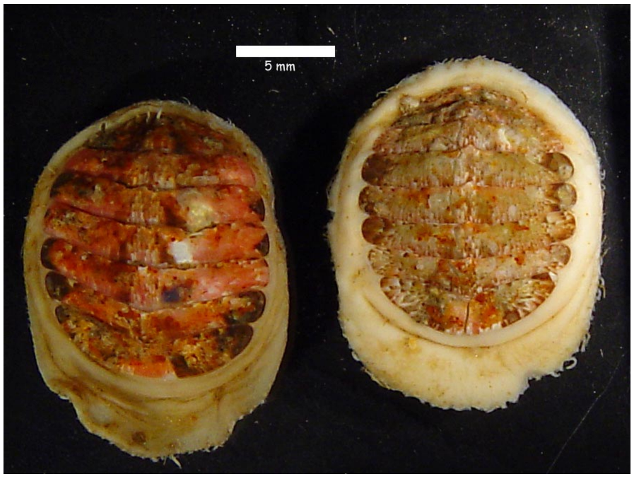
Southern California Association of
Marine Invertebrate Taxonomists

November, 2004

SCAMIT Newsletter

Vol. 23, No. 7

SUBJECT:	**Corophoidae**
GUEST SPEAKER:	**John Chapman**
DATE:	**14 and 15 February 2004**
TIME:	**9:30 a.m. to 3:30 p. m.**
LOCATION:	**Natural History Museum of Los Angeles County**



Placiphorella mirablis Clark 1994
Collected off San Diego, 1994
Photo by K. Barwick, CSD

CORRECTION

The last newsletter listed the next meeting as being on the Corophoidae on 14 February at the LACMNH with John Chapman as the guest speaker. All of this remains true, however, it is a **two day workshop** and the dates should be **February 14 AND 15**. Please note the change in your calendars and plans.

8 NOVEMBER 04 MINUTES - AMPELISCID WORKSHOP

Lisa Haney started the workshop by presenting the results of her investigation into *Ampelisca hancocki* Barnard 1954 and the validity of SCAMIT's designation of the taxa as a complex. Confusion over the taxon can be traced to Dickinson (1982) where *A. hancocki* is described as having a tooth on the posterior ventral margin of coxae 1–3. Barnard (1954) describes *A. hancocki* as having "slits" on coxae 1 and 2, but not teeth. Representatives from the various agencies in attendance

(Hyperion, LACSD, MEC Analytical, CSD) had reviewed specimens from their own sampling efforts prior to the meeting and were all in agreement that specimens from the SCB had neither slits or teeth on the coxae, although Doug Deiner (MEC Analytical) reported occasionally finding teeth on the anterior coxae. In addition, Lisa had reviewed the type material, held at the Natural History Museum of Los Angeles County, and found that coxae 1–3 of the type specimen were also without slits or teeth. The type material was in excellent condition: a relatively large specimen, intact and well preserved. Lisa noted that the specimen matched Barnard's original description in all characters except for the presence of slits on coxae 1-2. Ron Velarde pointed out that the holotype material was collected from Port Parker, Costa Rica — a far cry from the SCB. Discussion of the issue continued and the group eventually decided that given the apparent variability of the coxal characters, and the absence of any other definitive characters to distinguish Dickinson's description from Barnard's, and apparently strong agreement of SCB specimens with the holotype, specimens from the SCB would be relegated to *A. hancocki* Barnard irrespective of the presence or absence of slits or teeth on coxae 1–3.

With this issue resolved, the group moved on to the discussion of another problem taxon: *Ampelisca cristata* and its nominal subspecies *A. cristata microdentata*. Discussion of this taxon was prompted by early confusion of characters that reliably discriminate between the two forms, and Lisa's concern of whether the two could be distinguished in her revised key. The first thought was to look at the distribution of the taxa and determine if there might be ecological data that would warrant their continued separation. Eric Nestler (CSD) provided handouts of the distribution of the two taxa over five years (1999–2003) of regional surveys of randomly selected stations off San Diego. The data showed general overlap in depth, with a fairly strong division with the percentage of fine material in the sediments. *A. cristata cristata* tended to be distributed in samples consisting of coarser sediments (i.e., lower percentage of fine sediments), while *A. cristata microdentata* was more abundant at stations where the sediments contained more fine materials. Lisa Haney then provided a similar look at the distribution of *A. cristata* over a 30 year period, with the later five years including *A. cristata microdentata* abundance. The distribution of the two taxa was limited primarily to the 30m transect, although specimens were also collected along the 60m transect. Unfortunately, the distribution of the two taxa overlapped considerably and there was no apparent separation of the two subspecies based on particle size as was found in the SD data. The data from LACSD however did suggest a possible seasonal difference. These potential ecological separations will have to be investigated further once the taxonomic resolution (see below) is better understood by SCAMIT members operating in the SCB.

Again, discussion among the representatives from the various agencies and consultants in attendance provided valuable information. The two taxa are known to co-occur in samples from northern Mexico to Ventura, in harbors and shallow shelf waters to about 60m. Members of the San Francisco laboratory currently do not discriminate between the two forms. However, a review of the one specimen brought by Dot Norris was determined to be *A. cristata cristata*. Don Cadien raised the issue that sympatric subspecies are inherently contradictory (like "compassionate conservatism"); the two could not be considered subspecies if they co-occurred. He suggested that they be separated at the level of species, rather than sub-species, or not at all.

Most people in attendance were in general agreement that specimens with a small tooth on epimeron 3 also possessed a rounded (or at most, quadrate) epimeron 2, while those with a prominent tooth on epimeron 3 typically possessed an acute corner or distinct tooth on epimeron 2. The problem is that the size or degree to which the postero-ventral corner of the epimera are produced vary. Several people expressed a method of first looking at epimeron 3. If that tooth was “small” they would confirm *A. cristata microdentata* by the absence of any tooth on epimeron 2. There was general agreement that the two taxa should be considered as separate, and left as such in the key. However, there was an obvious need to find additional characters that could be used to distinguish the two. Diener and Pasko proposed several characters in 1998 prior to the Bight’98 regional survey (see Table 1 attached at the end of the newsletter). They offered to revisit these characters, as well as others, and attempt to find something that could be used reliably to distinguish between them.

Next, the group considered *Byblis veleronis* and *B. millsi*. *B. millsi*, along with many other taxa, was also erected by Dickinson (1983) and has resulted in some confusion as to reliable characters to distinguish among various taxa. At the Bight’03 data resolution meeting, Dean Pasko noted that, with some exceptions, most participants acknowledged recognition of *Byblis veleronis* and *B. millsi*, although some confusion remained regarding which characters were appropriate to use in distinguishing the two. The characters used in the proposed key by Haney and Pasko were drawn from Dickinson (1983), Barnard (1954), and Chapman (in press). These characters however, have proven to be initially problematic. For example, San Diego tested the characters proposed by Haney and Pasko and found conflicting character states in equally sized males and females (7.5 mm and 7.0 mm, respectively) of *B. millsi*. For example, a male specimen had the following character states: antenna 1 flagellum reaching beyond the antenna 2 peduncle; coxae 2 & 3 were considered to be rounded or squared-off (at least not distinctly obliquely truncated); coxae 1 and 2 were sub equal; the anterior edge of coxa 1 was straight; and the outer ramus of uropod 1 was bare. In the accompanying female, the antenna 1 flagellum did NOT reach the end of antenna 2 peduncle; coxae 2 and 3 were also rounded or squared-off (not distinctly truncated); coxa 1 was distinctly longer than 2; the anterior edge of coxa 1 was noticeably concave (at least proximally); and the outer ramus of uropod 1 had a row of dorso-lateral spines AND a row of lateral setae. Consequently Dean reviewed a number of additional specimens of the two species from San Diego collections side-by-side. He noticed that the length of the uropod 1 peduncle relative to the uropod 2 peduncle was distinctive between the two and seemed to hold for males and females. The question remains as to how well this character works with juvenile specimens, but the examination of many immature *B. millsi* specimens suggests that it should hold for smaller specimens. The peduncluar article of uropod 1 of *B. veleronis* is short and reaches to slightly beyond the mid-line of the uropod 2 peduncle, whereas in *B. millsi* the uropod 1 pedunclular article is long and reaches to the end of the uropod 2 peduncle. These characters are clearly illustrated in Barnard (1954), Plate 37, Figure e, and Dickinson (1983), Figure 6, female and Figure 7, male urosome. Specimens of the two species were compared and everyone agreed that this was an easy character to see.

After lunch, the group went through the proposed key of Haney and Pasko and discussed wording, character states, and took various specimens through the key. The discussion was lively and informative, resulting in many constructive suggestions. Some of the problem taxa raised during this session included *Byblis bathyalis* (included in key) vs. *B. thyabilis* (not in key). Dickinson (1983) commented that the two species are closely related and questioned whether or not they were distinct. John Byrne collected a specimen of *B. bathyalis* during the Bight’03 survey. Unfortunately, the specimen wasn’t available for review, but will be reconsidered back at the CSD Laboratory. Another set of closely related species was *Ampelisca indentata* and *A. pugetica*. Characters related to the condition and shape of the cephalon will be added to the key to assist in distinguishing between these species.

Several specimens were reviewed. A specimen tentatively identified as *A. shoemakeri* by Carol Paquette was examined and determined to be *A. hancocki*. This raised the question of whether or not *A. hancocki* and *A. shoemakeri* were indeed different. This question was not satisfactorily resolved and needs to be reviewed. A specimen tentatively designated as A. *macrocephala* from the San Francisco laboratory was reviewed and determined to be *A. careyi*. Additionally, Lisa Haney discovered two specimens of *A. mexicana* during the QA/QC process of a Bight'03 sample from 36.7 m identified by Dean Pasko. The species had previously been unreported from the SCB by the member agencies so the discovery was significant and raised the question of whether the species had been missed previously, especially since it was found at a depth commonly sampled by monitoring agencies operating in the SCB. *A. mexicana* can be readily distinguished by the enlarged postero-ventral lobe of pereopod 7, article 4. Unfortunately (for Dean) this species was not recorded by him in any of his samples. Also unfortunate, was the fact that the original data was unavailable at the time, so the group couldn't determine what Dean had originally called these specimens.

Finally, as the time for horrible LA traffic neared, the meeting rapidly wound down, but not without a flurry of two hastily distributed provisional voucher sheets. One distinguishing *Americhelidium* sp SD1 (Amphipoda: Oedicerotidae) from other forms of *Americhelidium* "*shoemakeri*" in the SCB. Dean found several tested and reliable characters to separate out this one unique species and revised his earlier voucher sheet to include these new characters. In addition, Dean distributed a voucher sheet for *Pachychelium* sp SD1 (Amphipoda: Lysianassidae). This species has been collected twice and appeared to have some slight differences from *P. davidis* Stephensen 1925.
Dean has since revised the sheets again and the two latest editions are attached at the end of this newsletter. Please replace earlier versions with those provided here.

NEW LITERATURE – NOVEMBER 8

Several pieces of literature were circulated at the meeting. Treasurer Cheryl Brantley brought forward two articles dealing with the status of taxonomy and its practitioners.

Hopkins & Freckelton (2002) examine the downtrend not only in professional taxonomy, but also that in amateur taxonomy. Most of us production taxonomists in SCAMIT straddle the line, although some fall on one side or the other. The authors here use a definition of institutional association which would exclude many from the professional ranks per se. Their investigation focused on Britain and insects, but their results are applicable throughout the taxonomic community. They examined publications in the Entomological Monthly Magazine since 1918 and found long declines in the ranks of both amateur and professional taxonomists, with present activity levels much lower than in the past. They did see a recent upswing in amateur activity, but attribute this to active retirements of previous professionals rather than to work by new taxonomic "recruits". This is, sadly, the same old story of decline covered by so many, and leads to the same end point: calls for increased emphasis on taxonomy. This is based on the essential nature of taxonomic expertise in conservation biology, which cannot effectively conserve what it cannot recognize. Let us hope the calls are heard and heeded this time.

Taxonomic data quality and its evaluation is the subject of Stribling & Moulton (2003). They cover much the same ground as did Ranasinghe et al (2003). We have all grumbled, but ultimately complied, with the additional effort at quality assurance and quality control in our regional monitoring. The above publications deal with why such additional effort is both valuable and warranted. Our existing methodologies serve to meet the requirements envisioned by Stribling & Moulton for appropriate quality control. Anyone who has already forgotten what those are should consult the Laboratory Manual for the Bight '03 Regional Monitoring Program. Substantially the same sort of effort is to be expected in the next regional iteration.

Don Cadien added a series of other publications to Cheryl's list . The first, (Hughes et al 2000), deals with another aspect of EMAP monitoring. Our WEMAP program dealt with regional marine and estuarine assessments, but the EMAP project in this paper deals with inland surface waters. It is both interesting and instructive to see how the programs resemble and differ from one another. The authors make an interesting comparison of the expected cost of annual EMAP monitoring (5-10 million) reporting it equal to federal subsidies for promotion of the almond and popcorn industries overseas in 1997.

Coleman (2003) provides information to assist publication of taxonomic papers. He provides a how-to guide to creation of perfect line drawings on computers. Since so many find electronic publication increasingly attractive, this technique is a boon. He suggests scanning original pencil drawings into the computer, then inking them digitally by use of a digitizer board through the computer's USB port. The cost of the digitizer is not trivial, but it offers large increases in proficiency and throughput in production of figures.

Secondary structure (habitat modifications produced by biological activity within or upon primary structure) is a fascinating aspect of community ecology. Cocito (2004) addresses the impact of secondary calcareous structure on community diversity and function in the marine environment. She discusses the entire spectrum of calcareous structures but her concentration is on those produced by bryozoans. While she found that in nearly all cases reviewed, the bryozoan bioconstruction resulted in increased diversity, she found it poorly quantified. Additional and more complete characterization of the fauna associated with bryozoan bioconstructions remains to be performed.

Two papers (Dawson 2003; Marques & Collins 2004) were circulated dealing with cnidarians. Dawson dealt with morphological variation in species of the jellyfish *Aurelia*. Over the past few years molecular data has pointed to the existence of multiple cryptic species in what was once considered only one or two species. Earlier workers had described multiple species, but these were later placed in synonymy as their boundaries proved too variable to retain their separation. New taxa are not designated here, but the nature of morphological variation in these sibling species is investigated as a preparation for future work on the genus. Note that we have several genetically separable species in the North East Pacific.

The entire Medusozoa was analyzed cladistically by Marques & Collins. This subphylum of the Cnidaria contains all classes except the Anthozoa, which lack medusae in their life cycle. The authors propose, as a result of their analysis, a new class of cnidarians within the Medusozoa, the Staurozoa. This would contain two orders; the extant Stauromedusae, and the extinct Conulatae. This new class would bring to five the number of classes within Cnidaria: Anthozoa, Staurozoa, Cubozoa, Scyphozoa, and Hydrozoa. The authors provide descriptions of the 87 characters used in the analysis, as well as the scoring of the characters for each of the considered groups. Their results largely agreed with earlier analyses based on molecular data.

Molluscan phylogeny, specifically the euthyneuran gastropods, was analyzed by Grande et al (2004) based on molecular data (using a series of mitochondrial genes). Their analysis indicated that monophyly of the Opisthobranchia was rejected because of the inclusion of the pulmonate Siphonaria. The monophyly of the Pulmonata was strongly rejected, suggesting a reevaluation of morphological data (which supports monophyly of the Pulmonata) is necessary. It is heartening that the analysis showed the Opisthobranchia as monophyletic with the exception of the *Siphonaria* inclusion. More thorough taxon sampling of the various pulmonate clades might produce differing results in a re-analysis. Basommatophora and Systelommatophora were both represented by a single taxon in the present analysis. Perhaps even more enlightening would be a re-analysis combining multiple lines of evidence (including both molecular and morphological) and broader pulmonate taxon sampling in a single dataset.

Using both 16S and 18S rDNA data combined with reproductive mode, Nygren & Sundberg (2003) examine the phylogeny of the autolytine syllids. They found the molecular and reproductive patterns to be congruent, suggesting a realignment of species among genera in some cases. Epigamous species of *Autolytus* would be placed in a new genus, while *Autolytus* species with other reproductive modes would move to *Myrianida* (which has priority). These and other nomenclatural actions are not performed in the present paper, but evidence in support of these actions is presented. A further paper will pursue the nomenclatural issues derived from the analysis.

Occasionally, several investigators focus independently on a single taxon almost simultaneously. The lysianassoid amphipod genus *Valettiopsis* received such treatment from Serejo & Wakabara (2003) and Horton (2004). Our local fauna contains *Valettiopsis dentata* Holmes 1908, and both these papers discuss the species. Horton provides additional information on the taxon, including illustration of the gnathopods, based on reexamination of the holotype. Both also provide keys to the genus world-wide, and both describe additional taxa within the genus. Fortunately Horton was aware of the earlier paper and did not redescribe one of their taxa as has happened in so many earlier overlapping publications.

As we continually are forced to acknowledge the degree of variability of many character states in most species, what we see is poorly assessed. It is difficult to grasp under these circumstances how much variation may lurk undetected in local populations. While certain characters may be almost invariate through a population, others may vary widely with no apparent environmental cause. Within and between population variation in the distribution and abundance of setae in the isopod *Saduria entomon* is reported by Lajus et al (2003). While this is not a taxon which we encounter locally, a study such as this helps frame the questions we need answered for our own local populations.

NOVEMBER 17 04 MINUTES

The meeting began with our President discussing upcoming SCAMIT meetings. I will not bother to list those here as they have been covered in previous newsletters and are posted on our website.

A non-SCAMIT meeting of some interest to members is the Southern California Academy of Sciences (SCAS) Annual Meeting. It will be held from May 20-21, 2005 at Loyola Marymount University in Los Angeles. There will be diverse symposia covering such subjects as Nearshore Reef Ecology, Wetland Ecology, and Watersheds and Pollution, to name a few. Please see their website for more information.

http://scas.jsd.claremont.edu/

Don Cadien then discussed a new trend in monitoring. We are starting to see less of an emphasis on "end of pipe" sampling and more on new types of programs directed at answering specific research questions. This was the recommendation of the National Research Council based on their review of monitoring in southern California. It was picked up and incorporated in the Model Monitoring Program, and adopted by the State Water Quality Control Board. This approach may affect the requirements of newly issued discharge permits.

We then welcomed the guest speaker for the day, Roger Clark. Roger routinely publishes a field guide for the National Marine Fisheries Service entitled: "West Coast Shelf and Slope Invertebrates. Juan de Fuca Strait to Baja California. NMFS Trawl Field Guide".

Roger started his presentation for the day by showing us a wonderful slide show of all the various species he encounters. He trawls with NMFS and samples from Canada to Baja California within a depth range of 200-1200m.

He started with slides of sponges. Some species in the northern Pacific actually form a "reef-like" system. One reef-building species, *Aphrocallistes vastus* has suffered from anthropogenic impact in the Oregon/ Washington area and most of the reefs now consist of dead skeleton. However, further north, in Alaska and British Columbia there are still massive, live reefs created by this sponge. Roger pointed out that either dead or alive, the sponge provides a good habitat for other invertebrate species.

He proceeded through all the taxa from this point and I stopped trying to write down the name of every species he showed as the newsletter would, at that point, simply be a listing of species. The slides themselves were the informative aspect and unfortunately, I can't reproduce them here. However, by the end of the slide show, many members present had noticed a slight "paucity" in some of his slides with regards to our very southern friends at this end of the pacific. Based on our comments, Roger has a "Wanted" list and would like live photos of the following species:

Crustacea - *Sicyonia penicillata*, *Schmittius politus*, *Pagurus spilocarpus* (he photographed one in CSD's display tank so this is potentially no longer needed), *Cancer antennarius* and *C. jordani*

Molluscs – *Octopus rubescens* and *O. veligero* (M. Lilly gave him a photo)

Echinoderms – *Luidia armata*, *Astropecten ornatissimus* (M. Lilly gave him a photo, but if someone has a better one it would be appreciated), *Ophiopholis bakeri* (M. Lilly provided a photo, but the quality was mediocre), *Ophiura luetkenii*, *Dendraster terminalis* (he photographed a preserved specimen, but a live photo would be preferable), and *Parastichopus* sp LA 1.

Roger will be returning to San Diego, probably this summer, to go on trawls and try to catch some of these more elusive animals on film. If any of you reading this have good, live images of the animals mentioned, I'm sure Roger would love to hear from you.

After the slide show we all broke for lunch, agreeing to start the Chiton session afterwards.

Roger spent the afternoon giving a wonderful slide show on "chitons he has known". Again, although I took copious notes, the information was mostly anecdotal and related to the slide being viewed at the time. He discussed species ranging from Baja up through northern California and Oregon and ranging from the intertidal to subtidal in habitat. I shall not provide a species list here (if someone really wants it they can email me and I will provide a copy for them). Roger, I believe, is working on a guide to the chitons which is still in press. Keep an eye out for it.

- M. Lilly, CSD

NEW LITERATURE - NOVEMBER 17

Four papers were distributed to the attendees for their consideration. One (Christensen 2004) dealt with reports of one of our common North East Pacific ophiuroids, *Ophiactis simplex*, from Texas. The species was first noted there in 2001, and observations on substrate, size, appearance, and regeneration state (the species is fissiparous) were kept from that point to the present publication. The identity of the specimens was verified by Dr. Gordon Hendler at NHMLAC, therefore this is not a mistaken report. Method of introduction to the Gulf Coast is unknown.

The other three papers dealt with phylogeny of mollusks. Klussmann-Kolb (2004) examined phylogeny of the sea-hare family Aplysiidae. She found the traditional morphological division of the family into sections Longicommissurata and Brevicommissurata (incorrectly characterized in the paper as Suborders) no longer supportable. The four subfamilies of Aplysiidae suggested by Beeman are retained in this analysis. In several respects this morphology and histology based analysis differed from a previous one based on molecular evidence, suggesting that more work on character selection needs to be undertaken.

Molecular phylogenetic analysis of Scaphopoda using 18S rDNA sequences was reported by Steiner & Dreyer (2003). The authors attempted to achieve two goals; definition of relationships between families within the Scaphopoda, and a decision as to the relationship of the Class to other Classes in the Mollusca. They concluded that their taxon sampling was not complete enough to clarify within class relationships, but found support for a Scaphopoda+Cephalopoda concept of higher level molluscan relationships. This corresponds to the Helcionellid concept espoused by Waller (1998), and offers no support for competing hypotheses of class relationships within Mollusca. Another attempt, with broader taxon sampling will undoubtedly be forthcoming from these or other authors to decide the issue of within scaphopod family relationships.

As part of the specialty taxonomy assessments for Bight ’03, Kelvin Barwick and Don Cadien have been working on the aplacophore mollusks. One of the most difficult parts of this work has been trying to determine what the higher classification of the group should be. There are two major competing schools of thought; one headed by Salvini-Plawen, and the other by Scheltema. Both agree the Caudofoveata (chaetodermatomorphs) and the Solenogastres (neomeniomorphs) are quite different, but placement of the two groups relative to the rest of the Mollusca differs widely between these schools. Salvini-Plawen (2003) gives the most recent discussion of evidence for his position on higher classification. Another synthesis of evidence in support of the opposing view will undoubtedly be out shortly from Scheltema. Both have considerable evidence to support their point of view, leaving most of us in a quandary: who should I follow? I’ll be watching for the next salvo from each side, and plan to reach some sort of decision for Edition 5 of the SCAMIT Taxonomic Listing. The new edition will have substantial representation of the aplacophorans for the first time based on the taxa taken in Bight ’03 and other recent deeper water samplings by contributing agencies.

- By the way, send any additions or changes to the Edition 4 Taxonomic Listing to dcadien@lacsd.org for inclusion in Edition 5.

TROPICAL SPONGE WORKSHOP

The Smithsonian Tropical Research Institute, Bocas Research Station Presents A Short-Course In TAXONOMY AND ECOLOGY OF CARIBBEAN SPONGES August 15 - 25, 2005

Bocas Research Station, Bocas del Toro, Panama.
Registration Fee: $400 (some fellowships are available).
Instructors: Dr. Cristina Diaz, Smithsonian Institution,and Dr. Robert W. Thacker, University of Alabama at Birmingham

Over 100 species of marine sponges have been reported in the Bocas del Toro region of Panama. This course will focus on morphological taxonomy, enabling field identification of the common Caribbean species. We will also conduct field surveys to provide baseline data for conservation at the Bocas Research Station and in the Isla Bastimentos marine reserve. In addition, students will complete independent projects aimed at stimulating interest in conducting future research at the Bocas Research Station.

Application: This course is directed towards graduate students and advanced Licenciado candidates and will be conducted in English. Please e-mail your CV, 1 letter of recommendation, and a 1-2 page statement explaining your background and reasons for taking the course to Dr. Rachel Collin at: CollinR@naos.si.edu before March 1, 2005.

Enrollment is limited to 10 students. For more information see:

http://striweb.si.edu/taxonomy/

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SCAMIT OFFICERS:

If you need any other information concerning SCAMIT please feel free to contact any of the officers at their e-mail addresses:

President	Kelvin Barwick	(619)758-2337	kbarwick@sandiego.gov
Vice-President	Leslie Harris	(213)763-3234	lharris@nhm.org
Secretary	Megan Lilly	(619)758-2336	mlilly@sandiego.gov
Treasurer	Cheryl Brantley	(310)830-2400x5500	cbrantley@lacsd.org

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SCAMIT
C/O The Natural History Museum, Invertebrate Zoology
attn: Leslie Harris
900 Exposition Boulevard
Los Angeles, California, 90007

	Ampelisca cristata cristata	***Ampelisca cristata microdentata***
Epimeron 3	postero-ventral corner with relatively large broad, acute tooth	postero-ventral corner with very small tooth
Epimeron 2	postero-ventral corner acutely produced	postero-ventral corner quadrate to rounded
Head	produced antero-distally into small “dome” (e.g., similar to ***A. careyi***, but smaller)	unproduced antero-distally
Urosomal crest	rounded on the ends, middle portion horizontal	less rounded on ends, posterior portion higher than anterior
Pereopod 7	basis squared along ventral margin	basis with more rounded ventral margin
Gills	narrowed distally and relatively small (see J.J. Dickinson, 1982: Fig 20, ***A. brevisimulata*** or ***A. hessleri***)	cylindrical (i.e., not narrowed distally) and relatively large (see J.J. Dickinson, 1982: Fig 20, ***A. cristata***)

Table 1. Morphological characters which may be used to differentiate Ampelisca cristata cristata and A. cristata microdentata. The top three characters (in bold) appear to be the most reliable and easily distinguished characters. A more detailed review of both species is required to confirm the reliability of the secondary characters. Compiled by Doug Deiner (MEC Analytical) and Dean Pasko (CSDMWWD).

City of San Diego

PROVISIONAL SPECIES VOUCHER SHEET

Provisional Name: *Americhelidium* sp SD1
Authority:
Common Synonyms:
Americhelidium shoemakeri Type A

Taxon: Amphipoda: Oedicerotidae **Taxonomist:** Dean Pasko
Date: 5 March 2001; **Revised: 1 February 2005**

Specimen(s):

	STATION	DATE	DEPTH	STORAGE LOCATION	VIAL#
ITP Reg.	2727	7/10/00	152 ft	dp	
	2729	7/6/00	142 ft	dp	

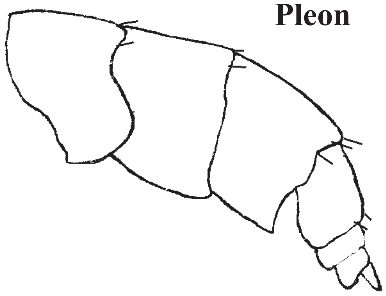
Characters:

Generally similar in form to *Americhelidium shoemakeri* (Mills 1962) and *A. rectipalmum* (Mills 1962).

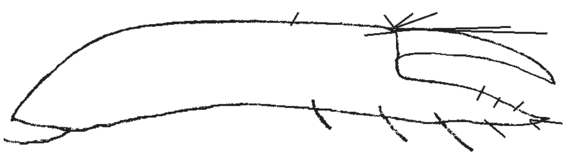
Rostrum downturned at ~90°, tip of rostrum reaching distal end of peduncular article 1, antenna 1
Eyes fused dorsally, filling much of anterior portion of head, but not extending onto rostrum
Mandibular palp, article 3 ≤1/2 of article 2
Maxilliped inner plate with 3–4 distal spines; outer plate with 10–12 outer marginal spines
Gnathopod 1 subchelate, palm convex making it appear only slightly oblique, and more similar to *A. rectipalmum* than *A. shoemakeri* which has a distinctly oblique palm; coxa 1 ventral margin with ~15 long and ~5 short setae
Gnathopod 2 chelate, propod subequal to article 2, relatively robust (L~5.5 X W); dorsal margin of propod typically bare, occassionaly 1–2 short setae, and with 4–6 distal setae, one of which extends length of dactyl; ventral margin with 2–3 setae, rarely 4–5 (excluding distalmost); dactyl relatively long (~25% of propod length); posterior margin of coxa 2 with 1 large spine and one short spine distal to it.
Pereopod 7, basis with distinct postero-distal lobe that extends 1/2 to 2/3 the length of ischium
Pleonites1–3 and urosomite 1 with paired, dorso-lateral setae – these sometimes broken; epimeron 2 with blunt (sub-quadrate) postero-distal tooth
Uropods 1 and 2 terminate together, tip of Ur3 falls short of tip of Ur1; Ur1 peduncle long and slender, reaching slightly beyond distal end of Ur2 peduncle; Ur1 outer ramus with 2–5 short, stout spines, inner ramus typically with two slender spines
Telson apically rounded (i.e., not emarginate)

Illustrations:

Pleon

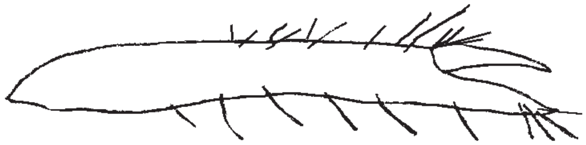


Gnathopod 2

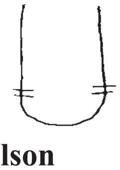


Americhelidium sp SD1

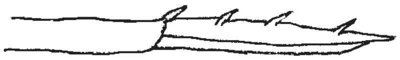
vs.



Americhelidium shoemakeri



Telson



Uropod 3

References:

Barnard, J. L. 1962. Benthic marine Amphipoda of southern California: Family Oedicerotidae, Pacific Naturalist, 3(12):351-371

Bousfield, E. L. and A. 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

Martin, A. 1984. Synchelidium rectipalmum and Synchelidium shoemaker (Oedicerotidae). Voucher sheets included in SCAMIT Newsletter, Vol 3, No. 7.

Mills, E. L. 1962. Amphipod crustaceans of the Pacific coast of Canada, II. Family Oedicerotidae, National Museum of Canada, 15:1-21

Thomas, J. D. and L. D. McCann 1997. The families Argissidae, Dexaminidae, Eursiridae, Gammaridae, Leucothoidae, Melphidippidae, Oedicerotidae, Pardaliscidae, Phoxocephalidae, Podoceridae, Stegocephalidae, Stenothoidae, Stilipedidae, Synopiidae, and Urothoidae, pp. 21-136 (see page 44), In J. A. Blake, L. Watling and P. H. Scott (eds.) Taxonomic Atlas of the Benthic Fauna of the Santa Maria Basin and Western Santa Barbara Channel Santa Barbara Museum of Natural History, Santa Barbara, California

City of San Diego

PROVISIONAL SPECIES VOUCHER SHEET

Provisional Name: *Americhelidium* sp SD1
Authority:
Common Synonyms:
Americhelidium shoemakeri Type A

Taxon: Amphipoda: Oedicerotidae
Taxonomist: Dean Pasko
Date: 5 March 2001; Revised 1 February 2005

Related Species & Other Comments:

This species is one of several forms of *Americhelidium shoemakeri* complex present in shelf waters off Point Loma and Imperial Beach, CA. *Americhelidium* sp SD1 can be distinguished from the other forms of the complex by a suite of characters, the most reliable of which include: the presence of distinct, paired setae on the pleonites that are typically missing in other members of the *A. shoemakeri* complex; a distinctly more robust gnathopod 2 propod (L: W = 5.5 vs 7.5 in *A. shoemakeri*) that is sparsely setose along the dorsal and ventral margins (1–4 setae vs 5–10 in *A. shoemakeri*); the presence of one or two distinctively long distal setae on the propod that run the length of dactyl (vs ≤1/2 the length of the dactyl in *A. shoemakeri*); and a relatively long dactyl (25% the length of the propod vs ≤20% in *A. shoemakeri*) (See comparative Figures).

Americhelidium sp SD1 can also be distinguished from *A. micropleon* by the downturned rostrum (vs scarcely downturned in *A. micropleon*); more robust gnathopod 2 (vs L:W = 7.5 in *A. micropleon*); by Ur3 which reaches to the distal end of Ur1 (vs only to mid-point of Ur1 in *A. micropleon*).

Americhelidium sp SD1 may also be confused with *Americhelidium rectipalmum* because both species have a convex palm of gnathopod 1 which can make it seem transverse; rather similary robust gnathopod 2 propod and dactyl; and paired setae on the pleonites. *Americhelidium rectipalmum* can be readily distinguished by a much reduced lobe on the basis of pereopod 7 (virtually absent to <1/3 the length of the ischium); the absence of long distal setae that extend the length of the dactyl on the propod of gnathopod 2; and a rounded epimeron 2.

Finally, *Americhelidium* sp SD1 would likely be confused with *Americhelidium setosum* Bousfield & Chevrier 1996 or *Americhelidium gurjanovae* Kurdrjaschov & Tzvetkova 1975 when using the key in Bousfield & Chevrier (1996). *Americhelidium setosum* differs in having 30–40 setae on the ventral margin of coxa 1, the more rounded epimeron 2, and the absence of paired dorsal setae on the pleonites. *Americhelidium gurjanovae* differs in the reduced setation of the propod of gnathopod 2, including the absence of long distal setae that extend the length of the dactyl, and the reduced basal lobe of pereopod 7.

City of San Diego

PROVISIONAL SPECIES VOUCHER SHEET

Provisional Name: ***Pachychelium* sp SD1**
Taxon: Lysianassidae
Taxonomist: D. Pasko / E. Nestler
Authority:
Date: 7 April 2003; Revised 1 February 2005
Common Synonyms:
Specimen(s):

STATION	DATE	DEPTH	STORAGE LOCATION	VIAL#
B-11 (2)	22-Jan-03	88 m	CSD-Voucher Collection	
B'03 Sta 4029	21-Jul-03	75 m	CSD-B'03 V#4737.1	

Characters:

Small, elongate specimen (much like *Prachynella* or *Pachynus*)

Maxilliped palp 3-articulate; inner plate absent

Gnathopod 1 uniquely shaped with carpus attached to hind margin of enlarged propodus (see figure); propod slightly produced at antero-distal margin of palm; basis and ischium not greatly enlarged; coxa large, broader than deep, with blunt antero-distal tooth

Gnathopod 2 reduced, dactyl small, vestigial

Coxa 4 similar to coxa 1–3, not excavate and without lobe

Pereopod 7, similar in shape to pereopods 5 and 6; merus postero-distally produced; basis broadly rounded

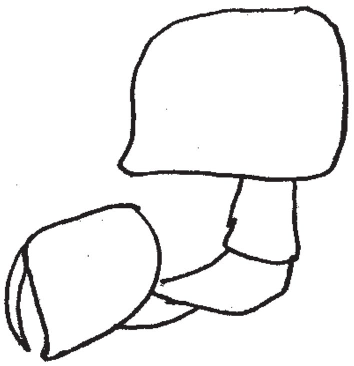
Pleon, epimeron 2 with blunt tooth; epimeron 3 rounded

Uropodal rami naked; Ur3 rami subequal, inner ramus composed of two articles, the distal-most being the smallest

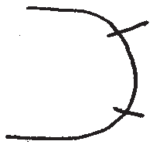
Telson ordinary, broadly rounded with one pair of disto-lateral setae

Illustrations: *Pachychelium* sp SD1

Gnathopod 1



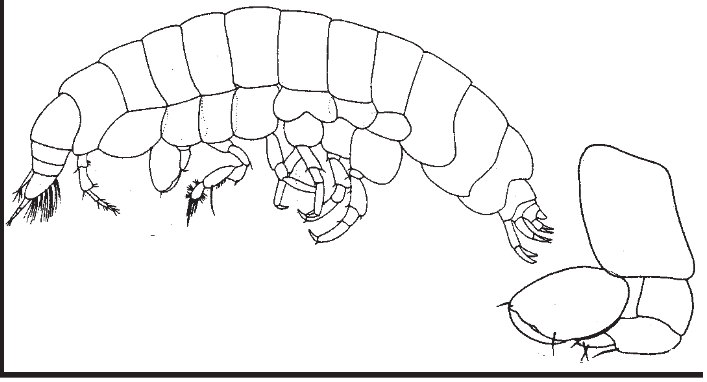
Pereopod 7



Telson

Uropod 3

Pachychelium davidis (from Barnard 1969)
whole animal & gnathopod 1



Related Species & Other Comments:

The uniquely shaped first gnathopod distinguishes this species as being closely related to the *Acheronia* and *Pachychelium* genera of the Pachynid group (see Lowry 1984). It differs from *A. pegasus* Lowry 1984 in the absence of an anteroventral lobe on coxa 4 and the uni-articulate inner ramus of uropod 3, which is approximately 1/4 the length of the outer. It appears to be more closely aligned to *Pachychelium davidis* Stephensen 1925 and *P. antarcticum* Schellenberg 1926. It differs from the former in posessing an antero-distal process on the propodus and coxa of gnathopod 1, as well as the postero-distal process on the merus of pereopod 7. It differs from *P. antarcticum* by the absence of small inner plates on the maxilliped. *Pachychelium* sp SD1 is also intermediate between *P. schellenbergi* Lowry 1984 and *P. nichollsi* Lowry 1984 for some characters (e.g., size of basis and ischium of gnathopod 1 and relative shape of pereopods 5–7), but differs from both by the 3-articulate maxilliped palp.

Two important character states could not be verified due to the condition of the specimens examined. The teeth of the outer plate of maxilla 1 could not be reliably distinquished as smooth or spined, and the presence or absence of a complex spine on gnathopod 1 remains in question. Additional material is required to confirm these character states. *Pachychelium* has been reported from the Arctic and Antarctic, so its presence in southern California requires careful consideration.