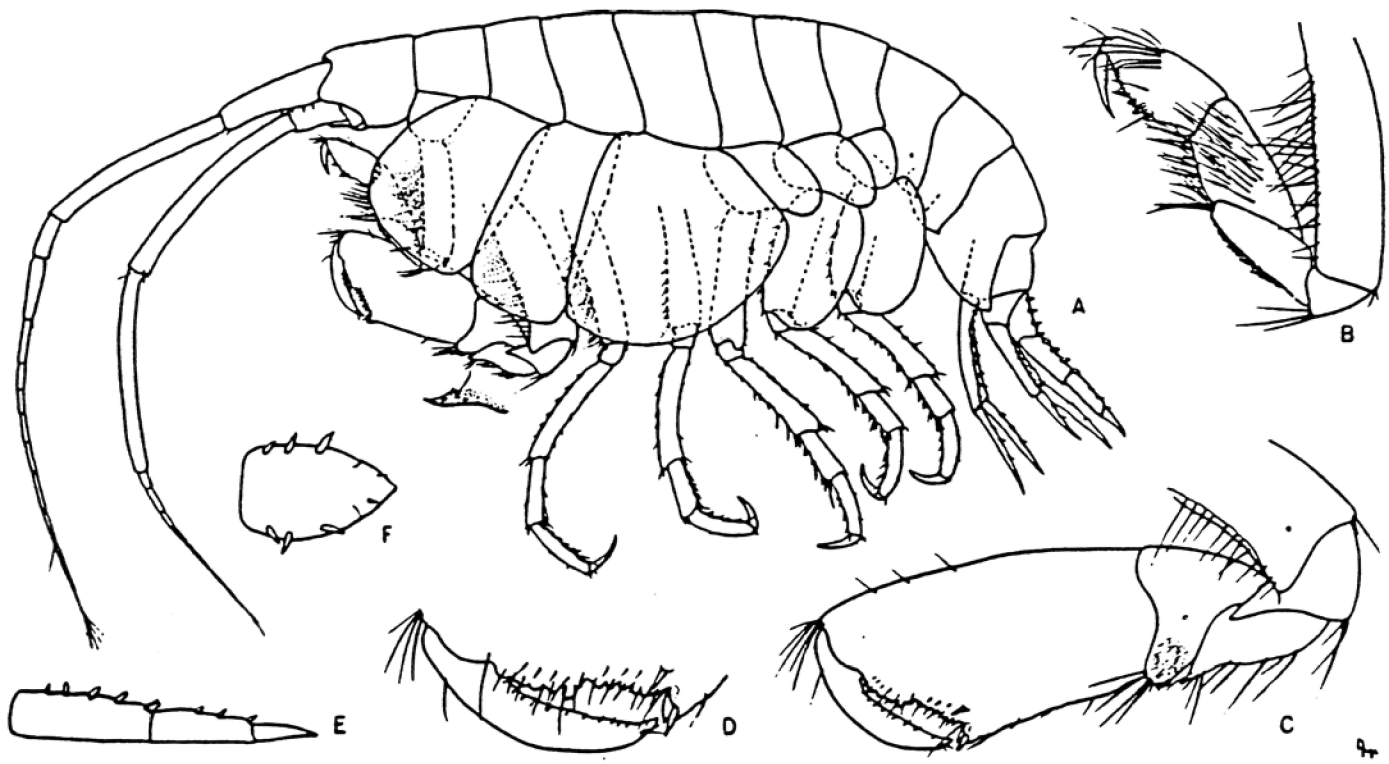

Fig. 16. *Proboloides tunda*, n. sp. ?Male, holotype, 5.0 mm, sta. 6809: A, lateral view; B,C,D, gnathopods 1, 2, 2; E, uropod 3; F, telson.

Proboloides tunda J. L. Barnard

(Fig. 44)

Proboloides tunda J. L. Barnard 1962c: 147-149, fig. 1o.

Canyon material: 7041(2), 7290(3).

Remarks: The second gnathopod illustrated here is more fully developed than that shown by Barnard (1962b).

Figure 44

Proboloides tunda J. L. Barnard. Male, 3.5 mm, sta. 7290: gnathopod 2 and enlargement of palm.

Stenothoe estacola, new species

Fig. 17

DIAGNOSIS OF MALE: Gnathopod 1 with article 4 scarcely projecting behind, with article 6 almost twice as long as article 5, the palm quite oblique but well defined by 3 spines; gnathopod 2 rather small, stout, its article 6 not elongated, the palm oblique but well defined by a large shallow bump and with 3 small blunt cusps: telson with 3 lateral spines on each side; back not carinate; peduncle of uropod 3 shorter than ramus, the second article of ramus straight, armed with rows of minute serrations; fourth articles of peraeopods 3-5 of intermediate expansion.

FEMALE: Gnathopod 1 like that of male; gnathopod 2 smaller and more slender than in male, the palm lacking ornamentation, longer than hind margin of article 6 but well defined by several spines.

HOLOTYPE: AHF No. 556, male, 3.0 mm.

TYPE LOCALITY: Barnard sta. 6, Corona del Mar, California, February 6, 1955, intertidal wash of crustaceans from reef-like beds built by the polychaete worm, *Phragmatopoma* sp.

MATERIAL: Barnard stas. 4 (29), 6 (22), 23 (1).

RELATIONSHIP: This species differs from *Stenothoe monoculoides* (Montagu) (see Sars 1895: pl. 82, fig. 1, and Chevreux and Fage 1925: fig. 132) by the stouter male second gnathopod, its palm being armed with short cusps and by the multispinose telson; the female differs by its longer palm of gnathopod 2; from *S. brevicornis* Sars (1895: pl. 82, fig. 2) it differs by the shorter peduncle of uropod 3 and the less produced fourth article of gnathopod 1. From *S. barrowensis* Shoemaker (1955) it differs by the relatively elongated sixth article of gnathopod 1 and the stouter second gnathopod with larger and fewer palmar cusps. From *S. adhaerans* Stebbing (1888: pl. 39) it differs by the defining spines on the palm of female gnathopod 2 and the much shorter peduncle of uropod 3.

ECOLOGY: An intertidal species recovered from Corona del Mar and Pt. Fermin in formalin washings of 3 kinds of materials, sponge (*Spheciospongia* sp.), beds of arenaceous encrusting polychaete, *Phragmatopoma* sp., and in calcareous algae.

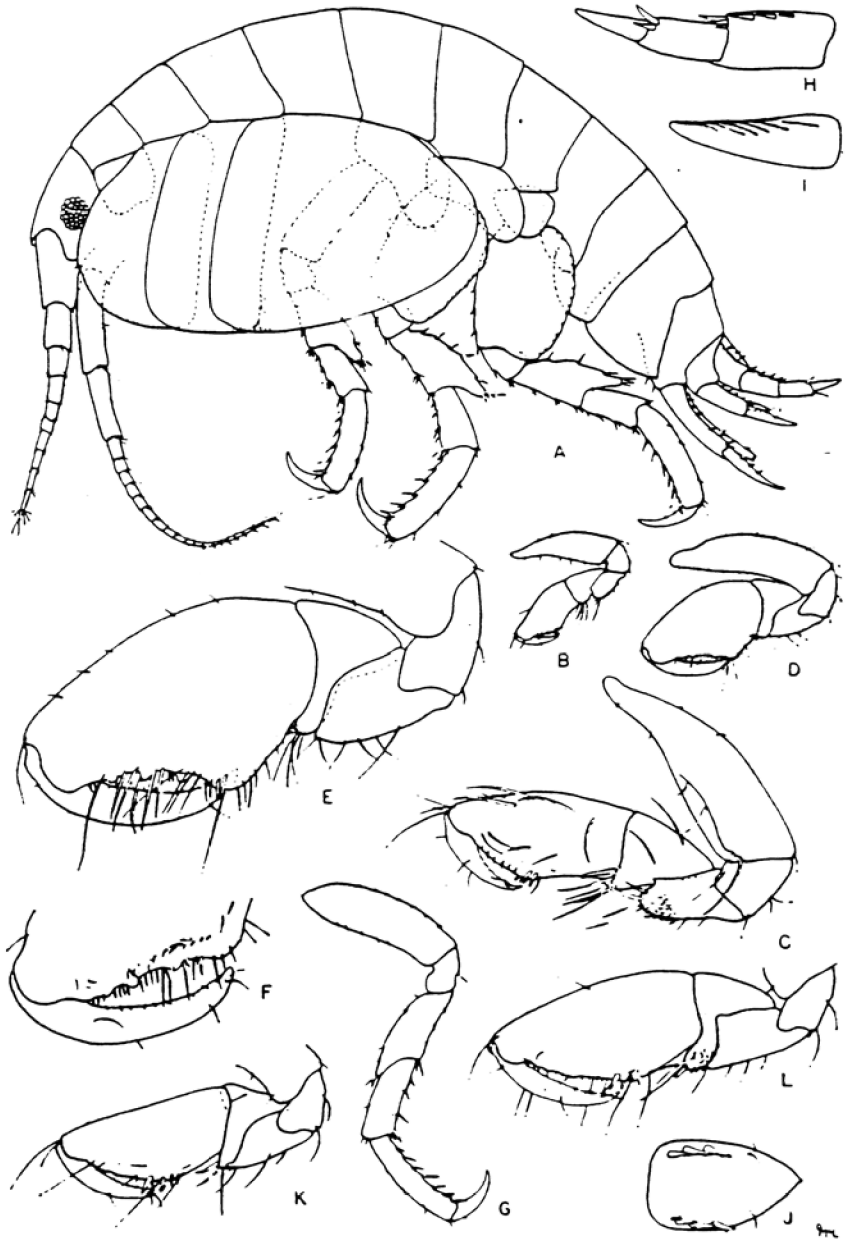

Fig. 17. *Sternothoe estacola*, n. sp. Holotype, male, 3·0 mm, Barnard sta. 6: A, lateral view. B,C, gnathopod 1. D,E,F, gnathopod 2. G, peraeopod 1. H, uropod 3. I, detail of second ramal article of uropod 3. J, telson. Female, 2·0 mm. K,L, gnathopods 1, 2.

Stenothoe ?estacola J. L. Barnard

FIGURE 61

?*Stenothoe estacola* J. L. Barnard, 1962c, p. 149, fig. 17.

No adults as fully developed as the male shown by Barnard (1962c) have been collected in the present survey. The original material was obtained at Pt. Fermin and Corona del Mar in mass washes of sponges, phragmatopomids, and corallines. Presumably the specimens assigned herein belong with that species, subadult males having gnathopod 2 in a youthful stage, showing minutely a single middle palmar hump, two of which occur in the adult originally described. All of the subadult specimens have antenna 1 very slightly longer than antenna 2 (by the length of 2 flagellar articles), and all members of the type series (reexamined), except the figured holotype, correspond. None of the present specimens, subadult females and males, has the pectinal rows on article 2 of the third uropodal ramus but faint indications of their presence are seen. Gnathopods of both sexes differ in their medial and lateral aspects rather strongly and several views contrasted to those drawn by Barnard (1962c) are included herein. The second maxilla has the inner and outer plates attached in tandem; the outer plate of maxilla 1 has only 6 spines, the size and arrangement of which seem unusual but which are duplicated in other species of stenothoids; the outer plate of the maxilliped is obsolete, the slight projection that is present being hidden by a spine, the inner plates being strongly fused at their bases but separated for about half their theoretical lengths.

MATERIAL.—GOLETA: *Phyllospadix*-pelvetiid grid, scarce (10 per sq. m.). PT. DUME: short brown algae, abundant (176 per sq. m.); coralline algae, abundant (330 per sq. m.); green-brown algae, rare; *Egregia*, rare. PT. FERMIN: Barnard station 23, October 21, 1949, abundant in calcareous algae. CORONA DEL MAR: *Phyllospadix*-coralline grid, rare (4 per sq. m.); calcareous worm tubes, rare; tunicate colonies at base of *Phyllospadix* leaves, rare; tunicates and polychaete tubes, rare. LA JOLLA: sample 45–K–1 (1). CATALINA ISLAND: "Velero" station 1370, shore, 4 specimens.

DISTRIBUTION.—Goleta to La Jolla, California, intertidal.

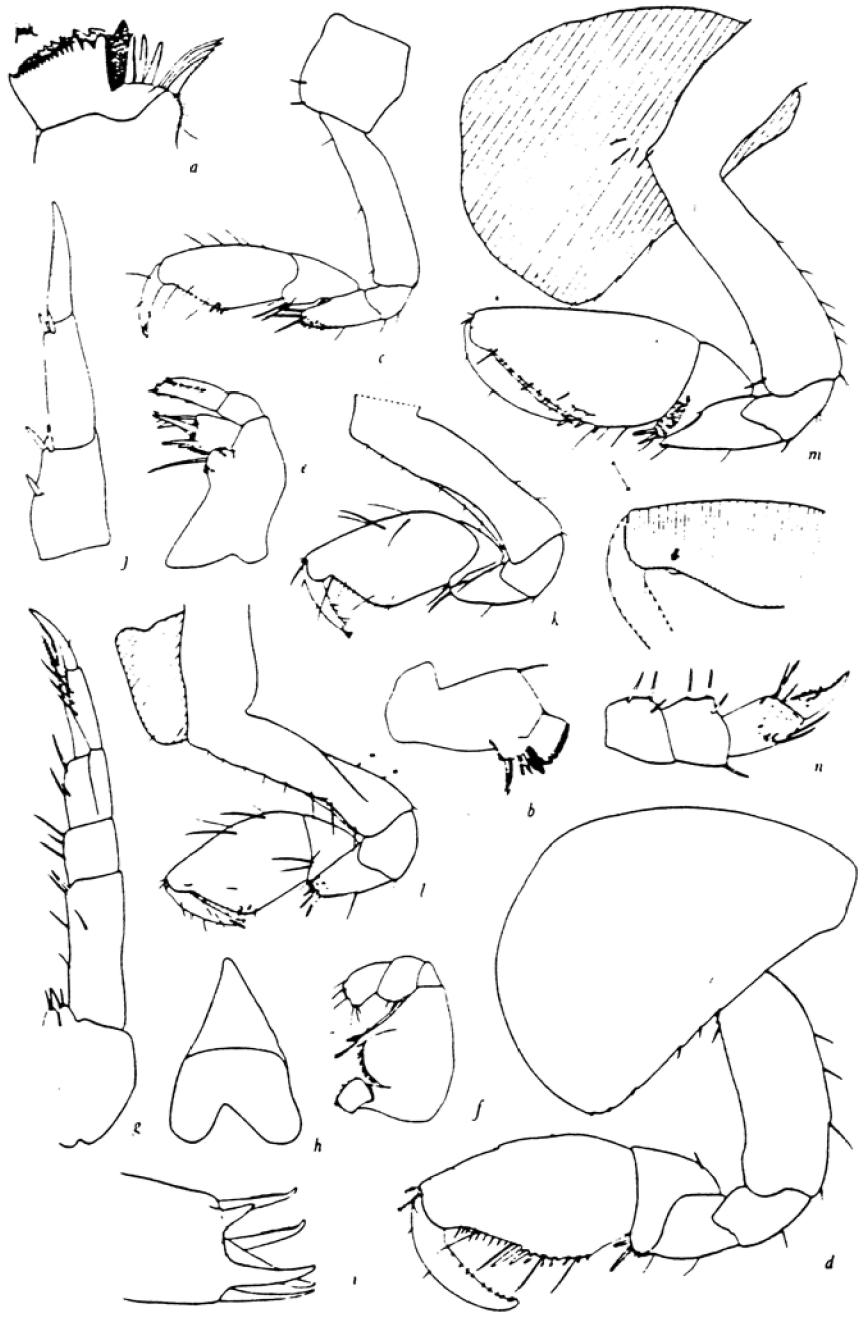

FIGURE 61.—*Stenothoe estacola* J. L. Barnard, male, 2.5 mm., station 46–G–10: *a,b*, mandible; *c,d*, gnathopods 1, 2; *e,f*, maxillae 1, 2; *g*, maxilliped, palp terminally unflattened; *h*, upper lip; *i*, outer lobe of maxilla 1. Female, 2.4 mm., station 47–B–3: *j*, uropod 3; *k,l*, gnathopod 1, lateral and medial views; *m*, gnathopod 2; *n*, maxillipedal palp, flattened.

Stenothoe frecanda, new species

Fig. 18

DIAGNOSIS: Article 4 of gnathopod 1 strongly projecting distally and behind; gnathopod 2 with palm and hind margin contiguous, bearing near finger hinge a small tent-shaped process with 2 small ones distal to it (these less well developed in female), the palm lined with short setae, not denticulate, with article 7 as long as article 6, stout, lined on inner edge with short setae; telson with 3 lateral spines on each side; back not carinate; second article of ramus on uropod 3 straight, not geniculate, the peduncle slightly longer than ramus; fourth articles of peraeopods 3-5 of intermediate expansion.

HOLOTYPE: AHF No. 587, male, 3.6 mm.

TYPE LOCALITY: Station 5632, off San Mateo Pt., 33-22-50 N. 117-39-00 W. 36 fms. February 22, 1958.

MATERIAL: 23 specimens from 6 stations.

ECOLOGY: This species has an overall density of 0.3 animals per square meter on the coastal shelf, but is confined to depths of 35-50 fathoms where its frequency is 0.8 animals per square meter.

RELATIONSHIP: This species is related to *Stenothoe valida* Dana (see J. L. Barnard 1953) but differs by the distal palmar teeth of gnathopod 2 projecting perpendicularly to the palmar axis rather than obliquely from it. It differs from *S. marina* (Bate) (see Sars 1895: pl. 80) by the terminally stout finger of the gnathopods and by the greater similarity between male and female second gnathopods, as well as the non-denticulate condition of the palms.

Distribution: Monterey Bay to southern California shelf, 64–92 m.

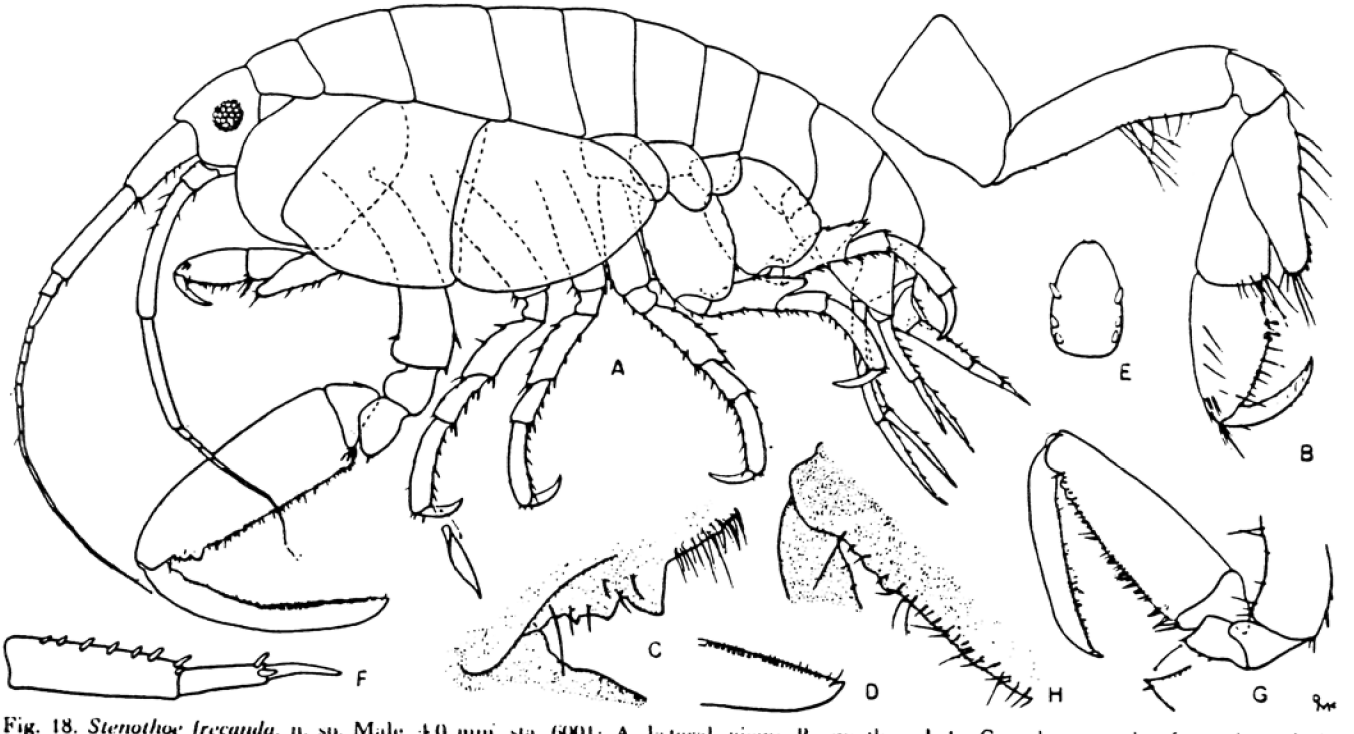

Fig. 18. *Stenothoe frecanda*, n. sp. Male, 4.0 mm, sta. 6001: A, lateral view; B, gnathopod 1; C, palmar teeth of gnathopod 2; D, apex of article 7 of gnathopod 2; E, telson; F, uropod 3. Female, 4.0 mm, sta. 4935: G, gnathopod 2; H, palmar teeth of gnathopod 2.

Stenothoe valida Dana

(Plate 15)

Stenothoe validus Dana (1852), Amer. Jour. Sci., ser. 2, vol. 14, p. 311; Dana (1853), U.S. Expl. Exped., vol. 14 II, pp. 924-925, pl. 63, figs. 1a-o; Bate (1862), Catalogue Amphipodous Crustacea, Brit. Mus., pp. 60-61, pl. 9, fig. 6.

Probolium polyprion Costa (1853), Rend. Real. Acad. Sci. Soc. Reale Borbonica, n.s., vol. 2, p. 173; Costa (1857), Amfip. Napoli, p. 199, pl. 2, fig. 3 (not seen).

Probolium megacheles Heller (1866), Denk. Akad. Wiss. Wien, vol. 26, pp. 13-14, pl. 2, figs. 1-2.

Montagua Miersii Haswell (1880), Proc. Linn. Soc. N.S.W., vol. 4, p. 323, pl. 24, fig. 4; Haswell (1882), Catalogue Austral..... Crustacea. Austral. Mus., p. 226.

Montagua longicornis Haswell (1880), Proc. Linn. Soc. N.S.W., vol. 4, pp. 323-324, pl. 24, fig. 5; Haswell (1882), Catalogue Austral..... Crustacea. Austral. Mus., p. 226.

Probolium miersii, Chilton (1885), Proc. Linn. Soc. N.S.W., vol. 9, pt. 4, p. 1043.

Stenothoe adhaerans, Chilton (1891), Trans. N.Z. Inst., vol. 24, pp. 259-260 (not Stebbing, 1888, Rep. Sci. Res. HMS Challenger, vol. 29, p. 199).

Stenothoe ornata K. H. Barnard (1930) was distinguished by the denticulate ornamentation of coxae 3 and 4. Specimens at hand show a series of submarginal coxal ridges running at right angles to the margins plus minute, submarginal setules. These ridges compare favorably with those figured by Barnard for *Proboloides perlatus* (to which he makes reference, fig. 15). Barnard also refers to S. *ornata* as a possible synonym of *Stenothoe miersii* (Haswell) which Chilton (1923) considered a synonym of S. *valida*.

Chilton (1923) pointed out that Kunkel's (1910) female of *Stenothoe marina* (Bate) showed gnathopod 2 identical to some of his specimens of S. *valida* and this is true of the material at hand.

Kunkel's *Stenothoe valida* is considered dubious by the writer and should be reexamined for other affinities because of the shape of the second article of the ramus of uropod 3 and the teeth on the palm of gnathopod 2.

Stenothoe aucklandicus Stephensen (1927, Vid. Medd. Dansk Nat. Foren., vol. 83, p. 311) was based on female specimens but differs from females of material at hand by the shorter palm of gnathopod 2, plus defining spines; the cusp is situated at the middle of the palm rather than near the finger hinge. The writer considers S. *aucklandicus* to be a valid species.

As Chilton (1923) suggested, S. *dollfusi* Chevreux (1891, Bull. Soc. Zool. France, vol. 16, pp. 260-262, figs. 6-10) may be a form of S. *valida* although intergradations of the teeth of the male gnathopod 2 have not been described. The palm of the female gnathopod 2 is rather strongly excavated just proximal to the finger hinge and the ramus of uropod 2 is longer than the peduncle (see Chevreux and Fage, 1925, Faune de France, vol. 9, p. 135.)

Stenothoe valida as noted by Schellenberg (1938) appears to be S. *cattai* Stebbing (1906). This fact was ascertained when the writer examined more than twenty lots of *Stenothoe* from the Hawaiian Islands (lent through the courtesy of Dr. C. H. Edmondson, Bernice P. Bishop Museum) and found all of them to be S. *cattai*, a closely related species.

The males of the two species may be distinguished in the following ways: (1) the geniculate and ridged second article of the third uropodal ramus in S. *cattai*: in S. *valida* this article is straight and styliform; (2) the shape of the teeth on the palms of the second gnathopod differs slightly; (3) the third coxa of S. *valida* is very broad, while in S. *cattai* it is narrow, the sides being nearly parallel.

The female of *S. cattai* differs from the male by the straight, stylus-like second article of uropod 3, similar to both males and females of *S. valida*, a factor which may have led to confusion between the two species.

The females of *S. cattai* and *S. valida* may be distinguished by the following characters: (1) presence of a small, distal palmar tooth on gnathopod 2 of *S. valida;* (2) the lack of palmar defining spines on gnathopod 2 of *S. valida;* (3) the broader coxa 3 of *S. valida*. The latter character difference is not so pronounced in the females of the two species as in the males, the third coxal plate in the female of *S. valida* being intermediate in size between the male of *S. valida* and both sexes of *S. cattai*.

Stenothoe valida, Della Valle (1893), Fauna Flora Golfes Neapel, vol. 20, pp. 566-568, pl. 58, figs. 74-78 (in part); Stebbing (1906), Das Tierreich, vol. 21, p. 194; Chevreux (1913), Bull. Inst. Oceanog., Monaco, no. 262, pp. 2-3; Chilton (1923), Rec. Austral. Mus., vol. 14, no. 2, pp. 95-100, fig. 5; Chevreux and Fage (1925), Faune de France, vol. 9, pp. 137-138, fig. 137 Hale (1927), Trans. Roy. Soc. So. Austral., vol. 51, p. 314, fig. 3; Schellenberg (1928), Trans. Zool. Soc. London, vol. 22, pt. 35, p. 641.

Stenothoë valida, Graeffe (1902), Arb. Zool. Inst. Univ. Wien, vol. 13, p. 22.

Stenothoe micrsii, Stebbing (1906), Das Tierreich, vol. 21, p. 200; Stebbing (1910), Austral. Mus., Mem. 4, vol. 2, pt. 12, p. 637.

Stenothoe assimilis Chevreux (1908), Bull. Inst. Oceanog., no. 113, pp. 4-8, figs. 4-6; Barnard (1925), Ann. So. African Mus., vol. 20, pt. 5, pp. 345-346.

Stenothoë assimilis, Walker (1910), Proc. U.S. Nat. Mus., vol. 38, no. 1767, pp. 621-622, fig. 1.

Stenothoë validus, Walker (1910), Ann. Mag. Nat. Hist., ser. 8, vol. 6, pp. 31-32.

Stenothoe ornata Barnard (1930), Brit.-Antarctic Exped. 1910, Nat. Hist. Repts., Zool., vol. 8, p. 341, fig. 16.

Stenothoe valida, Chevreux (1935), Res. Camp. Sci. Monaco, fasc. 90, p. 81.

Not *Stenothoe valida*, Kunkel (1910), Trans. Conn. Acad. Arts Sci., vol. 16, pp. 16-19, fig. 5.

Not *Stenothoe valida*, Schellenberg (1938), Kungl. Svensk. Vetensapakad. Handl., ser. 3, vol. 16, no. 6, p. 21 (=*S. cattai* Stebbing).

Material examined. — Los Angeles-Long Beach Harbor, 28 lots on the hydroid *Tubularia crocea* (Agassiz), collected between April, 1950 and September, 1951.

Remarks. — The large synonymy of this species has been due in part to the statement by Dana (1853) that the second article of the third peraeopod was as broad as those of peraeopods 4 and 5, thus leading Chevreux (1908) to describe *Stenothoe assimilis*. Walker (1910) and Chevreux (1913) pointed out the error made by Dana, the second article of peraeopod 3 being very slender.

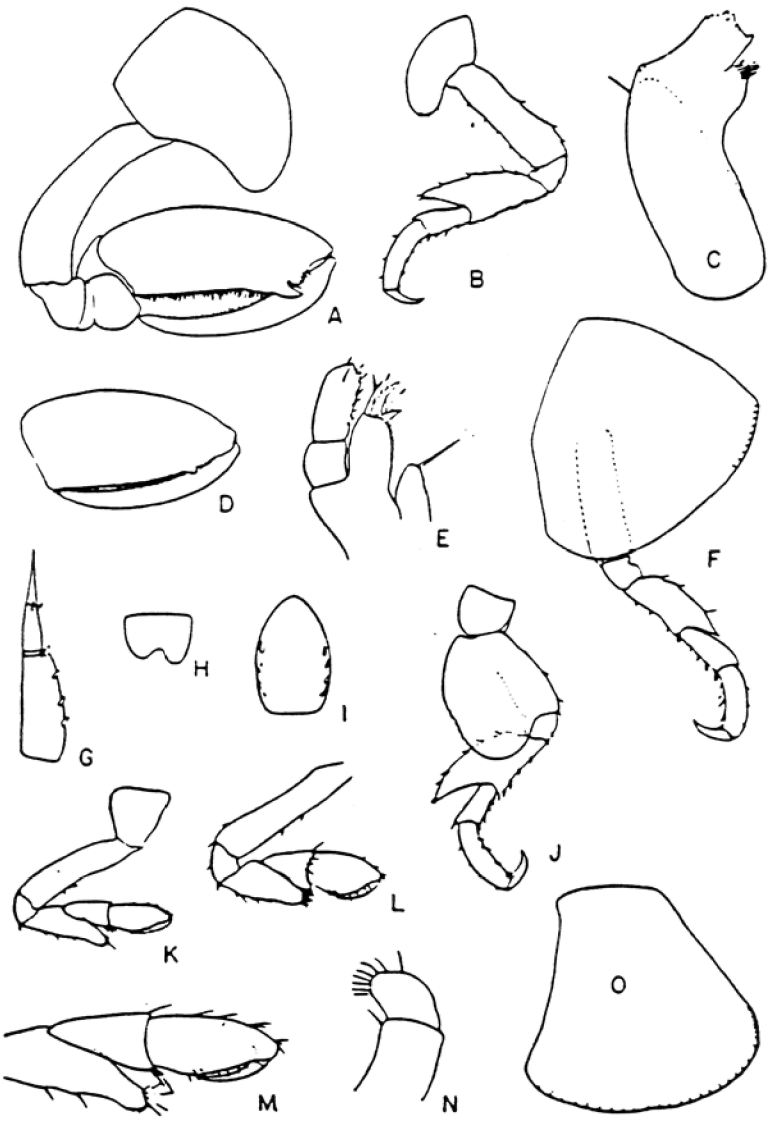

PLATE 15

Stenothoe validula Dana

Male, 6 mm. Fig. a, gnathopod 2; b, peræopod 3; c, mandible; e, maxilla 1; f, peræopod 2; g, uropod 3; h, upper lip; i, telson; j, peræopod 5; k, gnathopod 1; m, end of gnathopod 1, enlarged; n, maxilla 2; o, coxa 3.

Female, 4 mm. Fig. d, end of gnathopod 2, enlarged; l, gnathopod 1.

Stenothoides Chevreux, new synonymy

Stenothoides Chevreux 1900: 55.
Mesostenothoides Gurjanova 1938: 280.

DIAGNOSIS: Article 2 of peraeopods 3-4 slender; article 2 of peraeopod 5 broad; palp of mandible uniarticulate or absent; palp of maxilla 1 uniarticulate.

TYPE SPECIES: *Stenothoides perrieri* Chevreux (1900).

LIST OF SPECIES:

Stenothoides (?) *bicoma*, n. sp.
Stenothoides perrieri Chevreux
Mesostenothoides pirloti Gurjanova
Mesostenothoides slastnikovi Gurjanova
Mesostenothoides smirnovi Gurjanova
Mesostenothoides uenoi Gurjanova

Stenothoides (?) bicoma, new species

Fig. 8

DIAGNOSIS OF MALE: Last two urosomal segments fused but pleon not otherwise aberrant as in some species assigned to Thaumatelsonidae (see previous discussion); telson bearing three lateral spines on each side; gnathopod 1 with article 5 longer than article 6, its article 7 simple, not setose, its article 4 scarcely produced; palm of gnathopod 2 oblique, bearing a large multitoothed process near finger hinge and a large, acute defining process, with the excavation between them being quadrate; antennae subequal in length; mandible lacking palp; palp of maxilla 1 uniarticulate.

FEMALE: Palm of gnathopod 2 slightly oblique, defined by a distinct tooth at hind corner and bearing along the palmar margin well-developed teeth, one of which is larger than the others.

HOLOTYPE: AHF No. 5616, male, 3.0 mm.

TYPE LOCALITY: Station 4785, near Pt. Conception, 34-27-00 N, 120-08-30 W, 30 fms, December 18, 1956, bottom of green silt.

MATERIAL: 90 specimens from 29 stations.

RELATIONSHIP: This species is distinguished among members of the genus *Stenothoides* by the elongated fifth article of the first gnathopod, but is otherwise particularly related to *S. slastnikovi* Gurjanova (see 1951) by the male second gnathopod.

ECOLOGY: This species has an overall density of 2.2 animals per square meter on the coastal shelf. It is distributed principally between the depths of 21 and 40 fms, but is found as shallow as 6 fathoms and as deep as 60 fathoms.

Stenothoides bicoma J. L. Barnard

Stenothoides (?) *bicoma* J. L. Barnard 1962c: 135-137, fig. 8.
Canyon material: 4852(1), 6805(1).

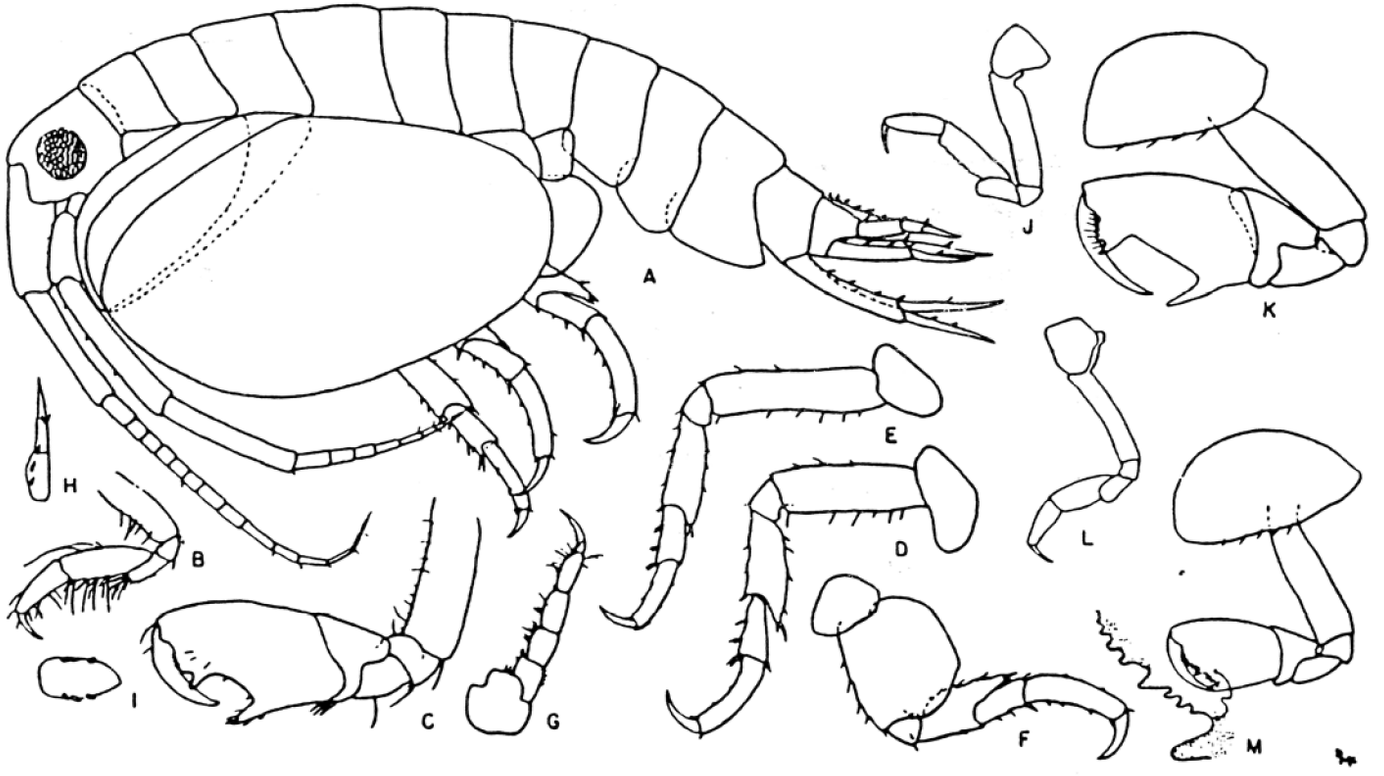

Fig. 8. *Stenothoides bicoma*, n. sp. Male, 1.5 mm, sta. 4845: A, lateral view; B,C, gnathopods 1, 2; D,E,F, peraeopods 3, 4, 5; G, maxilliped; H, uropod 3; I, telson. Male, 4 mm, sta. 5202: J,K, gnathopods 1, 2, minus setae. Female, 3.5 mm, sta. 5202: L,M, gnathopods 1, 2, minus setae.