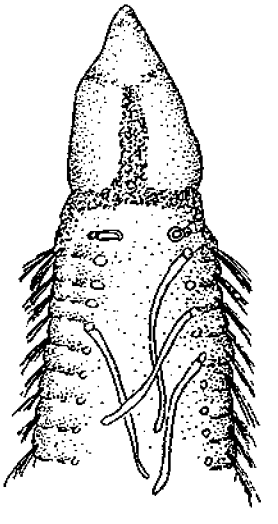
October, 1996 **SCAMIT Newsletter** Vol. 15, No.6

| | |
|---|---|
| **NEXT MEETING:** | MMS Taxonomic Atlas Vol. VI - Part II, Cirratulidae and final discussion of entire volume |
| **GUEST SPEAKER:** | Tony Phillips (CLAEMD - Hyperion) discussion leader |
| **DATE:** | 19 November 1996 (TUESDAY - PLEASE NOTE) |
| **TIME:** | 9:30am - 3:30pm |
| **LOCATION:** | Worm Lab, Natural History Museum of L.A. County 900 Exposition Blvd., Los Angeles |

## 19 NOVEMBER MEETING

The meeting will essentially be a continuation of the September Meeting, and will continue discussion of the recently released Vol. 6 of the MMS Taxonomic Atlas series. Since the family Cirratulidae were not discussed during the last meeting, they will be the focus of the November meeting. As time permits topics from the discussions in September which require further discussion will be reopened. Tony Phillips will act as discussion leader this time. There will be facilities for examination of specimens available during the meeting, as well as for staining of specimens. Please come prepared with comment, literature and specimens.



*Aphelochaeta phillipsi* from Blake 1996

FUNDS FOR THIS PUBLICATION PROVIDED, IN PART, BY THE
ARCO FOUNDATION, CHEVRON USA, AND TEXACO INC.

## NEW LITERATURE

The latest issue of the Veliger (39#4) has been received. Only one article deals with taxonomy of local marine organisms, that by Gosliner and Behrens describing two new nudibranchs from the San Francisco area (Gosliner and Behrens 1996). The latest Proceedings of the Biological Society of Washington also has little directly pertinent to taxonomy of local marine species. An article describing a new hemichordate from the Atlantic (Giray and King 1996) may be of assistance in efforts by local workers to begin interpretation of the local enteropneusts.

Papers on topics more related to monitoring concerns than invertebrate taxonomy are those of Ferson et al (1996) on toxicity bioassay, and of Otway et al (1996) on community analysis of the fish community around a deep water sewage outfall. In the former the authors discuss the relationship between the results of laboratory bioassay and inferences of ecological risk for the community exposed to the material tested. They recommend the proper interpretation of risk is at the population level, and not at the level of the individual as is most human risk assessment.

The paper by Otway et al is a continuation of a series of papers examining monitoring results around the deep-water outfall off Sydney, Australia. The present article addresses trophic structure of the fish community around the outfall both before and after it began discharge. Trophic strategies were established for several groups (based on Bray-Curtis dissimilarity of diet between fish species), and the distribution of these groups was then tested using assymetric ANOVA.

Taxonomy of the crab genus *Fabia* (including two local species *F. subquadrata* and *F. concharum*) was revised by Campos (1996). He redescribed both local species, illustrating male gonopods, and providing a new whole body illustration of the *F. subquadrata* female, but provided no key.

McLaughlin and Jensen (1996) describe a third Eastern Pacific species of the hermit crab genus *Parapagurodes*. The species, previously known locally as *Parapagurodes sp A*, ranges from British Columbia to southern California. It was briefly discussed by McLaughlin and Haig (1973) who left it then at "an undescribed species of *Pagurus*". A key is provided to separate the new species (*Parapagurodes hartae*) from *P. laurentae* and *P. makarovi* with which it occurs sympatrically in southern California waters.

The classification and phylogeny of sacoglossan mollusks is reexamined by Jensen (1996) in the most comprehensive recent treatment of the group. Her analysis supports monophyly of the group as a whole, and of the shelled and non-shelled sacoglossan clades. The Cylindrobullidae were shown to be non-sacoglossan, and to be a sister group to the sacoglossans. Several of our local species are affected by high level taxonomic changes stemming from this analysis.

A related article considers the phenomenon of poecilogony as a reproductive strategy. The authors (Chia et al 1996) suggest that the only valid examples of poecilogony occur in animals living on mud-flats. The nature of the habitat confers enough advantage to reproductive polymorphism for development and maintenance of poecilogony. They also suggest that though few cases can currently be authenticated, more are likely lurking undetected among the mudflat fauna.

E-mail yielded a mention of a new book members who are interested in worldwide mollusks may want. Cachia, Mifsud, and Sammut (1996) covers 43 gastropod families (about 200 species) of mollusks from the Maltese Islands. It costs $59 U.S. - including registered mailing for the paperbound volume of 228 pages and 19 plates. Additional information on ordering can be obtained from naturama@mbox.vol.it

For those of you who haven't been reading your e-mail from Annelida (or you unsubscribed or perhaps aren't even "connected" yet), Elin

Sigvaldadóttir from the Swedish Museum of Natural History has made available her recently finished Ph.D thesis entitled, "Systematics of Spionidae and *Prionospio*". Her thesis consists of 5 papers, 2 of which have already been formally published, 2 others have been accepted for submission and 1 has yet to be submitted. The first two papers deal with estimations of phylogenetic relationships between spionid genera and within the *Prionospio sensu lato* generic complex based on parsimony analyses of morphological characters. In the third paper Sigvaldadóttir redescribes the north-east Atlantic *Prionospio* species, *P. steenstrupi*, *P. fallax*, and *P. dubia*. These species have been confused, misinterpreted and synonymized in the literature. The fourth paper synonymizes *Prionospio ockelmanni* Pleijel with *P. banyulensis* Laubier. And lastly, she describes a new species of *Prionospio* from Hong Kong. Those polychaete workers interested in this thesis may contact Elin Sigvaldadóttir at:

Swedish Museum of Natural History
Box 50007
104 05 Stockholm
Sweden
Phone +46 08 6664135
Fax +46 08 6664125
E-mail zt-elin@nrm.se

Also, polychaete workers may be interested to know that the Proceedings of the 5th International Polychaete Conference that was held in China will be published in the *Bulletin of Marine Science*, March 1997, Volume 60, Number 2. One copy will be sent to all who attended the conference and paid the registration fee and first authors will also receive a copy from the Bulletin. Those of us that did not attend or would like additional copies they will be available from Dr. Reish after March 1997 (estimated cost $25.00 US).

## YULE BE HEARING FROM US

The 1996 SCAMIT Christmas Party is again scheduled for our traditional Open House at the Cabrillo Marine Aquarium. We will start at 6PM (setup starts earlier), and continue on into the night of Saturday 7 December. Santa, sadly, has a prior engagement, and will not be joining us. We will have a designated representative elf or other Clausite in attendance for children of all ages (remember Don Reish with Santa at a previous party?). Please do your best to set aside this date. We always have the most fun with the most participants.

Hopefully, we will be able to continue the musical tradition of the last few parties, with both caroling and lovely instrumental renditions of seasonal favorites. As usual we will provide beverages and a main course. There is no theme, but it will help us in coordinating if you can alert either Cheryl or Don (@310-830-2400x403) of the number in your party, and what you would like to bring. We will make a concerted attempt to have the Gift Shop open for your Xmas shopping pleasure this year. Hope to see you all there...

## RESEARCH SEMINAR SERIES

The fall 1996 Research Seminar Series of the Natural History Museum of Los Angeles County is well underway. A delightful item by Kirk Fitzhugh on cladistics has already been presented, but there are several still ahead. A schedule of seminars for this fall is attached.

## NUISANCE!

We have mentioned the Aquatic Nuisance Species Digest put out by the Freshwater Foundation in the Newsletter previously. This interesting publication is apparently having a crisis of support. Initially it was funded through a grant from the U.S. Fish and Wildlife Service; but that funding is at an end. Although their main sphere is freshwater, rather than marine environments, we share a common interest in the ecological impacts of introduced species. They are hoping to continue by going on a paid subscription basis. If you are interested in receiving this publication you can send your name, address, and a check to ANS Digest, Freshwater Foundation, Gray Freshwater Center, 2500 Shadywood Road, Navarre, MN, 55331. There are several membership levels (Friend @ 10-19$, Patron @ 20-49$, Sponsor @ $50 or more).

As more invaders prove able (like *Philine auriformis* and now *Trochammina hadai*) to establish themselves in coastal marine waters I imagine the emphasis of the group will shift to include more marine cases.

## 21 OCTOBER MEETING MINUTES

A number of subjects were discussed during the business meeting. We addressed several requests for assistance. The first was from a group of researchers at U.C. Santa Barbara for financial support of archival of their locally collected material. Consensus of those present was, although SCAMIT sees the value of archival of any invertebrate collections, our funds are dedicated to other purposes.

A request was also received to post the SCAMIT Taxonomic List on the SCCWRP Bulletin Board. After some discussion it was agreed that the list is at present a benefit of membership, and is distributed only to members. It was also felt that all those who could potentially benefit from the list already have access to it either through membership directly, or through others in their organization. It was decided to deny this request, and to keep the Taxonomic Listing as a members only document.

In a preliminary discussion of the changes detailed below the question of the validity of the changes came up, as it often does with regard to papers in this publication. It was suggested that given the nature of the peer review process in use at *Amphipacifica*, things published in it were not really published and available. This is not the case! This is a legitimate publication which fully qualifies as publication under the ICZN rules, and the names proposed in it are available names. We cannot just maintain "too many errors, can't trust the names" and view the data and opinion expressed by the authors as suspect. UNLESS SHOWN OTHERWISE we should view all of the taxa proposed in the present, and other papers in the journal, as validly established, and use them accordingly.

In *Amphipacifica* Vol. 2(2) Bousfield and Chevrier began what is apparently a series of revisionary treatments of the oedicerotids of the Northeast Pacific. In this first installment they addressed two large species complexes; that of *Monoculodes s.l.* and that of *Synchelidium s.l.*, and created a number of new genera from within them (see attachment). *Monoculodes* was restricted, and it's type species redescribed, since *Monoculodes* as defined by Barnard and Karaman 1991 (based on *M. carinatus*) does not accurately reflect the genus as described by Stimpson (1853) from the Bay of Fundy. Stimpson's type material of *Monoculodes demissus* (type by monotypy) was lost in the Great Chicago Fire of 1871, and as the species has not definitively been taken since, Bousfield and Chevrier reviewed the 16 NW Atlantic species of *Monoculodes* s.l. and eliminated those which conflicted in detail with Stimpson's original description. Two species remained, *M. latimanus* and *M. packardi*. These two species were used as basis for detail of the genus not given by Stimpson originally.

Having redefined the type of *Monoculodes s.l.* they were in a position to restrict the generic definition, and create several new genera to handle groups of species now outside *Monoculodes* s.s. Of the new genera erected, four occur in the Northeast Pacific: *Rostroculodes*, *Hartmanodes*, *Deflexilodes*, and *Pacifoculodes*. The first of these is restricted to the boreal region, with no representatives yet known south of Southeastern Alaska. The remaining three, however, have representatives in the Southern California Bight along with *Monoculodes s.s.*

Characters which are important in separation of these generic taxa are in the eyes and rostrum of the head; the relative shape, size, and setation of the carpi and propodi of gnathopods 1 and 2; the relative sizes and setosity of the articles in pereopods 3 and 4; and the shape and setation of the basis of pereopod 7.

**Genera of the *Monoculodes* s. l. group**

Bousfield and Chevrier prepared a key to allow separation of the genera in the cluster around *Monoculodes s.l.* (1996, p. 80). The first couplet deals with character states of G1 and G2. It separates *Monoculodes s. s.*, with gnathopods similar in size and shape, and with carpi relatively broad dorsally (anteriorly), and with short broad ventral lobes from the remainder of the genera. In all other genera either G1 and G2 are quite dissimilar in shape (with G2 propod elongate relative to G1), or one or both have longer narrower carpal ventral lobes. This difference is difficult to express verbally, but is clearly set out in the illustrations in Figure 1 on page 79. The only genus near *Monoculodes s. s.* in similarity of gnathopodal propodi is *Ameroculodes*. In this genus, however, the carpal lobe of G2 is much more slender than in *Monoculodes s. s.*. Rostral shape and eye placement also differs in the two genera; with *Ameroculodes* species having a long, thin, slightly deflexed rostrum, and eye placement at the rostral base. In *Monoculodes s. s.* the eye occupies nearly all of the much shorter rostrum.

The character states of the palmar defining spines as long and slender in *Monoculodes s. s.* and short in the remaining genera should be deleted. In at least *Limnoculodes*, *Ameroculodes* and *Hartmanodes* these spines, as illustrated in Figure 1 of Bousfield and Chevrier, are as long as they are in *Monoculodes* s. s.. Rather than critically examine characters used in this entire key, I have constructed an alternative key including only the four genera known to occur in the Eastern Pacific south of Alaska. The one genus which extends to Alaska, but not further south (*Rostroculodes*) is sufficiently distinctive that it need not be included in the key (see attached key).

Status of several names currently on the SCAMIT Taxonomic Listing has been changed by actions taken by Bousfield and Chevrier in their revision. These are summarized below:

*Monoculodes hartmanae* ☞ *Hartmanodes hartmanae* (J. L. Barnard 1962)
*Monoculodes norvegicus* ☞ *Deflexilodes norvegicus* (Boeck 1871)

Other regional species not on the list which are affected are:

*Monoculodes murrius* ☞ *Hartmanodes murrius* (J. L. Barnard 1962)
*Monoculodes spinipes* ☞ *Pacifoculodes spinipes* (Mills 1962)
*Monoculodes spinipes* of Barnard 1962 [records from Southern California (non Mills 1962)]☞ *Pacifoculodes barnardi* Bousfield and Chevrier 1996
*Monoculodes zernovi* ☞ *Pacifoculodes zernovi* (Gurjanova 1938)

Species currently assigned to *Bathymedon*, *Oediceroides*, *Oediceropsis*, *Arrhis*, *Aceroides* and *Westwoodilla* were not covered in this portion of the revision. The species which belonged to *Synchelidium s.l.* were treated, and were also divided into *Synchelidium s.s.* and several new genera. Only three of these genera occur in the northeast Pacific. *Synchelidium s.s.* does not occur here. The genus *Finoculodes*, which is

related to the *Synchelidium s.l.* group has been taken off Oregon and northern California, but not yet in the Southern California Bight. The second genus occurring in the area, *Eochelidium* Bousfield and Chevrier 1996, is introduced from the Northwest Pacific. The remaining species, including all those previously recorded as *Synchelidium* from this area, were placed in the new genus *Americhelidium* by Bousfield and Chevrier.

### The *Synchelidium* Revision

We have recognized problems with speciation in the genus *Synchelidium* in the southern California Bight for some time. J. L. Barnard had prepared preliminary diagnoses of four new species of *Synchelidium* which had been in process at his death. He had distributed this to SCAMIT in the hopes that someone in our area would be willing to devote time to the problem as he was consumed with other more pressing projects. One of the four species had been separately described as *Synchelidium micropleon* (Barnard 1977), leaving three undescribed forms from our area. It was with the intent of relating these preliminary descriptions of Barnard to the new taxa introduced by Bousfield and Chevrier that I began to examine the revision.

A problem immediately became apparent with the new genus *Americhelidium*. This genus, erected to contain all the existing described species of "Synchelidium" in the eastern north Pacific as well as several new species, was established with *Synchelidium spinipes* Mills, 1962 as type (pg. 122). Unfortunately there is no "Synchelidium spinipes Mills 1962"; Mills erected *Monoculodes spinipes* in his 1962 paper ( Mills 1962 - pg. 12-14, fig. 3). The characters of this species as established in the original description are widely divergent from those of the genus *Synchelidium*, and it has never before referred to in the binomen "Synchelidium spinipes". I assume this is an unfortunate *lapsus*, with *Synchelidium shoemakeri* Mills, 1962 as the intended type. This assumption is based on the statement in the abstract that *A. shoemakeri* is the type species, and the inclusion (evidently as an afterthought, as it is not italicized like the other included species) of *S. shoemakeri* as the last entry under **Species** for the new genus.

Under the ICZN rules this designation would best be described as "misidentified type species" under Article 70b. This requires that the case be referred to the Commission for a decision as to which species should be designated as the type; that originally designated in error, or another species selected by the Commission in the best interests of stability in nomenclature. Dr. Bousfield (in litt.) disagrees, maintaining that the designation of *spinipes* is such a clear lapsus, that it can be discounted. In that case he suggests that the indication of *S. shoemakeri* as type of *Americhelidium* in the abstract is sufficient to fix it, and that a correction to the designation is all that is needed. I will attempt to contact the Commission to determine if his position is the correct one.

In the mean time the question of how to deal with this genus is simplified by the fact that *"Synchelidium" spinipes* Mills, 1962 was [correctly as *Monoculodes spinipes* Mills, 1962] designated as the type of another newly erected genus *Pacifoculodes* (Bousfield and Chevrier, 1996, pg. 102). This designation, with page priority, renders *Americhelidium* Bousfield and Chevrier, 1996, a junior objective synonym of *Pacifoculodes* Bousfield and Chevrier, 1996 (following ICZN Rule 67k). In the following discussion I will continue to use *Synchelidium* as the valid name for this group (pending Commission review).

Although *Eochelidium* is a northwest Pacific endemic genus we have a species of it in southern California. We assume this species is an introduction, and not a relict, mainly because of it's rapid appearance in a harbor environment in an area which had been monitored for years. A voucher sheet is in preparation for this species, *Eochelidium sp A.*

According to Kathy Langan, the species of *Synchelidium* they find in San Francisco Bay is *S. millsi*. Seven of the nine species in the later genus potentially occur in southern California, although only *S. micropleon* (Barnard 1977) is listed as occurring here (Bousfield and Chevrier, 1996, Table III). Attempts to assign the three Barnard MS species of Synchelidium to the new species of Bousfield and Chevrier have not been successful. We potentially have seven species in our area: *S. micropleon*, *S. sp A* of Barnard MS, *S. sp G* of Barnard MS, *S. sp E* of Barnard MS, the new species mentioned below (to be SCAMIT sp A), *S. shoemakeri* as defined by Bousfield and Chevrier, and *S. rectipalmum* as defined by them.

Recent samples at CSDLAC have yielded *S. shoemakeri* and *S. rectipalmum* (based on Bousfield and Chevrier characters) as well as a third species, which differs from all of the species mentioned above. It is characterized by a second pleonal epimeron with a posterioventral corner which bears a very small but sharp tooth, by a slightly oblique palm on G1, by a G2 dactyl which is about 20% of the propod length, by lack of a posterior lobe on the basis of P7, and by an elongate propod of P3. A voucher sheet is in preparation, but is not yet completed.

It is likely that southern California specimens identified in the past as *S. rectipalmum* would still be identified as such using the characters applied by Bousfield and Chevrier. In the case of *S. shoemakeri*, prior local identifications are suspect, and need confirmation using the suite of characters described and illustrated By Bousfield and Chevrier. It is likely that several species, including *S. shoemakeri*, have been lumped under that name in the past.

The key to the genus provided by Bousfield and Chevrier (not just the north Pacific species as stated in the key caption) utilizes a number of characters, predominantly of the gnathopods and pereopods. The condition of the posterior distal margin of the second pleonal epimeron is also considered, as are a few mouthpart and uropod characters.

There are two errors in the key which need correction:

1) the second half of couplet 2 should lead to couplet 4, not couplet 5; and

2) in the first part of couplet 3 the final character deals with the 3rd mandibular palp segment, not the 2nd

The first couplet provides characters to differentiate *S. rectipalmum* from the remaining species in the genus. Several of these seem problematical, and although perhaps valid for the authors, are not useful in my attempted application. The first statement serves as an example "Coxa 4 very broad, acutely produced behind" vs. "Coxa 4 regular, posterior angle little produced (*S. rectipalmum*)".

When illustrations of the species concerned are examined to interpret the key distinctions these become unclear. In most of the species there is a large roughly triangular projection on the posterio-distal corner of coxa 4, while that in *S. rectipalmum* is less prominent. There is, however, no dramatic difference, and a user of the key examining a single animal would be hard pressed to uniformly and accurately make this distinction. A further complication is the lack of an acute posterior expansion of the posterio-distal coxa 4 margin in *S. latipalpum*. The posterior margin of coxa 4 in this species is produced into a rounded lobe which differs from the triangular projection seen in the remaining taxa - including *S. rectipalmum*.

The second character in this couplet "pereopod 6 antero-distal lobe deep, sharply rounded vs pereopod 6, antero-distal lobe shallowly rounded" is also problematic. Once again this is a coxal character, although the key reference is ambiguous as no location for the lobe is given. The distinction between deep and sharply rounded and shallowly rounded seems clear enough until one checks the condition, only to find that in *S. shoemakeri* the lobe is even smaller and shallower than in *S. rectipalmum*. This would lead to misclassification based on this character if used .

There is no clear difference in this character between *S. rectipalmum* and either *S. setosum* or S. *pectinatum* based on the illustrated specimens while the character does seem to work for the remaining species. It seems inadvisable to use it at this point in the key, however, because of it's only partial applicability.

The character of transverse vs oblique palm on gnathopod 1 is fairly straightforward, and seems to effectively separate *S. rectipalmum* from all the remaining species. The proportions of the dactyl and propod on gnathopod 2 also seem informative, with that of *S. rectipalmum* differing from all other species. In practice, however, the distinction between approximately 1/3 and about 1/4 can be difficult to apply, particularly with juvenile specimens. This character must be used in conjunction with others since there is little separation between the ratio in *S. rectipalmum* and that in some other species.

The last character in the first couplet "maxilliped outer plate tall [reaching beyond ½ palp segment 2] vs maxilliped outer plate short [not reaching beyond ½ palp segment 2] is a very difficult criterion to apply if the illustrations of this condition provided are accurate. While the qualitative descriptors "tall" and "short" are well differentiated, in practice the difference often seems to be between 51% and 49% of the length of the palp - hardly a major or even a reliably perceived distinction. I would recommend that this character not be applied.

In couplet 2 use of relative terms continues [these are, after all, nearly impossible to avoid] with a distinction between markedly oblique and slightly oblique propod palms. This character is actually the relative length of the front and hind margins of the propod. Where the hind margin is short relative to the anterior margin the palm is noticeably oblique. Where the hind margin is long the palm approaches transverse. This couplet attempts to continue the separation begun in the first couplet with the transverse palmed *S. rectipalmum* by separating those at the other end of the length spectrum [hind margin short] from the remaining species with a hind margin of intermediate length. Although a bit ambiguous, this character is probably applicable with a good degree of agreement by most observers. Reference to the illustrations provided for the species concerned should allow short vs. intermediate length margins to be reliably separated.

The following character of the second epimeron is also qualitative but clear. "Hind corner acutely produced" is well illustrated for the two species which show this character. The only ambiguity is with *S. variabilum*, where the description indicates the hind corner as acute and unproduced, and the illustration shows the second epimeron as slightly produced ventrally. This is very minor compared to the production of the posterioventral corner in *S. millsi* and *S. shoemakeri*, but reference to the illustration is necessary to avoid ambiguity. Despite its name, S. *variabilum* was not reported to vary in the condition of the second epimeron.

The final character in couplet 2 is the relative setosity of the lower margin of the posterior lobe of coxa 5. While this seems to have potential as a discriminatory tool, it is ambiguous as applied in the key. The problem seems to be that there is a continuum of varying setosity, with "nearly bare" defining one end, and "variously setose" encompassing the remainder. Unfortunately "nearly bare" fits quite comfortably **within** "variously setose" which renders the character largely meaningless. The nature of the setation is represented on the figures, but in a way which is difficult to interpret. In all cases the anterior portion of the posterior lobe of coxa 5 is illustrated as overlain by the basis. The setae in this position on the coxa 5 lobe are delicately stippled in as "ghost" features underneath the basis. With careful inspection they can be located in the figures. In *S. millsi* and *S. shoemakeri* the "nearly bare" condition could be better rendered as "setae restricted to anterior portion of posterior lobe". In both species the ventral and posterior margins of the lobe lack setae, while the remaining species bear setae ventrally or in both

of these portions of the lobe. The alternate character states would then be "setae restricted to anterior portion of posterior lobe" and "posterior lobe with ventral setae throughout".

Couplet 3 separates *S. millsi* from *S. shoemakeri* based on three sets of characters: 1) length/height ratio of propod of G2; 2) setation of the anterior margin of the G1 basis; and 3) length of article 3 relative to article 2 of the mandibular palp. The first of these is, while tempting, probably not a character that can be reliably used by more than one observer. The difference between 6 to 1 and 7 to 1 may be useful with large suites of comparative material, but is useless with a single specimen - especially those as small as the typical synchelidiid. This translates to perception of 2-3% difference in length vs. a constant width; an unrealistic expectation. I recommend that this criterion be dropped.

Setation of the anterior margin of the G1 basis does, however, offer an unambiguous separation between these two species. I suggest modifying the wording of the key slightly to "basis with cluster of many anterior marginal setae" vs. "basis anterior margin with a few setae distally". The relative lengths of articles 2 and 3 of the mandibular palp is another case where the language used needs interpretation by reference to the illustrations. In the key the distinction is between article 3 more than or less than half the length of article 2. This suggests another 51-49% debacle but the two states are actually not that close as illustrated. In *S. shoemakeri* segment 3 is illustrated as just under ½ the length of article 2, while in *S. millsi* it is between 2/3 and 3/4 the length. This separation can easily and consistently be made by nearly all observers. I would suggest modifying the key to be more explicit here so that for *S. millsi* "mandibular palp segment 3 long, nearly 3/4 the length of segment 2" and for *S. shoemakeri* "mandibular palp segment 3 half or less the length of segment 2". Interestingly, Bousfield and Chevrier indicate that the condition applies to the female in the second half of the couplet without that restriction in the first half. While it is not usual for mouthparts to be sexually dimorphic, such dimorphism is indicated in the text for two of the species - *S. rectipalmum* and *S. shoemakeri*, and is listed as a character of the genus. In all *Synchelidum* article 3 is relatively longer in the male. We must then stipulate that this character applies only to the female, diminishing the usefulness of the distinction.

Another character which might be added to the key was evident in the illustrations of the these two species; the spination of the outer rami of the third uropods. In *S. millsi* there are three spines laterally on the outer ramus, while the outer margin of the outer ramus of U3 is bare in *S. shoemakeri*. This could be substituted for the invalid first character in the existing key.

Couplet 4 begins with a character of the relative length of article 6 of P3, with the "long" state equal to twice as long as wide, and the "very short" state equal to 1.5 times as long as wide. While I might quarrel with the use of the term "very", this character is probably applicable without confusion. The second character set in the couplet is relative length of the propod of G2. Since the two states are overlapping (4-5 times width, and 5-6 times width) the character is of little use, and should be avoided, especially since 4-5x is termed "short" and 5-6x "relatively long". The relative lengths of articles 2 and 3 of the mandibular palp [in the female] discussed previously are used as the next set of states in couplet 4. They appear relatively simple to determine accurately.

The last character used in this couplet, relative length of the outer plate of the maxilliped, is not of use in separating the species it purports to. Either the **inner** plate is intended, in which case the statement "...plate very short, barely reaching palp segment 2" in the second half of the couplet works; or it really is the **outer** plate and the statement "...plate medium; nearly reaching halfway point of palp segment 2" in the first half of the couplet works. The two are mutually exclusive. Examination of the available maxilliped illustrations shows that for all species

the inner plate either is shorter than or just barely reaches the base of palp article 2, and the outer plate reaches well beyond the base of article 2 - often beyond its midpoint. It is unclear both where the key error lies, and how any character states derived from these lengths could be used to separate these species.

The first character of couplet 5 also is a repeat of an earlier usage in the key [in couplet 2]; shape of hind corner of epimeron 2. In this case it is not whether the corner is produced or not, but whether it is rounded or acute. This may prove difficult to see on the smallest specimens - requiring whole body mounting and examination under the compound microscope, but should be determinable with effort. The two states are sufficiently different that the distinction should be clear once a good view of the area is obtained. The second set of character states should be more easily determined. In *S. micropleon* U3 is short, not extending past midlength of the U2 rami. The other half of the couplet describes the more normal condition in which the U3 rami extend as far as the end of the U2 rami. The third set of character states also seems clear. Although telson broadly rounded vs sharply rounded do not sound that different, in practice the difference is clear. The last set of states is also clear; whether the blades of the mandibular raker row are slender or stout.

A character of P7 begins couplet 6; the extent of the ventral lobe of article 2 of P7. The two states are well separated, and should pose no interpretive or cognitive problems. The second character set is also unequivocal, if harder to ascertain. Whether the spines at the distal end of the outer plate of maxilla 1 are pectinate or not should be clear, but will require careful examination under high power after removal of the maxilla. An additional character which might be substituted in lieu of mouthpart dissection is the setation of article 3 of the mandibular palp - which can be viewed in situ without dissection. In *S. pectinatum* article 3 is quite setose medially, while in *S. variabilum* there are no medial setae on the segment, which bears only a terminal seta.

Couplet 7 begins as did couplet 6, with the extent of the ventral lobe of the basis of P7. Again there should be no difficulty in application of this character. The second set of character states are of more potential difficulty. In the first half of the couplet species have the inner ramus of U3 with 1-2 marginal spines, while the alternate state is U3 inner ramus with 3-6 marginal spines. There is no apparent overlap in characters, but there is also no separation between the end of one state and the beginning of the next: a worrisome situation.

Both species in couplet 8 are from outside our area, and so the couplet need not concern us.

In couplet 9 the first character set seems easily applied; coxa 1 lower margin densely or "regularly" setose ventrally. The meaning of the terms densely and regularly is defined in terms of setal number, so they are not equivocal. The two states seem well separated, and the character easily and reliably determinable. The second character set reverts to consideration of uropod ramal spine count, in this case on U2. The difference in inner ramus spine count - 3 to 4 vs. 6 seems reasonably separable, but the invariate 6 may mean that there have not been enough observations of the species to properly define the expected range. The last character set seems quite clear: carpal lobe very narrow or relatively broad. Reference to the illustrations shows that it should be easily interpreted and useful.

The above comments should not be construed as criticism of the contributions of Bousfield and Chevrier. The y successfully introduced several new characters, clarified the variability of others, and generally contributed to our knowledge of this difficult group. That the solutions are not entirely perfect should only spur us on to further refinement. Hopefully a revised key to local *Synchelidium* species (including the new provisional), and voucher sheets for both the new *Synchelidium sp A* of SCAMIT, and for *Eochelidium sp A* of SCAMIT (the former "Synchelidium sp A" mentioned in the Newsletter) will be ready for inclusion in the next

newsletter. Since my view of things is not the only possible view the editor would appreciate hearing from other members as to their further experiences in use of the Bousfield and Chevrier revision. Findings contrary to those mentioned above should be made known to the membership, so please send them in!

### *Polydora* TABLE

Attached to this newsletter is the new *Polydora* table(s). The original SCAMIT table, which appeared in volume 13 (7) of the newsletter and was based on work done by Leslie Harris, has been revised and separated due to Blake's (1996) recent revision of the genus. Besides separating the species into two tables *Polydora* and *Dipolydora*, the species have been grouped by similar characteristics (rather than just alphabetically). Also, many blanks and question marks have now been filled in. This will, hopefully, make the table easier and quicker to use. Also, attached is a list of the bibliography that was used to revise the table.

### ISOPOD CONFERENCE

First notice of the Second International Isopod Conference and Workshop has been sent out. The gathering is intended to honor the life and work of the late T. E. Bowman. It will be held next year 18-21 May, just before the Crustacean Society Summer Meeting in Mobile, Alabama. The Isopod Conference will be held at the Dauphin Island Sea Lab, Dauphin Island, Alabama. For additional information please see the attachment.

### BIBLIOGRAPHY

BARNARD, J. LAURENS, Gordan S. Karaman. 1991. The Families and genera of marine gammaridean Amphipoda (except marine gammaroids). Part 2. Supplement 13: Records of the Australian Museum.

BLAKE, JAMES A., Brigitte Hilbig, Paul H. (eds ). Scott. 1996. Taxonomic Atlas of the Benthic Fauna of the Santa Maria Basin and Western Santa Barbara Channel. Volume 6- The Annelida Part 3. Polychaeta: Orbiniidae to Cossuridae. 377pp. Santa Barbara Museum of Natural History: Santa Barbara, Ca.

BOUSFIELD, EDWARD L., and Andrée Chevrier. 1996. The amphipod family Oedicerotidae on the Pacific coast of North America. Part 1. The Monoculodes and Synchelidium generic complexes: systematics and distributional ecology. Amphipacifica 2(2):75- 148.

CACHIA, C., C. Mifsud, P. M. Sammut. 1996. The marine Mollusca of the Maltese Islands. Part II: Neotaenioglossa. 228pp. Naturama: Italy.

CAMPOS, E. 1996. Partial revision of the genus Fabia Dana, 1851 (Crustacea: Brachyura: Pinnotheridae. Journal of Natural History 30(8):1157-1178.

CHIA, FU-SHIANG, Glenys Gibson, and Pei-Yuan Qian. 1996. Poecilogony as a reproductive strategy of marine invertebrates. Oceanologica Acta 19(3-4):203-208.

FERSON, S., L. R. Ginzburg, and R. A. Goldstein. 1996. Inferring ecological risk from toxicity bioassays. Water Air and Soil Pollution 90(1-2):71-82.

GIRAY, CEM, and Gary M. King. 1996. Protoglossus graveolens, a new hemichordate (Hemichordata: Enteropneusta: Harrimanidae) from the northwest Atlantic. Proceedings of the Biological Society of Washington 109(3):430-445.

GOSLINER, TERRENCE M., and David W. Behrens. 1996. Two new species of nudibranch mollusks from the Gulf of the Farallones and Cordell Bank National Marine Sanctuaries, central California. Veliger 39(4):348-353.

JENSEN, KATHE R. 1996. Phylogenetic systematics and classification of the Sacoglossa (Mollusca, Gastropoda, Opisthobranchia). Philosophical Transactions of the Royal Society of London Series B - Biological Sciences 351(1335):91-122.

MCLAUGHLIN, PATSY A., and Janet Haig. 1973. On the status of Pagurus mertensii Brandt, with descriptions of a new genus and two new species from California (Crustacea: Decapoda: Paguridae). Bulletin of the Southern California Academy of Sciences 72(3):113-136.

MCLAUGHLIN, PATSY A., and Gregory C. Jensen. 1996. A new species of hermit crab of the genus Parapagurodes (Decapoda: Anomura: Paguridae) from the Eastern Pacific, with a description of its first zoeal stage. Journal of Natural History 30(6):841-854.

MILLS, ERIC L. 1962. Amphipod crustaceans of the Pacifc coast of Canada. II. Family Oedicerotidae. Natural History Papers, National Museum of Canada 15:1-21.

OTWAY, N. M., D. J. Sullings, and N. W. Lenehan. 1996. Trophically-based assessment of the impacts of deepwater sewage disposal on a demersal fish community. Environmental Biology of Fishes 46(2):167-183.

SIGVALDADóTTIR, ELIN. 1995. Systematics of Spionidae and Prionospio (Polychaeta). Stockholms Universitet: Stockholm, Sweden. 32pp.[+22pp.,+16pp.,+9pp.,+10pp.,+24pp.]

STIMPSON, WILLIAM. 1853. Synopsis of the marine Invertebrata of Grand Manan: or the region about the mouth of the Bay of Fundy, New Brunswick. Smithsonian Contributions to Knowledge 6(5):1-66.

**SCAMIT OFFICERS:**

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

| | | | e-mail address |
|---|---|---|---|
| President | Ron Velarde | (619)692-4903 | rgv@sddpc.sannet.gov |
| Vice-President | Don Cadien | (310)830-2400 ext. 403 | mblcsdla@netcom.com |
| Secretary | Cheryl Brantley | (310)830-2400 ext. 403 | mblcsdla@netcom.com |
| Treasurer | Ann Dalkey | (310)648-5544 | cam@san.ci.la.ca.us |

Back issues of the newsletter are available. Prices are as follows:

Volumes 1 - 4 (compilation)..... $ 30.00
Volumes 5 - 7 (compilation)..... $ 15.00
Volumes 8 - 13 ..... $ 20.00/vol.

Single back issues are also available at cost.

NATURAL HISTORY MUSEUM
of Los Angeles County

900 Exposition Boulevard
Los Angeles, California 90007

# Research Seminar Series

## Fall 1996

Thursday 26 September 1996. *The Abduction of Cladistics*. **Kirk Fitzhugh, LACM.**

Thursday 10 October 1996. *Evolution of Biodiversity: Patterns from Butterfly-Ant Symbioses*. **Phil DeVries, University of Oregon.**

Thursday 24 October 1996. *The Crustacean Biodiversity Survey: a Potential Model for Posting Biodiversity Information on the World Wide Web*. **Jody Martin, LACM.**

Thursday 14 November 1996. *The Ordovician Radiation*. **Mary Droser, UC Riverside.**

Thursday 12 December 1996. *The Los Angeles Feral Parrot Survey*. **Kimball Garrett, LACM.**

Natural History Museum of Los Angeles County, Times Mirror Room
Seminars begin at 3:00PM, coffee and refreshments at 2:30PM
For more information contact Dr. Brian Brown (213) 744-3363
**All welcome!**

# NORTHEAST-PACIFIC SPECIES IN THE OEDICEROTID REVISION OF BOUSFIED & CHEVRIER 1996

Family Oedicerotidae

Genus Monoculodes Stimpson 1853 (s.s.)

latimanus (Goes 1866) - Sea of Japan to So. British Columbia, No. Atlantic
emarginatus J. L. Barnard 1962 - Washington/Oregon to So./Baja California
perditus J. L. Barnard 1966 - No.British Columbia to So./Baja California
latissimanus Stephensen 1931- Washington/Oregon to So./Baja California
brevirostris Bousfield & Chevrier 1996 - So. British Columbia
diamesus Gurjanova 1936 - Sea of Okhotsk to So. British Columbia
diversisexus J. L. Barnard 1967 - So./Baja California
glyconicus J. L. Barnard 1962 - So./Baja California
necopinus J. L. Barnard 1962 - So./Baja California
recandesco J. L. Barnard 1967 - Washington/Oregon to So./Baja California
sudor J. L. Barnard 1967 - So./Baja California

Genus Rostroculodes Bousfield & Chevrier 1996

longirostris (Goes 1865) - [Bering Sea to SE Alaska] new record, Juneau - dbc

Genus Hartmanodes Bousfield & Chevrier 1996

hartmanae (J. L. Barnard 1962) - So./Baja California
murrius (J. L. Barnard 1962) - So./Baja California

Genus Deflexilodes Bousfield & Chevrier 1996

norvegicus (Boeck 1871) - North Atlantic, So./Baja California
tuberculatus (Boeck 1871) - SE Alaska, So./Baja California
similis Bousfield & Chevrier 1996 - Bering Sea to So. British Columbia
enigmaticus Bousfield & Chevrier 1996 - SE Alaska to So. British Columbia

Genus Pacifoculodes Bousfield & Chevrier 1996

spinipes (Mills 1962) - No. British Columbia to ?No. California
zernovi (Gurjanova 1938) - Sea of Japan to So. British Columbia
levingsi Bousfield & Chevrier 1996 - No. British Columbia
barnardi Bousfield & Chevrier 1996 - So./Baja California
bruneli Bousfield & Chevrier 1996 - ?Bering Sea to SE Alaska

Genus Eochelidium Bousfield & Chevrier 1996

sp A SCAMIT 1996 - introduced to Los Angeles-Long Beach Harbors[from Sea of Japan?]

[Genus Americhelidium Bousfield & Chevrier 1996] - new name required

rectipalmum (Mills 1962) - Bering Sea to No. California
micropleon (J. L. Barnard 1977) - So./Baja California
millsi Bousfield & Chevrier 1996 - So. British Columbia to Washington/Oregon
pectinatum Bousfield & Chevrier 1996 - So. British Columbia to No. California
variabilum Bousfield & Chevrier 1996 - No. British Columbia to Washington/Oregon
setosum Bousfield & Chevrier 1996 - SE Alaska to No. British Columbia
shoemakeri (Mills 1962) - Bering Sea to Washington/Oregon

Genus Finoculodes J. L. Barnard 1971

omnifera J. L. Barnard 1971 - Washington/Oregon

## REGIONAL OEDICEROTID SPECIES NOT TREATED IN BOUSFIED & CHEVRIER 1996

Genus Aceroides Sars 1895
- callida J. L. Barnard 1967 - So./Baja California
- edax J. L. Barnard 1967 - So./ Baja California
- latipes (Sars 1882) - No. Atlantic, arctic and boreal Eastern Pacific
- sp A MBC, 1984§ - Santa Maria Basin, central California

Genus Arrhis Stebbing 1906
- luthkei Gurjanova 1936 - Boreal W. Pacific - SE Alaska

Genus Bathymedon Sars 1895
- caino J. L. Barnard 1967 - So./ Baja California
- candidus J. L. Barnard 1961 - So./ Baja California, Macassar Straits
- covilhani J. L. Barnard 1961 - SE Alaska to Gulf of Panama
- flebilis J. L. Barnard 1967 - Oregon to So./Baja California
- kassites J. L. Barnard 1966 - So./ Baja California
- nepos J. L. Barnard 1967 - So./ Baja California
- pumilus J. L. Barnard 1962 - So./ Baja California
- roquedo J. L. Barnard 1962 - So./ Baja California
- sp A J. L. Barnard 1971 - Oregon to So./Baja California
- vulpeculus J. L. Barnard 1971 - Oregon to So./Baja California

Genus Oediceroides Stebbing 1888
- abyssorum (Shoemaker 1925) - So./ Baja California
- morosa (J. L. Barnard 1966) - So./ Baja California
- trepadora (J. L. Barnard 1961) - So./ Baja California to Gulf of Panama

Genus Oediceropsis Liljeborg 1865
- elsula J. L. Barnard 1966 - So./ Baja California

Genus Westwoodilla Bate 1857
- caecula (Bate 1857) - circumboreal, SE Alaska to So/Baja California

## KEY TO GENERA IN *Monoculodes s. l.* FROM THE E. PACIFIC SOUTH OF ALASKA

modified from that in Bousfield and Chevrier 1996

1. Gnathopod 1 carpus anterior (dorsal) margin not wider than posterior (ventral) lobe; rostrum strongly deflexed at or near a 90° angle . . . . . *Hartmanodes*

   Gnathopod 1 carpus anterior (dorsal) margin wider than posterior (ventral) lobe; rostrum either straight, slightly deflexed, or moderately deflexed (to no more than 45° angle) . . . . 2

2 Basis of pereopod 7 with posteroventral lobe extending beyond end of ischium; ventral (posterior) lobe of G1 carpus extending the length of propod hind margin . . . . . *Pacifoculodes*

   Basis of pereopod 7 lacking posteroventral lobe; ventral (posterior) lobe of G1 carpus shorter than hind margin of propod . . . . . 3

3. G1 propod posterior margin concave and distally deflexed; rostrum deflexed slightly to moderately; ventral (posterior) lobe of G2 carpus shorter than hind margin of propod . . . . . Deflexilodes

   G1 propod posterior margin convex or straight, and not distally deflexed; rostrum straight or nearly so; ventral (posterior) lobe of G2 carpus as long as hind margin of propod . . . . . Monoculodes s. s.

SCAMIT Newsletter
Vol. 15(6)

# TABLES OF DIAGNOSTIC CHARACTERS FOR *Polydora* AND *Dipolydora* OF CALIFORNIA

The original *Polydora* table, that was created by Leslie Harris and later re-typed and printed in the SCAMIT Newsletter has been revised, based on Blake 1996, and split into two separate tables due to his generic revision. Also, other literature sources were consulted and some information missing from the original table has now been included. The list of species is now arranged or grouped based on similar characteristics, rather than alphabetically. This is very similar to the way Blake (1996) groups the species. A list of bibliography that was specifically consulted has been included with these tables.

# *DIPOLYDORA* OF CALIFORNIA

(based on Blake 1996)

October 1996

| Species | Prostomium shape | Eyes | Median antenna (+/-) | Caruncle extends to | Branchiae begin, end | Pygidium shape | Pigmentation | Other Characters | Habitat |
|---|---|---|---|---|---|---|---|---|---|
| ***bifurcata*** (Blake 1981) |  | 0 | - | setiger 5 | 8 | 4 subequal lobes with bacillary glands | none | | Borer of coralline algae; No. Calif, intertidal |
| ***giardi*** (Mesnil, 1896) |  | 0 | - | anterior margin of 3 or mid of 4th | (8-10) through 25th absent from posterior | constricted collar (disk) small cuff; open | none | | Coralline zones; boring in calcareous growth; |
| ***cardalia*** (Berkeley, 1927) |  | 4 | - | end of 5; anterior of 6 | 8 (7-9) to near end | variable; disk w/ notch, 3-lobed 4-lobed | dark brown, small transverse bands on some anterior segments | notopodial postsetal lamellae of setiger 1 large, leaf-like | British Columbia; Western Pacific |
| ***socialis*** (syn= *neocardalia*) (Schmarda 1861) |  | 4-6 sometimes absent | - | 4 - 9 | 8-near end (7-9 rare) | flaring disk w/dorsal notch; may have shallow lateral notches or 2 dorsal lobes | dorsal pigment spots. sometimes dark patches on pygidium, posterior of prostomium, anterior body | notopodial postsetal lamella of setiger 1 cirriform | Mud and silt, lagoons intertidal - 400m |
| ***bidentata*** (syn= *convexa*) (Zachs, 1933) |  | 0-4 | - | posterior margin of 4 | 8 through anterior 1/3 | 4-lobed, dorsal pair smaller than ventral | occasionally darker on anterior | | Hermit crab shells; shells rock scrappings; soft |
| ***akaina*** Blake 1996 |  | 0 | - | end of setiger 4 | 7-20 | 4 subequal lobes | light tan | | Deep water rocky outcrops; off central Calif.; 75 -168m |
| ***armata*** (Langerhans 1880) |  | 0 | - | posterior margin of 2nd | 7 - 12 | narrow collar or cuff, incised mid-dorsally | white - light tan | | Intertidal coralline or calcareous growths |
| ***caulleryi*** (syn= *brachycephala*) (Mesnil, 1896) |  | 0-4 | - | 3 - 4 | 7 - 15/20 from end | 4 subequal fleshy lobes | none | | Intertidal in littoral silts and clayey mud |
| ***quadrilobata*** (Jacobi 1883) |  | 4 in a line | - | anterior margin 3 | 7 through 2/3 's body | 4-lobed | none | | U-shaped tubes in mud, subtidal |
| ***commensalis*** (Andrews 1891) | small/ rounded/ faintly bilobed | 0-4 | ? | absent | 6-near end | constricted, surrounded by 4-14 short papillae | none | notosetae very long on set. 1-4 | Hermit crab shells; mud flats |
| ***elegantissima*** (Blake & Woodwick, 1972) |  | 0 | - | 3 or 4; continuing as low nuchal ridge for 30-40 add. setigers | 8(7)-near end | 4 nearly equal lobes | light tan; palps dark along margins of ventral grooves | notopodial postetal lamellae well developed on setigers 2 - 4 | Hermit crab shells; *Tivela* intertidal to 20 m |

# *DIPOLYDORA* OF CALIFORNIA

(continued)

| Species | Spine type<br>setae, set 5 | Companion,<br>setae (+/-) and type | Superior / inferior<br>setae (+/-) | Neuropodial<br>hooks begin | Posterior<br>notopodial spine type |
|---|---|---|---|---|---|
| ***bifurcata***<br>(Blake 1981) | falcate w/ large tooth on curved edge and small spur on convex side | +<br>bristled companion setae | +/+ | 7 | 3 - 4 thick curved spines |
| ***giardi***<br>(Mesnil, 1896) | falcate w/ accessory tooth | + | +/+ | 7 | none |
| ***cardalia***<br>(Berkeley, 1927) | 12+ falcate w/ a weak subterminal boss | + | ?/+ | 8(7) | needle-like capillaries |
| ***socialis*** (syn= *neocardalia*)<br>(Schmarda 1861) | 3-7 generally straight w/ subterminal boss (falcate w/ subdistal cavity) | + | +/+ | 7 | none |
| ***bidentata*** (syn= *convexa)*<br>(Zachs, 1933) | falcate w/ broad collar on convex side | + | +/+ | 7<br>unidentate in posterior | specialized pockets of fine needles in notosetae |
| ***akaina***<br>Blake 1996 | simple w/ slightly bent tips and shallow notch; tips covered with fine bristles | - | +/+ | 7 | 6 spines in cone-shaped bundle |
| ***armata***<br>(Langerhans 1880) | 2-4 to a side, bidentate distally curved w/ bold transverse flange | - | +/+ | 7<br>(1-16) | post 8-12 w/ conelike fascicle of acicular spines |
| ***caulleryi*** (syn= *brachycephala*)<br>(Mesnil, 1896) | 10-12 distally curved, brush-topped | + | +/+ | 7 | large, straight formed into a rosette |
| ***quadrilobata***<br>(Jacobi 1883) | 5-7 distally bifid w/ bristly tuft in concavity | - | +/+<br>(see Light 1978) | 7 | acicular spines |
| ***commensalis***<br>(Andrews 1891) | 6-7 distally curved w/ lateral flange | +<br>bilimbate | -/+ | 10 to 14 | none |
| ***elegantissima***<br>(Blake & Woodwick, 1972) | falcate w/ lateral sheath | + | +/+ | 10,11,12 | none |

# *POLYDORA* OF CALIFORNIA

(based on Blake 1996)

October 1996

| Species | Prostomium shape | Eyes | Median antenna (+/-) | Caruncle extends to | Branchiae begin, end | Pygidium shape | Pigmentation | Other Characters | Habitat |
|---|---|---|---|---|---|---|---|---|---|
| ***cirrosa*** Rioja, 1943 |  incised | 4 | + | 3 | 7 | ? | ? | notopodial postsetal lobes of setiger 1 long | Oceanside, Pacific Mexico; to 9m |
| ***cornuta*** (syn=ligni) Bosc, 1802 |  | 4 | + | 3 | 7-near end | large, flaring disk, mid-dorsal gap | none | | Forms mud tubes; surface fouling, may be commensal on oysters |
| ***nuchalis*** Woodwick 1953 |  | 4 | + | posterior margin of 2 | 7-near end | broadly flaring disk, wide open dorsal notch | translucent yellow w/ dusky sheen | | Lagoons; intertidal; may occur in dense assemblages |
| **species A** may be *cirrosa* |  incised | +/- | + behind raised area between eyes as a false caruncle | setiger 3 | 7 - near end | flaring disk open dorsally w/papillae | adults: none; juvs.:black spots between neuro/noto lobes or paired dorsal-lateral spots between lobes, black papillae and pigment on pygidial rim | | Oceanside, Solana Beach 7-16 m |
| ***brevipalpa*** Zachs 1933 |  | 4 | - | middle of set. 3/4 | 7 - long | disc-like w/ dorsal notch | palps with distinct black bands | | Common in calcareous habitats; intertidal |
| ***limicola*** Annenkova 1934 | slight incision | 4 | - | nuchal ridge to 2-4 | 7-? | disc-like w/ dorsal notch | pale w/ black diffusions; palpi & segments 2-4 w/ black bars lateral edges of prost. dark | | Intertidal in *Mytilus* beds; forming large masses on rocks |
| ***pygidialis*** Blake & Woodwick 1972 |  | 0-4 | - | posterior margin 2 | 7 through 2/3 's of body | broad terminal end, strongly scoop-shaped open dorsally | light tan; anterior end slightly dusky | | Hermit crab shells; piling material |
| ***rickettsi*** (Woodwick 1961) |  | 0 | - | anterior margin to 5th | 7 | disklike w/dorsal notch | brown along edges of prostomium and posterior body | | *Spirobranchus* tube; gastropod shells Cape San Lucas; Chile |
| ***websteri*** Hartman 1943 |  | 4 | - | middle to end of 3rd | 7 to posterior 15-16 segments | flaring disk-like w/dorsal notch | palps w/ black line along margins, ciliated grooves | | Burrows in clam & oyster shells; intertidal and in lagoons; common in central Calif. |
| **sp.** of Blake 1996 |  | 0 | - | setiger 4 w/ lateral cilia | 7 | ? | black pigmented areas on palps; laterally on anterior setigers and border of caruncle | | calcareous structures 30-60m |

| Species | Spine type<br>setae, set 5 | Companion<br>setae (+/-) and type | Superior / inferior<br>setae (+/-) | Neuropodial<br>hooks begin | Posterior<br>notopodial spine type |
|---|---|---|---|---|---|
| ***cirrosa***<br>Rioja, 1943 | falcate w/ subdistal concavity | +<br>plumose | -/- | 7<br>(see Blake 1983) | none |
| ***cornuta***<br>Bose, 1802 | weakly falcate w/ small secondary tooth | + | -/- | 7 | none |
| ***nuchalis***<br>Woodwick 1953 | 8-10 thick falcate spines | +<br>bristled, plumose | +/+ | 7 | none |
| **species A**<br>may be *cirrosa* | falcate, subdistal flange or bost, flaring | + | -/- | 7 | none |
| ***brevipalpa***<br>Zachs 1933 | w/ lateral flange | + | -/+ (Radashevsky 1993)<br>?/- (Imajima & Sato 1984) | 7 | none |
| ***limicola***<br>Annenkova 1934 | thick falcate spines w/ accessory tooth | + | +/+ | 7 | none |
| ***pygidialis***<br>Blake & Woodwick 1972 | falcate w/ large lateral accessory tooth | +<br>pennoned | +/+ | 7 | none |
| ***rickettsi***<br>(Woodwick 1961) | falcate w/ sharply curved accessory tooth w/lateral flange, 5th overlapping 6 & 7th | + | +/+<br>(see Woodwick 1963) | 7<br>(4-5) | none |
| ***websteri***<br>Hartman 1943 | falcate w/ lateral flange in subdistal concavity, 7-9 | + | +/+<br>(see Woodwick 1961) | 7(8) | none |
| **sp.** of Blake 1996 | falcate w/ accessory tooth or flange | + | +/+ | 7 | none |

# *POLYDORA* OF CALIFORNIA

(based on Blake 1996)

| Species | Prostomium shape | Eyes | Median antenna (+/-) | Caruncle extends to | Branchiae begin, end | Pygidium shape | Pigmentation | Other Characters | Habitat |
|---|---|---|---|---|---|---|---|---|---|
| ***bioccipitalis*** Blake & Woodwick, 1972 |  | 4 | 2 | posterior margin of 2nd (set. 5 - Blake 1996) | 7-near end | thickened disk w/dorsal gap | none | | Hermit crab shells |
| ***heterochaeta*** Rioja 1939 | entire | 4 | - | end of 2 | 7-16 | cuff-like w/ bacillary glands | paired bars on dorsum of 3-4; midorsal tandem spots 7-11 | | Silty sand |
| ***narica*** Light, 1969 | slight notch | 0 | - | anterior of 5 | 7-25th from end | broad disk; middorsal notch | pigment along either side of prostomial ridge; barred palpi w/dark bases; segs 1-4 barred | | Commensal w/ ampharetids; Monterey Bay only, 30-60 m |
| ***spongicola*** Berkeley & Berkeley 1950 |  may be weakly incised | 4 | - | 2-5 | 7-8 to 10th from end | narrow collar, slight middorsal notch | none | | Commensal w/ sponges intertidal to slope depths in mixed sediments |
| ***alloporis*** Light, 1970 |  "roll of tissue" | 2 | - | 4 / 5 | 7-pygidium | widely flaring disc deep dorsal cleft many small post papillae, silver disc color | median and post segments | | in *Allopora californica* |

| Species | Spine type<br>setae, set 5 | Companion,<br>setae (+/-) and type | Superior / inferior<br>setae (+/-) | Neuropodial<br>hooks begin | Posterior<br>notopodial spine type |
|---|---|---|---|---|---|
| ***bioccipitalis***<br>Blake & Woodwick, 1972 | falcate w/ 3 accessory structures<br>(2 teeth and a curved fang) | + | -/+?<br>[see Blake and Woodwick '72] | 9(10-14)<br>(1-9) | none |
| ***heterochaeta***<br>Rioja 1939 | 3 types; giant single falcate with groove,<br>single pointed spine w/ subterminal inflated<br>portion, 2-3 falcate w/ large access. tooth | + | +/+ | 9 (7?) | none |
| ***narica***<br>Light, 1969 | falcate w/ lateral<br>accessory teeth and flange on concave side | + | +/+ | 7 | none |
| ***spongicola***<br>Berkeley & Berkeley 1950 | 4 very thick falcate,<br>w/ broad subterminal collar on concave side<br>5th overlapping 6&7th | - | +/+ | 7<br>(6-7) | none |
| ***alloporis***<br>Light, 1970 | 6-7(8) distally falcate,<br>subdistal concavity bordered by collar and<br>flange laterally and ventrally | +<br>lanceolate to spinesy clubs | +/+ | 7<br>(2-3) | none |

# BIBLIOGRAPHY LIST FOR *Polydora* AND *Dipolydora* TABLES

BLAKE, JAMES A. 1971. Revision of the genus *Polydora* from the east coast of Northe America (Polychaeta, Spionidae). Smithsonian Contributions to Zoology 75:1-32.

---. 1979. Revision of Some Polydorids (Polychaeta: Spionidae) Described and Recorded from British Columbia by Edith and Cyril Berkeley. Proceedings of the Biological Society of Washington 92(3):606-617.

---. 1981a. Polydora and Boccardia species (Polychaeta: Spionidae) from western Mexico, chiefly from calcareous habitats. Proceedings of the Biological Society of Washington 93(4):947- 962.

---. 1981b. A new coralline boring species of *Polydora* (Polychaeta: Spionidae) from northern California. Bulletin of the Southern California Academy of Sciences 80:32-35.

---. 1983. Polychaetes of the family Spionidae from South America, Antarctica and adjacent seas and islands. Biology of Antarctic Seas XIV. Antarctic Research Series 39:205-288.

---. 1996. Taxonomic Atlas of the Benthic Fauna of the Santa Maria Basin and Western Santa Barbara Channel. Volume 6- The Annelida Part 3. Polychaeta: Orbiniidae to Cossuridae. 377pp.

BLAKE, JAMES A., and Keith H. Woodwick. 1972. New Species of Polydora (Polychaeta: Spionidae) from the Coast of California. Bulletin of the Southern California Academy of Sciences 70(2):72- 79.

IMAJIMA, M. and W. SATO. 1984. A new species of *Polydora* (Polychaeta, Spionidae) collected from Abashiri Bay, Hokkaido. Bulletin of the National Science Museum, series A (Zoology), 10:57-62.

LIGHT, WILLIAM J. 1969. Polydora narica, New Species, and Pseudopolydora kempi californica, New subspecies, Two New Spionids (Annelida: Polychaeta) from Central California. Proceedings of the California Academy of Sciences XXXVI(18):531- 550.

---. 1978. Invertebrates of the San Francisco Bay Estuary System. Spionidae. (Polychaeta, Annelida). The Boxwood Press. Pacific Grove, California. 211pp.

RADASHEVSKY, V. I. 1993. Revision of the genus *Polydora* and related genera from the northwest Pacific Polychaeta: Spionidae). Publications of the Seto Marine Biological Laboratory 36(1/2):1-60.

WOODWICK, KEITH H. 1961. Polydora rickettsi, a New Species of Spionid Polychaete from Lower California. Pacific Science 15:78- 81.

SECOND INTERNATIONAL ISOPOD CONFERENCE AND WORKSHOP
Honoring the Life and Work of Thomas E. Bowman

Organizers: Rick Brusca, Bob George, Brian Kensley

FIRST NOTICE

**WHEN:** 18-21 May 1997
Immediately preceding the Summer Meeting of the Crustacean Society in Mobile, Alabama

**WHERE:** Dauphin Island Sea Lab, Dauphin Island, Alabama, USA

**REGISTRATION FEE:** $190 (single room plus meals)
$150 (double room plus meals)

**LODGING:** Single or Double Dormitory-style rooms at Dauphin Island Lab.

Participants may also arrange their own accomodations at any of the four modestly-priced motels on Dauphin Island:

| | |
|---|---|
| Gulf Breeze Motel: 1510 Cadillac Ave. | (334) 861-7344 |
| | (334) 861-6616 |
| Bayside Motel and Apartments: 510 Lemoyne Dr. | (334) 861-4994 |
| Harbor Lights Inn: 1506 Cadillac Ave. | (334) 861-5534 |
| Sand Castle Beach Front Condominiums: 50 Forney Johnston St. | (334) 861-6691 |

**MEALS:** All meals and coffee-breaks are included in the Registration Fee, and will be served at the lab. There are three cafes on the island, so dining out is possible.

**SCHEDULE:**

18 May Participants arrive at Mobile airport.
Shuttle van to Dauphin Is. Sea Lab.
Evening reception at local restaurant.
19 May Morning and afternoon, papers and discussion.
20 May Morning and afternoon, papers and discussions.
Evening banquet.
21 May Morning, papers and discussion.
Afternoon, depart for Mobile.
21-24 May Summer Meeting of the Crustacean Society, Mobile, Alabama

**POSSIBLE TOPICS:** Isopod Biodiversity and Biogeography.
Isopod phylogeny.
Isopod databases, keys.

**TRANSPORT:** A shuttle bus will be provided to carry participants from the Mobile airport to Dauphin Island, a 45 minute drive. Plan your arrival in Mobile for no later than 5:00 p.m. on May 18th. Inform Brian Kensley of your flight and time of arrival, so that you can be met at the airport.

REGISTRATION FORM

If you plan to attend the Second International Isopod Workshop and Conference at Dauphin Island, Alabama, please complete this form and return it to Brian Kensley, NHB-163, Smithsonian Institution, Washington, D.C. 20560 (Phone (202) 357-4666, Fax (202) 357-3043, E-Mail MNHIV019@SIVM.SI.EDU

1. Name (as you wish it to appear on your lapel badge).

   ---

   Postal Address: Telephone No.

   ---

   ---

   Fax No.

   ---

   E-Mail Address:

   ---

2. I wish to reserve SINGLE DOUBLE accomodation at the Dauphin Island Sea Lab (circle one).

   or

   [] I will arrange my own accomodation on Dauphin Island.

3. Enclosed is a CHECK MONEY ORDER BANK ORDER for $190/$150 US, for the Registration Fee (circle one).

4. I plan to present a PAPER and/or a POSTER (circle one or both).

5. Title of my paper:_____

_____

_____

(Send a one-page Abstract to Brian Kensley no later than 31 March 1997. The Abstract page should have a one-inch margin all round, for easy copying.)

6. One T-shirt is included in the registration fee; additional T-shirts will be sold at minimum cost.

T-shirt size: SMALL MEDIUM LARGE X-LARGE (circle one or more).