

**S**OUTHERN  
**C**ALIFORNIA  
**A**SSOCIATION OF  
**M**ARINE  
**I**NVERTEBRATE  
**T**AXONOMISTS



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SCAMIT Newsletter

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*Aphrodita longipalpa*, prostomium and palps, note no eyes visible. From LACSD collection. Photo credit Larry Lovell.

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The SCAMIT newsletter is not deemed to be a valid publication for formal taxonomic purposes.

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**JANUARY 14, 2008**

The meeting was held at the Los Angeles County Museum of Natural History. President Larry Lovell opened the business part of the meeting by thanking Rick Rowe for organizing the successful December meeting, and he thanked everyone who attended.

Larry gave us an update from Ken Smith's group; they have reels of time-lapsed photography from deep Station M that they plan to digitize and then possibly submit to MorphBank.

We discussed the printing of the SCAMIT Species List Edition 5. The Los Angeles County Lab has printed it in-house, and Cheryl Brantley commented that it's about twice as large as Edition 4.

We have a new contact person at Cabrillo Museum, Dr. Julianne Kalman. She works on parasitic copepods of trawl-caught fish, and she is receptive to hosting a SCAMIT meeting at the Museum.

There was a discussion about the possibility of having training workshops. Some members at Orange County are interested in receiving advanced taxonomic training. Larry talked about the aging cohort of taxonomists, many of who will be retiring in the next few years, and the need for training younger taxonomists. One option for training classes is to have two SCAMIT meetings per month where one meeting would be specifically for training purposes. The challenge is to recruit people to do the training since most people are very busy with their own jobs and/or consulting projects.

Leslie talked about a recent conference she attended in Monterey, Mexico, and she observed many young, eager taxonomists who are looking for work in polychaete taxonomy. She sees this as a viable source of next generation taxonomists. The question was asked if anyone knew of other taxonomists in Mexico who are interested in working on non-polychaete groups.

We discussed the new sediment quality objectives and the idea of a taxonomic certification program. Larry said that England already has such a certification program, as does the North American Benthological Society. We reiterated a point we all know; good quality taxonomy produces good quality data. Tony commented that for the upcoming Bight '08 and Bight '13

**UPCOMING MEETINGS 2009**

**March 9 & 10. LACMNH. 9:30-3:30.** A two day review of Cumacea by Drs. Les Watling and Sarah Gerken. Once again a review of that chapter in Light and Smith's Manual will be part of the meeting. Bring any specimens you are having difficulty IDing from Bight '08 samples

**April date TBA. LACMNH. 9:30-3:30.** Dr. Regina Wetzer, is hosting a peracarid meeting at Catalina Island in early April. There will be several experts in various peracarid groups attending and Leslie Harris will be arranging a SCAMIT meeting with one of them. Further information will be forthcoming as a date and topic are determined.

**May 11. SCCWRP. 9:30-3:30.** The database group will be meeting again to report on and discuss progress and direction on the taxonomic database. Dawn Olson and Wendy Storms will provide a report on their development work with Katja Seltmann.

**May 26. Orange County Sanitation Districts. 9:30-3:30.** Discussion of cirratulids, a long overdue topic, will finally begin. We will begin with a review of the following genera; *Cirratulus*, *Cirriformia*, *Protocirrineris*, and *Timarete*. Tony Phillips will be leading the meeting. Bring your voucher specimens, voucher sheets, and literature to the meeting for a complete review on these genera.



projects there will be fewer and fewer qualified taxonomists unless we can recruit and train new taxonomists soon. Rick pointed out the benefits of online training and how it could attract more people and be more accessible.

Don Cadien is working on a proposal for financial support for taxonomic training. He is modeling his proposal after the Southeast Training Center, which has been in operation for approximately 8 years.

Tony Phillips gave an update from the Bight '08 meeting. There will be a total of 360 grabs taken during the survey. There was a discussion of the availability of taxonomists and how to proceed with QA/QC. Leslie Harris offered to perform the QA/QC on all the polychaetes instead of every polychaete taxonomist exchanging samples with each other.

With the business portion of the meeting complete, we got to the taxonomic purpose of the day. Leslie led the discussion which reviewed the Annelida chapter of the new Light and Smith's manual authored by Jim Blake and Gene Ruff. She commented that there are species limitations due to the geographical range covered. The annelid chapter is expanded considerably from the previous edition with inclusion of information and species that were presented in the MMS Atlas Series chapters by Blake and Hilbig. It contains good introductory sections reviewing the general morphology, collection and preservation, dissection of jaws, mounting of parapodia, staining, the fauna and the keys, and a glossary of terms with definitions. There is an illustrated key to the polychaeta families, followed by a brief review of the meiofaunal families. The macrofaunal and epifaunal family sections, with a review of each family including an illustrated key to the species, are then presented. The following comments to these families were made:

**Aphroditidae:** SCAMIT agrees that *Aphrodita parva* may be a juvenile of *A. japonica* and that *A. japonica* is a "catch-all" species name. Los Angeles County Sanitation Districts and Hyperion Treatment Plant labs use "*A. japonica* complex".

**Polynoidae:** Kristian has commented to Leslie that he believes *Halosydna brevisetosa* and *H. johnsoni* are separate species. *H. johnsoni* is distinguished by having brown stripes. Leslie said that there are 6 species in Japan that key out to *Harmothoe imbricata*. *H. imbricata* is a species complex and Imagima talks about plasticity in reproductive mode. We also see a variety of pigmentation in this species complex. Leslie uses "*H. imbricata* complex". *Lepidonotus squamatus* is listed, but not *L. spiculus*, which Leslie finds is the most common *Lepidonotus* in San Francisco Bay. *Malmgreniella macginitiei* could be a number of different species.

**Pholoidae:** Blake states that *Pholoe glabra* was misidentified in part as *P. tuberculata* in the previous edition. Leslie doesn't think we get *P. tuberculata* here, and we're not sure what Blake means by "in part" in this case.

**Sigalionidae:** *Sthenelais berkeleyi* can easily be distinguished from *S. fusca* by a "thickly papillated ventral surface". It was suggested that we need a SCAMIT meeting on *Sthenelais*.

**Pisionidae:** Leslie uses *Pisione* spp; the setae are very fragile and difficult to examine. However, there are several different species.

**Phyllodocidae:** The dorsal cirri pictured for *Clavadoce splendida* do not match those in Hartman. Leslie has examined the type specimen and all but 2 dorsal cirri were missing. We questioned the occurrence of *Eteone balboensis*. We accept the synonymy of *Eulalia aviculisetata* with *Eulalia quadrioculata* for now. Leslie believes there are up to 4 species with a combination of different characters and intermediates. Leslie has not seen true *Eulalia viridis* or *Eumida sanguinea* in San Francisco Bay or anywhere else.

**Hesionidae:** We agree with the synonymy of *Micropodarke amemiyai* with *Micropodarke*



*dubia*. With regards to our local species, Leslie is not convinced it's *M. dubia*, and she uses *Micropodarke* sp.

**Syllidae:** *Myrianida pachycera* is a new species for SCAMIT. Arne synonymized *Autolytus* and *Myrianida*. The color patterns for *Amblyosyllis* spp are species diagnostic. SCAMIT's *Amblyosyllis* sp A is the same as Dorsey's old *A. speciosa*, which matches Figure D in Imajima. *Ehlersia* should now be included as a junior synonym under *Typosyllis*. Licher put *Typosyllis pulchra* into synonymy with a European species.

**Nereididae:** We have not recorded *Neanthes limnicola* in S. California. Although Blake synonymizes *Nereis mediator* with *Nereis grubei*, Leslie suggested that we should look at material from Chile before we accept the synonymy. *Nereis pelagica neonigripes* should be elevated to species level. SCAMIT uses *Nereis* sp A instead of *N. procera*.

**Goniadidae:** SCAMIT follows Böggemann. We question the occurrence of *Goniada brunnea* since it is normally a deeper water species.

**Nephtyidae:** We don't agree with the synonymy of *Aglaophamus neotenus* with *Nephtys cornuta*. Larry has examined the types of *N. parva* and found them to be *N. cornuta*. It is not known whether *N. parva* is valid or not.

**Eunicidae:** Leslie believes that *Marphysa sanguinea* is a true cosmopolitan species.

**Dorvilleidae:** We do not distinguish between species of *Dorvillea* and have agreed to use sp.

**Oeonidae:** We do not distinguish between species of *Arabella* and have agreed to use sp.

**Orbiniidae:** *Scoloplos armiger* should be "*Scoloplos armiger* complex".

**Paraonidae:** We use *Aricidea* sp A instead of *A. ramosa*.

**Spionidae:** We follow the recent work of Yokoyama (2007) and use the name *Paraprionospio alata* instead of *Paraprionospio pinnata*. Blake synonymized *Polydora ligni* with *Polydora cornuta* although there is still some controversy about whether they are two separate species. Leslie uses "*Spiophanes bombyx* complex"; Messner has found four different forms of *S. bombyx*. We don't use *Rhynchospio glutaea* in S. California, choosing to follow Radashevsky (2007) and use *R. arenicola*. Our specimens of *Spio filicornis* do not fit this description; we probably get an undescribed species. The occurrence of *Spiophanes kroeyeri* is questionable because it's usually found in deeper water. We noted the absence of *Spiophanes kimballi*, which might represent the *S. kroeyeri* material.

**Chaetopteridae:** We disagree with the synonymy of *Spiochaetopterus costarum* with *S. pottsi*. *S. pottsi* is from British Columbia and Leslie showed us an image of *S. pottsi* with its distinct pigment pattern.

**Cirratulidae:** Our *Aphelochaeta* sp SD2 is the same as *A. elongata*. *Caulleriella hamata* is questionable. Our *Chaetozone hedgpethi* is probably something different. Leslie commented that only large specimens of *Cirriformia moorei* can be identified confidently.

**Cossuridae:** The depth range listed for *Cossura rostrata* was questionable. There seems to be some confusion with the depth ranges of *C. rostrata* and *C. candida*.

**Ctenodrilidae:** Leslie has seen Ctenodrilidae that are red and also other colors; however, within the same population all worms are the same color.

**Flabelligeridae:** Sergio Salazar-Vallejo is publishing a paper on Flabelligerids. He's splitting up some species and will be describing some new species.

**Acrocirridae:** Sergio is also working on this family and will be making some modifications.

**Opheliidae:** Leslie believes there is more than one species of *Polyophthalmus*, so she uses *Polyophthalmus* spp complex.

**Capitellidae:** The occurrence of *Dasybranchus lumbricoides* and *Heteromastus filiformis* are questionable. Leslie commented that there are many undescribed species of *Mediomastus*. *M. acutus* is a good species, but the others listed are questionable.



**Maldanidae:** *Axiothella rubrocincta* is a species complex.

**Sabellariidae:** SCAMIT uses *Neosabellaria cementarium* following Kirtley (1994), instead of *Sabellaria cementarium*.

**Ampharetidae:** Leslie prefers to use *Mugga* sp A instead of *M. wahrbergi*.

**Terebellidae:** *Lanice conchilega* is described from the Netherlands. Leslie feels we get something different here, so she uses *L. sp A. Nicolea zostericola* is described from the east coast, and Leslie prefers to use *N. sp A*. Leslie disagrees with *Proclea graffi*. Leslie requested good specimens of *Proclea*, *Lanassa venusta venusta*, and *L. gracilis* for study at the Museum.

**Sabellidae:** We use *Myxicola* spp or *M. sp A* for our local species.

### 11 FEBRUARY 2008

The meeting was held at SCCWRP. President Larry Lovell opened the meeting by announcing upcoming meetings. He then opened the floor to nominations for election of officers for the 2008-09 year. Don Cadien nominated the current officers; Tony Phillips seconded the nomination. Hearing no other nominations, Larry closed the nominations.

Wendy Storms gave an update on her progress converting the Excel Ed 5 species listing into Access. She is making good progress and has run into limited problems so far. The group then discussed how we should next proceed, our priorities, and timeframes. Larry presented the idea that as a volunteer organization there is a lack of available time to devote to this project. He suggested that we secure funding for this effort so that consultants could be hired to speed up the process. The group agreed and several avenues of funding were discussed with persons volunteering to pursue them. Next Rick Rowe briefly presented his idea of a taxonomic bench sheet that could be derived from the taxonomic database. He sees such a tool as being a valuable aid to sample processing. Ananda Ranasinghe then discussed having the database function as the source for P-codes with a field on the species page for such. We reviewed the Visio diagram outlining the original conceptual design for the database to reassess our priorities. It was decided that our efforts should be concentrated on preparing and organizing old newsletters, voucher sheets, and training documents as well as securing funding.

After lunch we continued our discussion regarding direction and progress. Fund sources were a primary topic with Larry presenting an idea that came from William Van Peeters (Federal Highways) for approaching Federal agencies for funding. Bill suggested that we come up with a demonstration unit that could be presented. It would be needed by April/May and to be presented in June near the close of the current fiscal year. Larry has also been in discussion with Russ Moll at Sea Grant regarding grant funding. There are two grant options available with Sea Grant: small up to \$10,000, and large up to \$100,000. Several members suggested that the POTW's should be asked for funding support since their labs will directly benefit from the database.

The meeting ended with all present presenting an action item they would work on for the next meeting. Those items are presented below. The next meeting was scheduled for April and would be held at SCCWRP again.

Action Items from the February 2008 SCAMIT Database Meeting:

Cheryl Brantley – will check on the status of a project which is digitizing older, archived SCAMIT newsletters.

Wendy Storms – will keep working on getting the SCAMIT Species List into an Access database. She will also create some demo queries for people to test.

Larry Lovell – will talk to Katja at Morphbank as well as Dave Montagne and Steve Weisberg,



about finding funding for ongoing SCAMIT database projects.

Rick Rowe – will work with Wendy on the database.

Shelly Walthers – will scan the database visiograph and notes and post them to the Google Group.

Dawn Olson – will start organizing the Taxonomy Training Resources and be a liaison with Katja at Morphbank with regards to technical discussions.

Don Cadien – will provide Wendy Storms with feedback on her current efforts at databasing the SCAMIT List; will provide Wendy with an “emend” spreadsheet, and will talk to Moss Landing about funding.

Tony Phillips – will talk to Scott and Sheila about funding.

Dean Pasko – will talk to the S. Cal POTW’s about funding.

Nick Harking – will try to find some local funding; potentially City of San Diego.

Ananda Ranasinghe– will add Nick to the “batman” list; will coordinate P-codes with Wendy.

Veronica Rodriguez – help create descriptors and terms for the Morphbank site, which will make up loading our images easier. She will post these to the Google Group.

Megan Lilly – will write up the minutes of the meeting.

### 18 MARCH 2008

The meeting was well attended: Don Cadien, Lisa Haney, and Larry Lovell from LACSD; Jim Roney and Tony Phillips from Hyperion; Dean Pasko and Ken Sakamoto from OCSD; Ron Velarde from CSD; D. Christopher Rogers from Ecoanalysts; and Dot Norris from the City of San Francisco.

Larry opened with announcements regarding the status of Ed. 5, upcoming meetings including the Second Joint SAFIT/SCAMIT Workshop on Estuarine arthropods in June, his trip to the morphbank meeting in Florida, and the upcoming SCAS meetings. Larry discussed the possibility of SCAMIT having a presence at SCAS via a SCAMIT information table and to show case a new SCAMIT poster (courtesy of Leslie Harris). The possibility of the creation of a calendar by Leslie was also raised. Larry indicated that it might be beneficial for SAFIT to share our table, and for the two organizations to present a united front at the SCAS meetings. He then turned to Christopher Rogers, SAFIT Vice-President, to have him report on the current status of the SAFIT organization. It was reported that Non-Profit paperwork had been completed, and the organization was now able to solicit membership. Larry passed around SAFIT membership forms, which were grabbed by several of the participants.

Don Cadien was asked to report on the SCUM XII meeting in January, and the Joel Hedgpeth Memorial gathering at SIO on the 8<sup>th</sup> of March. After these reports Don also mentioned some new web-based literature resources. The first was the on-line availability of Mary Wicksten’s long awaited Decapods of California volume. This is available on-line at <http://repositories.cdlib.org/sio/lib/26> for free download. Mary had been having difficulty in getting such a large work printed, so the on-line availability circumvents that problem. After we have all had a chance to work with the tome for a while, we will consider it at a future SCAMIT meeting. The goal of such examination is, as in the past, the locations of differences from agreed SCAMIT nomenclatural approaches, editorial review, and preparation of a feedback letter to the author. Christopher Rogers has already found a number/typological problem in the pagurid key which makes all couplets after 15 inaccessible. Such issues can be resolved once recognized, and we will attempt to find and remedy all such inadvertent errors during our review. The scope of this volume is far greater than that of the recently released Decapoda portion of the new Light and Smith Manual. It will be instructive to evaluate both of these new resources side-by-side to see where the



respective authors provide different views of the current state of decapod taxonomy in California.

The second new web-based offering is through a newly established isopod site, <http://www.marinespecies.org/isopoda> which will be edited by a group of international experts on individual groups. One of the items made available on this new site is a complete set of pdfs of the Kussakin five volume monograph on North Pacific isopods. These are not widely available in the west, and although in Russian, are extremely valuable (read indispensable) tools for any isopod taxonomist.

We then pushed on to the meeting topic. Don handed out two additional documents (attached to this NL) to supplement the three superfamily documents at issue (Bogidelloidea, Hadzioidea, and Melphidippoidea) available in the Taxonomic Tools section of the SCAMIT website. Paper copies of these three were made available to those who had not already downloaded them before the meeting. Comments on the documents were solicited in the hope that some of the errors which inevitably creep in to such reviews had been detected by the audience. None were received at the meeting, but hopefully they will come in later. As errors, new species, and omitted old species are detected, the documents will be revised to include them. One such revision had already taken place in the Hadzioidea, so the distributed hard copies were more comprehensive than those down-loaded from the SCAMIT Web-site (the revised version will soon be posted). This revision reflected the addition of another species to the NEP fauna, *Bathyceradocus wuzzae*, from hydrothermal vent areas off Washington and Oregon.

After going over some of the major features of the group, and examining our first specimen, we broke up and circulated among three microscope stations to view the materials prepared for the meeting. The first specimen referred to was a *Paraceradocus miersi* taken by trawl from off King George Island in the South Shetland Islands off the end of the Antarctic Peninsula. This is a rather large animal, so it was passed around during the exposition on the group. The specimen is about 2 inches long and fully intact with both antennae and the magniramous third uropods (many thanks to SCAMIT Webmaster Jay Shrake for provision of the specimen).

In addition to the material listed in the attached examined species list, Dot Norris had brought down specimens and a voucher sheet for a provisional taxon from the San Francisco Lab, *Melphisana* sp SF1. Since melphidippids were on the menu, this was a delightful addition. Examination of the voucher sheet, a very nice microphotograph of the telson, and eventually the specimens, showed that it was not a melphidippid but rather a dexaminid. After considerable searching through the available literature it was decided that *Melphisana* sp SF1 was actually the same as *Paradexamine* sp SD1. Several persons pursued this further while other specimens were being examined, eventually concluding that *P.* sp SD1 and *M.* sp SF1 were similar to *P. pacifica* as noted initially by Dean Pasko on his sheet for SD1. This intersected nicely with recent requests to evaluate records of exotic peracarids in California received from Dr. Paul Fofonoff of the Smithsonian. He provided notes on other *Paradexamine* species in California. Don Cadien continued to pursue this after the meeting and the result is presented elsewhere in the Newsletter (see "Consideration of *Paradexamine* spp. in the NEP").

Several misidentified lots were detected during the examinations. The most interesting of which were specimens of *Gibberosus* from the Gulf of California supposedly representing both *G. myersi* and *G. falciformis*. They had been separated from a single light-trap sample taken at Bahia Kino on the mainland side of the Gulf by Todd Haney and Dave Jacobs. The characters which had been used in the separation; eye shape/size/color, telsonic setation, and structure of



the third epimeron proved to be less reliable than thought when other characters were evaluated. These included the structure of the elongate spines on the distal segments of P3 and P4, which are variously simple, clavate, and hooded in different *Gibberosus* species. Jim Roney noted an additional character involving the end of the rami of the third uropods which proved highly diagnostic. The identity of the two lots as separated was incorrect, but consistent. Those identified as *G. myersi* proved to be *G. falciformis*, and those identified as *G. falciformis* proved to be yet another undescribed *Gibberosus* from the species complex. Comparison with locally collected specimens of *G. myersi* provided by Ron Velarde from San Diego helped clarify the differences between the species examined. We also had specimens of *Gibberosus devaneyi* from the northern Channel Islands for comparison (also from Haney collected light trap samples). Fortunately neither the new species nor *G. falciformis* appear in local POTW sampling. We must be cautious, however, because Dean Pasko has seen what he believes to be *G. falciformis* in some samples from within San Diego Bay. It appears that the four taxa can be reliably separated on the structure of the rami of the third uropods, but more material from a wider area should be examined. Unfortunately third uropods in megaluroides are deciduous and if subjected to rough handling, are lost. It remains for the future to sort out other characters which can be relied upon to separate these closely related *Gibberosus* taxa if the third uropods are absent. Until then consider the following key based on third uropods:

1. Uropodal rami lanceolate, spinose on both mesial and lateral borders *Gibberosus devaneyi*  
Uropodal rami flabellate, spinose only on lateral border.....2
2. Uropodal rami broadly flabellate, bearing a minute setule distally, which barely indents the margin.....*Gibberosus myersi*  
Uropodal rami narrowly flabellate, bearing a distal invagination with a single large seta, or a complex morphology.....3
3. Uropodal rami with a narrow invagination bearing a single well inserted seta.....*Gibberosus falciformis*  
Uropodal rami bearing a complex invagination which expands basally, and bears a basal central protrusion which terminates in two recurved cusps, each bearing small seta .....  
.....*Gibberosus* sp GC1

When examining NEP megaluroides one must remember that there are several other genera which may occur; *Resupinus*, and the new genus represented by Megaluroides sp A SCAMIT 1987. Both can be separated from *Gibberosus* by lacking a sharp anterior cusp on the ocular lobe of the head.

Ron Velarde brought specimens of Megaluroides sp A SCAMIT, which were not examined due to time constraints. The distributed voucher sheet for this animal is quite adequate for distinguishing it from other megaluroides in the area.

Specimens listed in the materials examined as *Quadrimeaera reishi* proved to be *Maera bousfieldi*, so no specimens of *Quadrimeaera* were examined during the meeting. Specimens identified as *Elasmopus antennatus* proved to be several species, and were not fully resolved by the end of the meeting. The specimens of *Melita* sp A Cadien examined turned up an error in the key to *Melita* provided on pg. 20 of the review of the Superfamily Hadziioidea. Couplet 4 of that key should be revised to read:





“Urosomite 1 bearing three marginal teeth; urosomite 2 lacking marginal teeth, but bearing a pair of lateral recurved teeth; one on each side.....sp A

Urosomite 1 marginally smooth; urosomite 2 with or without teeth or spines .....5”

Thanks to Christopher Rogers who called the lateral teeth on the second urosomite of this species to our attention. These lateral teeth are curved upward towards the dorsum, and bear a seta on their concave side. A revision will be posted to the website, so only those who have downloaded a hardcopy of the key need modify it.

### 7 APRIL 2008

The April monthly SCAMIT meeting was held at the Cabrillo Marine Aquarium (CMA) in San Pedro, CA. SCAMIT has held many meetings at CMA in the past, but it has been several years. Since that time, CMA has a new building; the Aquatic Nursery and the Exploration Center on the ground floor, and a research library and administration offices on the second floor. The meeting was held in the library. This meeting space is very nice with a large monitor for presentations that was also hooked up to a video camera attached to a dissecting microscope for specimen display. This new, very accommodating space should be utilized as a venue for future meetings.

President Larry Lovell opened the meeting with business of the organization. He announced the upcoming meeting schedule noting that meetings in August, September, and October are likely to involve an intercalibration taxonomic review of Edition 5 of the SCAMIT species list by those who will participate in the Bight '08 program. Then he provided an update on the activities of the Taxonomic Database Committee. The Committee had met on April 1<sup>st</sup>. At that meeting Wendy Storms gave an update on her progress on converting Edition 5 of the species list into Access. She will be incorporating final changes and additions by the end of April and have a final version of the database to present at the next meeting on June 3<sup>rd</sup>. Edition 5 of the species list, including index, will be generated from the database and distributed to members by the end of June. Larry and Wendy have been invited to attend the Morphbank Usability and Ontology Workshops May 1-4 at Tallahassee, FL. Their attendance will further develop the relationship between Morphbank and SCAMIT and continue SCAMIT's interaction with Katja Seltmann at Morphbank. Next he announced that SCAMIT Newsletter Volume 25 Number 8 was now posted at the website and those receiving hardcopies would get them soon. He reminded everyone that the Southern California Academy of Sciences is holding their annual meeting May 2<sup>nd</sup> and 3<sup>rd</sup> at Cal State Dominguez Hills. Larry has been discussing with the officers that there should be a SCAMIT outreach table at this meeting. He will be checking with SCAS officers regarding this possibility.

Don Cadien announced his receipt of a new mollusk publication entitled “Phylogeny and Evolution of the Mollusca” edited by Winston F. Ponder and David R. Lindberg. It contains seventeen articles covering all mollusk groups produced by a notable list of experts in the field of mollusk research. It is available through UC Press or, as noted by Don, at Amazon.com.

The program was then turned over to Dr. Julianne Kalman for her presentation on parasitic copepods. Dr. Kalman opened with a review of her own history with copepods beginning when she took a class from Dr. Ho at CSULB during her Bachelors program. She did her Masters thesis on the copepod fish parasites of Santa Monica Bay working closely with Dr. Mas Dojiri and utilizing specimens collected by the Hyperion Treatment Plant Environmental Monitoring Division. She went on to get her Ph.D. at UCLA under Dr. Don Buth. Her dissertation took an expanded look at a broader range of fish parasites. The material for her research came from the



Bight '03 program. She did much of her work during her tenure as an intern at OCS D.

She then turned her attention to the major scientists who have worked in the field of parasitic copepod systematics and reviewed their major publications. Giants in the field include these four, Dr. Ho at CSULB, Dr. Humes (deceased) at Woods Hole, Dr. Kabata at the Pacific Biological Station in British Columbia, and Dr. Boxshall at the Natural History Museum in London. Major publications include Boxshall and Halsey (2004), Huys and Boxshall (1991), and Kabata (1979). In addition, there is a NOAA parasite-host checklist produced by Love and Moser (1983) that is useful.

Dr. Kalman then presented an overview of copepods as a group, including the varied habitats where they may be found and their morphology and reproduction. Most parasitic copepods occur as ectoparasites, but some are endoparasitic (typically on invertebrates). Parasitic copepods are found in two of the nine orders within the class Maxillopoda, Cyclopoida and Siphonostomatoida. Mandibles are the primary taxonomic character. She reviewed the local species of parasitic copepods, providing host information and infection sites and general illustrations of the copepod body including key taxonomic features.

The small but interested group broke for a great lunch provided by CMA and a post lunch tour of the Exploration Center, main Exhibit Hall, and invertebrate/fish collections area. Dr. Kalman is in charge of curating all collections and has great plans for rearranging the collection in the current and new space. She plans to make the collections database available via a website so that knowledge of the holdings is accessible to researchers and students.

After lunch and the tour, we were shown specimens of many of the local parasitic copepods she had referred to earlier in the day. The specimens came from a variety of host sources, but all were all from the southern California area.

This was the first meeting SCAMIT has had at CMA in many years. CMA staff is interested in providing this new meeting space for SCAMIT meetings. Members who attended were very impressed and hope to return there soon.

#### **MEETINGS OF INTEREST**

Speaking in current time again (Feb 2009), the Annual WSM meeting will be held at Cal State Fullerton this summer. Please see the attached flyers for more details.

#### **LILJEBORGIIDAE KEY**

Please see the attached key to the Lilliborgiidae produced by Dean Pasko and Don Cadien.

#### **NEW LITERATURE**

At the January meeting Don Cadien had graciously resumed his habit of bringing new literature to the attention of attendees. Below are the articles he shared.

Hietanen, Susanna, Laine, Ari O., and Lukkari, Kaarina. 2007. The complex effects of the invasive polychaetes *Marenzelleria* spp. on benthic nutrient dynamics. *Journal of Experimental Marine Biology and Ecology*. Vol 352:89-102.



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The SCAMIT newsletter is published every two months and is distributed freely to members in good standing. Membership is \$15 for an electronic copy of the newsletter, available via the web site at [www.scamit.org](http://www.scamit.org), and \$30 to receive a printed copy via USPS. Institutional membership, which includes a mailed printed copy, is \$60. All new members receive password protected website access to the most current edition of "A Taxonomic Listing of Soft Bottom Macro- and Megainvertebrates ... in the Southern California Bight." All correspondences can be sent to the Secretary at the email address above or to:

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## CONSIDERATION OF *PARADEXAMINE* SPP IN THE NEP

Many years ago SCAMIT noted the introduction of a species of *Paradexamine* to Catalina Island. This was first based on collections of specimens by NMFS through Tony Chess. Don Cadien examined these and concluded they were *Paradexamine*, and definitely introduced, but did not characterize them further than genus. The animal was reported by various monitoring agencies in the SCB before long, usually collected in embayments such as San Diego or Mission Bays, or in harbor complexes. It was only rarely encountered in open coastal samples. Eventually Dean Pasko prepared a voucher sheet on the animal, giving it the designation *Paradexamine* sp SD1 Pasko 1999. At the time he noted similarities to *P. pacifica* Thompson 1879, a species known from subtidal collections in New Zealand. This is a good ecological match for the California occurrences of *Paradexamine*, which are generally associated with algal growth on rocks or artificial substrates. Dean noted several points of difference from the described species in the material at hand, however, and maintained the provisional status of the taxon.

Since *Paradexamine* is a speciose genus, with 33 morphotypes worldwide (distributed among 28 nominate taxa - the rest being inappropriate use of established names for undefined species of differing morphology see J. L. Barnard 1972) we have not previously attempted further identification. Recently others have applied other names in the process of identifications of taxa outside of the SCB area. During regional WEMAP, ISS and other efforts the following nomenclatural uses have been introduced; *Paradexamine* sp (in Chapman 2007), *Paradexamine churinga*, and *Paradexamine* cf. *churinga*. According to the current draft NEMESIS introduced species compilation these three are synonymous and can be combined. I would submit that it is highly likely, given the potential for coastal transport in the areas between San Diego and San Francisco, that this is the same taxon as *Paradexamine* sp SD1 in the SCB. It remains possible that there have been multiple introductions, with several exotic members of the genus present in the NEP. This will only be resolved if more detailed taxonomic description of the northern recorded form becomes available. A voucher sheet for *Paradexamine* sp SD1 exists, has been distributed through SCAMIT to member agencies, and can be made available to other interested parties. This describes a sufficient number of character states that we can reject many (but not all) of the described species as being equivalent.

At a recent SCAMIT meeting specimens of a form provisionally reported as *Melphisana* sp SF1 were examined. These come from the area where *Paradexamine* sp/*churinga*/cf. *churinga* has been reported. Examination of the material during the meeting showed it to not be a melphidippid, but a dexaminiid which could not be separated from *Paradexamine* sp SD1. If the examined specimens represent the form found in the San Francisco area and reported as sp/*churinga*/cf. *churinga*, specimens so reported are equivalent to sp SD1 of SCAMIT member agencies.

The genus was most recently discussed in detail world-wide by J. L. Barnard (1972), where he listed the 33 morphotypes mentioned above. Since that time ten additional species have been described in the genus, bringing the list of potential source populations to 43. Attempts are underway to relate the introduced *Paradexamine* to a source population. In the interim I propose that usage be unified on this coast, since all available data point to a single introduced taxon both south and north of Pt. Conception. I

further suggest that *Paradexamine* sp SD1 be that unified usage, as it is the only one of the current names applied which has a distributed (and further distributable) description base. Use of *P. churinga* is not appropriate for the specimens from southern California or the examined materials from San Francisco based on the structure of the telson and the ocular lobe of the head.

Chapman (2007) used an illustration of *P. frinsdorfi* to represent the introduced taxon he was seeing (supposedly the same as *P. churinga* and *P. cf. churinga*). *P. frinsdorfi*, however, has a different structure to the first urosomite than do the specimens examined in California, or *P. churinga*. These species have a single median tooth on the first urosomite, while *P. frinsdorfi* (illustrated on pg. 583 of Chapman 2007) has this median tooth flanked by a pair of lateral teeth. Specimens examined from the San Francisco area at the recent meeting will key properly to *Paradexamine* sp in the Chapman key, but will not match the illustration provided to represent the genus.

Many of the potential source populations for the NEP *Paradexamine* specimens can be eliminated by the morphology of those animals. The process of source identification continues, but species which can already be eliminated from consideration by their incompatible character states are listed below:

**ocular lobe of head bearing acute cusp**  $\neq$  *goomai, frinsdorfi, lanacoura, flindersi, otichi, maunaloa, ronggi, quarallia, muriwai, windarra, alkoomie, narluke, fissicauda, thadalee, dandaloo, churinga, echuca, bisetigera, mozambica, excavata*

**urosomite 1** (pleonite 4 of J. L. Barnard 1972 phyletic key) **with dorsomedial tooth only, not bearing flanking lateral teeth**  $\neq$  *goomai, frinsdorfi, lanacoura, flindersi, otichi, maunaloa, ronggi, quarallia, muriwai, windarra, alkoomie, narluke, mozambica, excavata*

taxa not excluded by these characters = *moorhousei, barnardi, marlie, houtete, linga, pacifica, orientalis, micronesica, gigas, setigera, fraudatrix, rewa,*

taxa not yet evaluated = *miersi, nana, sexdentata, pacifica* (ID of Nagata), *barnardi* (ID of Nagata), *flindersi* (ID of Nagata), *flindersi* (ID of Pirlot), *indentata, tafunsaka, serraticrus,*

Nearly half of the morphotypes have already been contraindicated as potential sources for the California specimens, but considerable work remains. Many of the remaining species are likely to differ in details of the terminal serration/spination/setation of the telson, which is the next character to be compared.

**INFRAORDER BOGIDIELLIDA** – a component of the old Gammaridae S. L.  
Don Cadien – SCAMIT Meeting 17 March 2008

I imagine that most of you are here just to try and find out what Bogidiellids are! None of our regional literature makes reference to members of the Family Bogidiellidae as part of our fauna, and the same is true of the Superfamily Bogidielloidea. Well, as you will learn today, we actually do have a member of the family within the bounds of the North East Pacific, but only at its southern most extent in Panama. There are also some family members in fresh waters further north in North America, but no marine or even brackish water representatives (as yet reported) on the Pacific Coast.

We are, however, richly supplied with members of the infraorder placed in two other superfamilies composing it, the Hadziioidea and the Melphidippoidea. Members of the first of these groups are common in the NEP, particularly in intertidal and rocky subtidal/piling/dock habitats, while members of the second are exclusively found on sedimentary bottoms. All three of these superfamilies, the entire content of the infraorder, are fragments of the old concept of Gammaridae *sensu lato*. Some would still prefer to see the old broader concept maintained, but its major proponent died a number of years ago. His contention was that it is impossible to exclusively diagnose all of the subdivisions here adopted, and that therefore they should not be used as formal nomenclatural units. He (this being, of course, J. L. Barnard) was perfectly comfortable with use of informal nomenclatural units to group together similar forms into more convenient (and considerably smaller) aggregations of species. He proposed many of the informal groups which have subsequently been formalized by others. Diagnoses of the superfamilies and their component families are now available and are included in your handouts. They are not entirely satisfactory, but represent the best that can currently be produced. There is no diagnosis of the Infraorder. As hierarchical levels become larger, and included forms more diverse, diagnosis becomes ever more difficult.

Rather than try to eke out a primitive diagnosis of the Infraorder, let us just accept it as offered here, with its only definition its contents. Using that approach a bogidielloidean is a member of one of the following families; Allocrangonyctidae, Hadziidae, Melitidae, Carangoliopsidae, Bogidiellidae, Melphidippidae, Hornelliidae, Megaluropidae, and Phreatogammaridae.

The materials distributed here are all available for download from the SCAMIT website in the Taxonomic Tools section. Hard copies are available for those who did not download the material prior to the meeting. Each of the three superfamilies comprising the Bogidiellida are represented in the handouts. They cover all marine forms known from the area (as far as I can tell) of the NEP between to Equator and the Aleutian island chain, and east of the middle of the Pacific Ocean. This coverage is meant to be inclusive enough that whatever any SCAMIT member finds anywhere in the NEP should be covered in the keys and species lists provided. New species are introduced into the area with frequency, however, and new species are described. As they are, these documents will be updated, hopefully maintaining full coverage.

Most of the species listed will not be encountered during the average POTW monitoring program, but anyone using these materials will be ready for anything new that shows up, or any expansion of regional monitoring, such as the current further expansion into coastal wetlands not previously monitored. Those of you who wish to use these keys

*Maera nelsonae* Krapp-Schickel and Jarrett 2000

Very uncommon on upper slopes in our area, and also ranging to the north. This would have been identified in the past as *Maera loveni*, so if old records of that animal exist in your databases, they should be reexamined. *M. loveni* is valid, and does occur in the northern reaches of the NEP, but reaches its southern limit at Puget Sound.

*Quadrinemaera reishi* (J. L. Barnard 1979)

Originally identified in 1959 as *Maera inequipes* of Costa from Newport Bay. It is likely that this species will be encountered in embayment samples during B'08. It is very similar to a second species, *Quadrinemaera carla* Krapp-Schickel and Jarrett 2000 which occurs to the north.

*Hornellia occidentalis* (J. L. Barnard 1959)

Originally described as *Metaceradocus occidentalis* from Newport Bay, this is an animal likely to be encountered in estuarine and perhaps even the wetlands sampling efforts undertaken in Bight '08.

*Gibberosus myersi* (McKinney 1980)

Found on shallow fine-sorted sandy bottoms. An active swimmer, it is often taken in light-trap samples. Difficult to distinguish from its congener *G. devaneyi*, which is largely sympatric but occupies a slightly differing niche. If the third uropods are on the animal the distinction is clear, but in their absence it becomes quite difficult to distinguish the two species.

*Gibberosus devaneyi* Thomas and J. L. Barnard 1986

Generally less commonly encountered in the SCB than *G. myersi*, although locally common. Usually in even shallower fine sand bottoms than *G. myersi*, and perhaps even into the intertidal. Like *G. myersi* an active swimmer. Specimens for examination are from light trap samples in the Northern Channel Islands.

*Gibberosus falciformis* J. L. Barnard 1969

Not distributed in the SCB, these specimens are from the Gulf of California. They were collected in a mixed population with *Gibberosus myersi* by light trap sampling. This species is provided to show the small differences that allow discrimination of species in this genus in the NEP. Compare with the *myersi* specimens and you will find differences in the eye, in the eyelobe, in the telsonic spination, and in the ornamentation of the third epimeron.

*Melphisana bola* J. L. Barnard 1962

Carried in the past as part of the *Melphisana bola* complex on the SCAMIT Ed. 4 list due to variability in the telson, and possible confusion with *Melphidippa amorita* on that character. The two genera can, however, easily be distinguished on the basis of the accessory flagellum, and we no longer need to maintain the complex designation. The telsonic variability still remains, and still creates difficulties in the absence of the



## LIST OF BOGIDIELLOID MATERIAL FOR EXAMINATION DURING 17 MARCH MEETING

### *Paraceradocus miersi* Pfeffer 1888 – 1 large male

This species is known only from the southern ocean. This specimen was taken by trawling near King George Island in the South Shetland group, off the end of the Antarctic Peninsula. It is out for examination because it shows some of the common features of animals in this group, and is extraordinarily large...to assist in viewing.

### *Elasmopus antennatus* (Stout 1913)

The species is quite common in fouling communities in bays throughout southern California, but does not stray much from that habitat.

### *Elasmopus bampo* J. L. Barnard 1979

Also taken in quiet waters like its congener above, but more commonly on soft bottoms than in fouling communities.

### *Desdimelita desdichada* (J. L. Barnard 1962)

Found not infrequently in bottom samples from areas bearing or near to areas with rocks. The animals live in association with algae, but can easily be dislodged and transported onto soft bottoms. They may also be found on the algae associated with polychaete tube caps such as *Diopatra* on soft bottoms. In any case they are a constituent of our benthic samples from time to time.

### *Melita nitida* Smith 1874

This is an introduced species normally ranging in the northwest Atlantic. It is not uncommon in fouling communities in some parts of Central California, and has been taken in the San Gabriel River tidal prism here in southern California. It is not likely to be taken offshore, but it is best to keep ones eyes open.

### *Melita* sp A Cadien 2007

Probably not to be encountered in the SCB as yet. Currently known only from a few sites in Central California. A close match grossly to *M. oregonensis*, but differing in detail. Points up the necessity for close examination of these animals, and the probability that additional cryptic sibling species will be encountered in future.

### *Maera jerrica* Krapp-Schickel and Jarrett 2000

A common constituent of open coastal soft bottom samples within the SCB, originally identified as the following species as one of its two forms. This form was elevated to specific level by Krapp-Schickel and Jarrett in 2000. The two differ in detail, but are very close in overall appearance.

### *Maera similis* Stout 1913

Also occurring in the literature as *Maera simile*, but *similis* is the correct orthography. Another shallow water form we will probably encounter in Bight '08 samples.

*Maera nelsonae* Krapp-Schickel and Jarrett 2000

Very uncommon on upper slopes in our area, and also ranging to the north. This would have been identified in the past as *Maera loveni*, so if old records of that animal exist in your databases, they should be reexamined. *M. loveni* is valid, and does occur in the northern reaches of the NEP, but reaches its southern limit at Puget Sound.

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# Key to the species of the Liljeborgiidae recorded by SCAMIT

Dean Pasko, September 2006 (rev. 10/24/08)  
(Adapted from Barnard 1959, and Cadien 2006)

- 
1. Gnathopod 1 larger than gnathopod 2..... *Idunella*<sup>1</sup>  
— Gnathopod 2 larger than gnathopod 1..... 2
2. Article 5 of gnathopods 1 and 2 weakly produced, thick, blunt, and not produced along posterior margin of article 6; outer ramus of uropod 3 bi-articulate .....(*Listriella*) .. 3  
— Article 5 of gnathopods 1 and 2 strongly produced, slender and elongate; outer ramus of uropod 3 simple (uni-articulate) ..... (*Liljeborgia*) .. 10
3. Pigmentation and eyes absent..... *Listriella albina* Barnard 1959  
— Pigmentation and eyes (pigmented or not) present ..... 4
4. Antennae 1, article 2 with pigment distally ..... 5  
— Antennae 1, article 2 without pigment distally..... 6
5. Antenna 1, article 2 distinctly shorter than article 1 ( $\leq 2/3$  the length of article 1), accessory flagellum approximately equal to flagellum article 1, flagellum article 1 subequal to article 2; pereonites 2–5 typically darkly pigmented; epimeron 1 rounded (female) or sub-acute (male); male gnathopod 2 strongly oblique with blunt distal process..... *Listriella melanica* Barnard 1959  
— Antenna 1, article 2 subequal to article 1 ( $\geq 3/4$  the length of article 1), accessory flagellum approximately one-half of flagellum article 1, flagellum article 1 about one-third longer than article 2; pereonites 2–5 typically diffusely pigmented with characteristic thin band of pigment along posterior margins; epimeron 1 posterior margin sinuous, sub-acute distally (male & female); male gnathopod 2 oblique, slightly convex ..... *Listriella goleta* Barnard 1959
6. Epimeron 3 notched..... 8  
— Epimeron 3 without notch (distal tooth present/absent) ..... 7
7. Head with pigment; epimeron 3 rounded, tooth absent; uropod 3 outer ramus approximately one-third of inner ramus ..... *Listriella eriopisa* Barnard 1959 (in part)  
— Head without pigmented; epimeron 3 with distal tooth; uropod 3 rami subequal .....  
..... *Listriella* sp A SCAMIT 1987§

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<sup>1</sup> Not reported by SCAMIT as of date of this key.

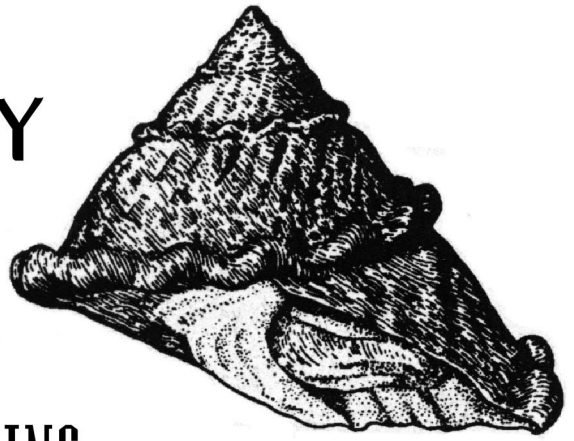
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8. Uropod 3 outer ramus approximately one-third of inner ramus.....  
.....*Listriella eriopisa* (juveniles)  
— Uropod 3 rami subequal..... 9
9. Antenna 1 accessory flagellum approximately one-half of flagellum article 1, flagellum article 1 about one-third longer than article 2; antenna 2 reaching slightly beyond gnathopods; uropod 2 rami reaching end of uropod 3 peduncle; rami of uropod 3 elongate, narrow .....*Listriella sp SD1* Pasko 2001§  
— Antenna 1 accessory flagellum approximately equal to flagellum article 1, flagellum article 1 subequal to article 2; antenna 2 reaching just reaching gnathopods; uropod 2 rami extending to end of uropod 3 rami; uropod 3 rami broad, tear-drop shaped (male) to slightly broadened proximally and tapering distally (female)*Listriella diffusa* Barnard 1959
10. Telson cleft nearly to base, lobes with imbedded terminal spine; basis of P5-7 only 1-1.5x as long as wide; with eyes ..... 11  
— Telson cleft only ¼ to 1/3, lacking terminal spines on telsonic lobes; basis of P5-7 more than twice as long as wide; blind..... 13
11. Epimeron 1 concave above postero-ventral tooth ..... *Liljeborgia pallida* Bate 1857  
— Epimeron 1 convex above postero-ventral tooth..... 12
12. Cusps of telsonic lobes longer medially than laterally; eyes reniform.....  
.....*Liljeborgia marcinabrio* Barnard 1969  
— Cusps of telsonic lobes subequal to longer laterally than medially; eyes oval to subquadrate.....*Liljeborgia geminata* Barnard 1969
13. Epimeronal segments 1-3 and urosomal segments 1 and 2 with large spine, dactyl of G2 not serrate .....*Liljeborgia sp CS1* Cadien 2004§  
— Epimeronal segment 1 with small spine or spine absent, other Epimeronal and urosomal segments with spines large, small, or absent; dactyl of G2 serrate.....  
.....*Liljeborgia cota* Barnard 1962

# WESTERN SOCIETY OF MALACOLOGISTS



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## ANNUAL MEETING

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JUNE 23–27, 2009

CALIFORNIA STATE UNIVERSITY, FULLERTON



### MEETING:

The Western Society of Malacologists (WSM) is a society of professional and amateur mollusk researchers and enthusiasts. We encourage anyone interested in learning more about mollusks to attend! If you would like to present your research on mollusks, please register to give a talk or a poster.

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- Symposium on conservation of mollusks.
- Field trip to Santa Catalina Island.
- Bivalve Workshop: learn the basics of identifying marine bivalves worldwide.
- Micromollusk Workshop: learn techniques of working with tiny mollusks.

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Questions? Contact Michael Vendrasco

[mvendrasco@fullerton.edu](mailto:mvendrasco@fullerton.edu) or 562-645-2644

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