

**SOUTHERN
CALIFORNIA
ASSOCIATION OF
MARINE
INVERTEBRATE
TAXONOMISTS**



September–October, 2019

SCAMIT Newsletter

Vol. 38 No. 3



Stachyptilum superbum CLAEMD, B'18-10353, 585m from the Santa Monica Basin.

This Issue

9 SEPTEMBER 2019, B'18 MISCELLANEOUS PHYLA FIDS, OCSD.....	2
19 SEPTEMBER 2019, B'18 POLYCHAETE FIDS, NHMLAC	5
7 OCTOBER 2019, B'18 MOLLUSK FIDS, LACSD	7
24 OCTOBER 2019, B'18 MISCELLANEOUS PHYLA FIDS, OCSD	9
LITERATURE CITED	11
SCAMIT OFFICERS.....	12

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

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9 SEPTEMBER 2019, B'18 MISCELLANEOUS PHYLA FIDs, OCS D

Attendance: Don Cadien, Jovairia Loan, LACSD; Cody Larsen, Jennifer Smolenski, CLAEMD; Ben Ferraro, Kelvin Barwick, OCS D; Megan Lilly, Wendy Enright, CSD; Dean Pasko, DCE

During the business meeting, a discussion arose regarding the B'18 data submission deadline of February 2020. This deadline needs to be met in order to allow LACSD time to complete the re-ids prior to the final deadline. We all agreed to have at least one meeting per taxa prior to the February deadline. Upon review of upcoming meetings, we noted that all taxa except arthropods were scheduled prior to Feb 2020. We decided to hold the arthropod meeting in January 2020.

UPCOMING MEETINGS

Visit the SCAMIT website at: www.scamit.org for the latest upcoming meetings announcements.

A need to quickly distribute ID sheets on new or unusual animals found in B'18 samples was stressed as important if we are all to “stay on the same page”. Attendees agreed but noted that since they are often quickly “throwing something together” and the end result is nowhere near a legitimate voucher sheet, there is some hesitancy to distribute the sheets on the SCAMIT list server and risk embarrassment. However, most people are willing to distribute their ID sheets with a caveat that the sheet is not to be considered a formal or final voucher sheet.

Jennifer spoke up and stated that the polychaete people will need to meet at least one more time after the upcoming meeting on 19 September 2019 since most polychaete IDs for each agency will not be accomplished until after this meeting.

Kelvin then gave a brief overview of his attendance at the recent IPC 13 (International Polychaete conference). He enjoyed himself, said it was a good meeting and shared a few images. He noted that the SCAMIT logo was prominently featured in the IPC handouts. A Brazilian student came and thanked him personally since SCAMIT's donation had helped cover her costs, allowing her to attend; SCAMIT donated \$2000 to the student grant fund. Kelvin had hoped to run side by side photos of SCAMIT members in attendance at the previously held IPC in Long Beach (IPC 3), with the current year's photo, but this goal was not achieved. Perhaps this can be accomplished in a future edition of the newsletter. [Editor's note - Please see the previous issue of the NL (Vol. 38 No. 1&2) for a more comprehensive write up on the IPC 13]

Jennifer then had the floor and raised a subject that was discussed frequently at the IPC 13. Many other fields are starting to rely on taxonomic data for information, and taxonomy is starting to cross science disciplines. One example is the medical field, which needs certain species for research and depends on someone with taxonomic knowledge to supply them. However, in many countries, taxonomists are few and far between and people trying to learn taxonomy are often stuck with having to use old literature and outdated or incorrect names. Because of this, people are being encouraged to create provisional names. For instance, there is push back against using European names if working in Africa; similarly, not using deep water species for intertidal work, etc. It has been stressed that taxonomists should create a new species list even if they do not have the right name. In the past there has been a trend for “cosmopolitan” species, but in reality, the animals were just being misidentified and the wrong names were being applied, which obviously was not an accurate reflection of a species distribution. Don chimed in and said, “Cosmopolitan is a magazine, not a species”.



Since we were reviewing conferences, Kelvin discussed his attendance at the World Congress of Malacology meeting (August 2019). It was held at Asilomar, California and approximately 250 people attended. Many of the “big names” in malacology were there. SCAMIT was recognized by Dr. Susan Kidwell, who gave the plenary talk and her final slide had our logo, along with SCCWRP, and other agencies that have assisted her research. Wendy also attended the conference and noted that grad students were doing new and interesting things, such as using paleontology to look at ancient climate change. Wendy and Jennifer had similar thoughts about their respective conferences, that while there is still plenty of research being done with regards to DNA, there is a return of more papers looking at subjects like ecology, symbioses, etc.

Don Cadien was not to be outdone if there was going to be a discussion about meetings attended. To that end, he told us about his experiences at the recent DISCO (Diversity Initiative of the Southern California Ocean) Bioblitz from 19 August through 5 September 2019. The Bioblitz was a joint effort between the Natural History Museum of Los Angeles County (NHMLAC) and the Florida Museum of Natural History. Gustav Paulay (University of Florida) and members of DISCO are working on building a genetic library. Don had a great time and enjoyed socializing with people from all over the country; Greg Jensen, Gretchen Lambert, and Gustav Paulay were just three names he mentioned. The event was held in a large open warehouse which is the future AltaSea campus at the Port of Los Angeles. The NHMLAC brought in tables, chairs, plastic ware, and other supplies for visiting scientists. Local attendees brought their own scopes and lights, while the City of LA (CLAEMD) brought in extra scopes for out of town participants. The work was divided into lab and field efforts. Field sampling methodologies included, benthic grabs, trawling, diving, and dock scrapings. CLAEMD and LACSD assisted with trawls inside and outside of the harbor, and CLAEMD chartered scientists along transects over the Redondo Canyon for grab samples. Volunteers from NHMLAC and elsewhere came to process and live sort samples. Don talked about how difficult it was doing live identifications because the animals were moving, making focusing on a particular structure difficult at best. However, he found it well worth the effort because it was fascinating to see so many species “live and in color”. Once an animal was identified it was passed on to photographers for live photos. Once the photos were complete, tissue samples were taken for future DNA analysis. Collected samples were frozen every night. The efforts were very successful, and a large number of tissue samples were attained, which will create an impressive database. Don worked on a wide variety of taxa while Gustav focused on echinoderms. However, Gustav frequently ended up in the field, so Don stepped up and assisted with echinoderms as well. There was an amphipod worker, Brittany Cummings from the University of Florida, who helped Don with some of the Crustacea. Of note, Brittany was the sole American amphipod researcher that went to the European Amphipod Congress. Leslie took the lead on polychaetes and many amusing arguments and hijinks arose over who should work on the Sipuncula, because they are now, after all, considered annelids. Some of the local POTW workers who came to assist with polychaete identifications were Bill Furlong, Brent Haggin, and Norbert Lee (LACSD). Marie Nydam from SOKA University was present to assist Gretchen Lambert. Dr. Tom Turner from UCSB came down for a few days to work on sponges, and Megan McCuller traveled from the East Coast to work on Bryozoans. It was a massive and exhausting project with many taxa processed and a large variety of habitats sampled, both inside and outside the harbor. The days were long, usually lasting 12-14 hours, and this went on for 15 days. Bioblitz personnel were mostly cycling through but Don stayed for the duration. SCAMIT was well represented among the expert taxonomists present. The efforts during those two weeks should make a significant contribution to the molecular library for near shore invertebrates plus a few pelagic species. Don heartily recommends the experience to anyone who can get involved.



Nobody was paid except for people who were there on paid time from agencies/museums. Some participants had flights, food, and lodging paid for but there was no salary. The timing of Bioblitzes are dictated by the availability of funds. At the end of each day there would be a slide show called “animal of the day”. Photos of interesting critters taken that day were shown and people would lobby on behalf of favorites, culminating in a vote with winners from different phyla selected.

A long and interesting business meeting came to a close and we turned to the topic of the day, B’18 Miscellaneous Phyla FIDs.

CLAEMD

Echiura FID - One large and one small. The larger specimen turned out to be an *Arhynchite*. The presence of a few “frills” on the rims of the nephrostomes was noted. When Jennifer dissected the animal there were hundreds of small organisms that spilled out with the fecal pellets. No one was quite sure what they were, but they might have been juveniles. The smaller specimen was dissected but left at Echiura due to a lack of internal structures.

Enopla FID - juvenile specimen; it was quickly agreed to “just leave it at Enopla”.

Tubulanus sp A - this started a lively discussion regarding the importance of color and pattern in the esophageal region, and which of these two characters takes priority when determining species. We reviewed attendees’ input on how they distinguish *Tubulanus* sp A from *T. polymorphus*. It turned out that DCE and CLAEMD rely more on the color of the pigmented esophageal region - dark brown or dark purple for *Tubulanus* sp A vs. pinkish to light brown for *T. polymorphus*. Whereas CSD is more concerned with pattern – *Tubulanus* sp A has a solid band which begins to break apart and “speckle” posteriorly, vs. *T. polymorphus* which usually has a relatively clean “end” to the pigment band that may fade out but does not have extended speckling in to the posterior.

DCE

FID Echiura - Upon dissection it turned out to be another *Arhynchite*, but the rims of the nephrostomes were much “frillier” than the CLAEMD specimen. Unfortunately, the posterior half was missing so there was no way to compare the anal vesicles. Those present felt both specimens were most likely *Arhynchite* but couldn’t explain the difference in the degree of “frilling” on the nephrostomal rims. One suggestion was that it was possibly an indication of different reproductive phases, as the nephrostomal lips “function to collect differentiated gametes for storage in the nephridium prior to spawning” (sic) Pilger 1996. It was suggested that someone contact John Pilger at USC regarding variability in the frilling of nephrostomal lips in *Arhynchites*.

Lineus torquatus-type nemertean - Dean showed images of this bizarre animal which had a white ring preservation band prior to a pink pigmented esophageal region, and pronounced lateral sense organs (LSO), which are all Tubulanid characters. However it had deep, obvious, cephalic grooves, making it a Heteronemertea/Linedae. Cody had also seen this animal and created a voucher sheet naming it Lineidae HYP3. The voucher sheet is attached at the end of this newsletter.

Enopla - this was an unusual animal but Dean stated he will not be creating a provisional species. A discussion ensued around *Amphiporus cruentatus* as a possibility. Cody stated that the cerebral



blood vessel is very distinctive in this species and can be seen without clearing. He recommended viewing the image in Tony's voucher sheet (posted in the SCAMIT Taxonomic Toolbox).

Lastly, Dean brought up the problem, again, with “Lineid type” Heteronemertea that have either just a very shallow cephalic groove or a cephalic line. The group agreed that we need to create something more descriptive with images of the variability and written descriptions. All agencies see animals that fall within this morphological grouping but don't apply consistent name usage. Lineidae Complex 1 was suggested and met with a positive response. However, it was too late to apply this to the B'18 data as most taxonomists were at least part way through their samples. A suggested protocol for future samples was to separate all those animals that fall within this category and they will be revisited at a future meeting. Dean offered to distribute some draft voucher sheets on these animals for review to see if they fall within our concept of the “Lineidae complex”.

19 SEPTEMBER 2019, B'18 POLYCHAETE FIDS, NHMLAC

Attendance: Larry Lovell, DCE; Veronica Rodriguez-Villanueva, Maiko Kasuya, Gabriel Rodriguez, Adam Webb, Ricardo Martinez-Lara, CSD; Norbert Lee, Christine Boren, Bill Furlong, Brent Haggin, LACSD; Ernie Ruckman, Rob Gamber, Kelvin Barwick, OCSD; Greg Lyon, Erin Oderlin, Jennifer Smolenksi, CLAEMD; Angelica Zavala Lopez, MTS; Leslie Harris, NHMLAC

The business meeting was brief, and attendees started the day with a presentation by Norbert Lee titled: “**Lateral Stain Patterns of Common Palos Verdes *Spiophanes***”

The focus was primarily on lateral stains and 4 species in particular were addressed: *Spiophanes fimbriata*, *S. berkeleyorum*, *S. duplex*, *S. kimballi*.

Spiophanes fimbriata

- Usually deep water (~300 m)
- 0+1 type chaetal spreaders
- Median antennae present
- MG stain: Dark staining lateral bar on setiger 7
- MG stain: Solid stain on setigers 8-9 on both sides

Spiophanes berkeleyorum

- Common at 30-1500 meters
- 1+2 chaetal spreaders
- Median antennae
- MG stain: Transverse ventral T-shaped stain on setiger 8
- MG stain: Dark lateral spot on setiger 8
- MG stain: Lateral bar stain on setiger 9



Spiophanes duplex

- Common from 30-150 meters
- 2+3 chaetal spreaders
- No median antennae
- MG stain: speckled/diffused ventral stripes starting around setiger 3 or 4
- MG stain: setiger 7 & 9 dark lateral bar stain with a Y-shaped stain laterally on setiger 8 with the opened shape of the “Y” facing the dorsum

Spiophanes kimballi

- Occurs at all depths but common between 30-150 meters
- 2+3 chaetal spreaders
- Median antennae present
- MG stain: 3 stripes running ventrally
- MG stain: Lateral dark spot on setiger 8

Norbert created a character table that includes ventral and lateral stain patterns. He noticed that MG staining on specimens older than 8-10 years was not as apparent as those on more recently preserved specimens. The stain patterns were “hit or miss” on smaller (<1 mm)/juvenile specimens but were clearly evident on larger specimens (>2-2.5 mm). His suggested protocol for MG staining is as follows: stain for at least 30 mins and for as long as a couple hours, and de-stain for approximately 15-30 minutes.

Norbert will make his presentation and updated character table available in the SCAMIT Taxonomic Toolbox.

Leslie took the floor after Norbert’s presentation and wanted to share a recent publication of note: A new species of Chrysopetalidae was found at Catalina and San Clemente Islands at 10 meters hard bottom (Watson et al. 2019).

Then, Leslie gave a brief summary of the Urban Ocean Expedition Bioblitz and showed a few videos from the project.

Next, Brent Haggin presented on the misuse of names from around the world which was a large topic discussed at IPC 13 (see minutes from previous meeting). He took the SCAMIT list of polychaetes and compared them to WoRMS (World Register of Marine Species) as to where they were described. He was able to pinpoint regions around the world from where we get many of our names. He was then able to quantify the number of species as well as classify them by family. It turns out that ~50% of our polychaete species list comes from areas outside of the SCB. Therefore, potentially half of our list may need to be reevaluated. This prompted a discussion as to the use of European names to describe our local species. Leslie really pushed for the use of provisional names and renaming our “global” species with provisional names. Kelvin countered, saying that SCAMIT can’t really accept the use of different /new names due to potential consistency problems between agencies (i.e. POTWs). Until someone does the work to describe



these local species, creating voucher sheets which highlight differences from the European species, new provisionals can't be accepted.

It was then time to start examining FIDs. This began with Kelvin presenting photographs and draft provisional voucher sheets on the polychaetes giving him trouble from a Channel Islands Bight station located just north and east of San Miguel Island. The sediment was coarse sand and shell hash. Kelvin presented images of a couple of *Scoloplos* sp that had, in his experience, abnormally long palpoles. Brent felt that it was within variability for known local species of *Scoloplos* sp.

CLAEMD taxonomists brought two B'18 FIDs which were both epitokous nereids from two different shallow harbor stations. After working on them for some time, Leslie concluded that they were indeed two different species, and that their identifications were not any of our typical nereids. With their posteriors too modified (due to being epitokes) for further identification, their IDs were left at the family level, Nereididae.

7 OCTOBER 2019, B'18 MOLLUSK FIDS, LACSD

Attendance: Kelvin Barwick, OCSD; Terra Petry, Jovairia Loan, Don Cadien, Chase McDonald, LACSD; Greg Lyon, CLAEMD; Wendy Enright, Megan Lilly, Ryan Kempster, CSD; Tony Phillips, DCE

Kelvin started the day with announcing upcoming meetings. He reminded attendees that B'18 data is due in February 2020, so we only have a few months left to schedule meetings for tackling B'18 FIDs.

Kelvin then gave an update on the “McLean project”. Some scanning work is still ongoing; Pat LaFollette is working on the Pyramidellids. During a previous SCAMIT meeting an action item was created to address what to do with all McLean's film. Would SCAMIT be interested in scanning the remainder? Kelvin did a bit of research, but it turned out to be cost prohibitive. Don made note that scanning is only step 1, and there is much work to be done after scanning. There was a suggestion that we could perhaps use the Document tab on the SCAMIT website to house the 900 GB (~1 terabyte) of what is scanned to date, but it would be raw material/images. The Annual SCAMIT Executive Committee meeting is 14 November 2019 and Kelvin will bring up this issue to our webmaster, Dean Pentcheff. Don wanted to double check that SCAMIT has the legal right to distribute the images. Kelvin had checked with NHMLAC and they had responded they were “OK with it”, but it was suggested to get it in writing, and Kelvin agreed.

Kelvin passed around a copy of the Zoosymposia “McLean Memorial Volume” (2019) which is quite thorough and useful for the Families contained within.

With that we started reviewing specimens.

CLAEMD

Greg shared photos of various FIDs, and a discussion ensued about being able to reliably identify *Cyclocardia gouldii* at juvenile stages. We were referred to the convention of backing off to genus at a size of ≤ 5 mm developed at the 2012 meeting with Paul Valentich Scott and Gene Coan (although unfortunately not recorded in the NL for that meeting) and reiterated at a May 2018 meeting (Vol 37. No. 1). Greg also showed some nice photos of hydroids growing on *Axinopsida*.



Lasaeidae? FID - SMB 585m; *Vesicomya* was suggested but Greg will need to look at the hinge for verification. The specimen, approx. 2mm in length, was damaged during the attempt to examine the hinge, so family placement could not be confirmed.

Corbulidae spp - Two were identified as *Caryocorbula porcella* and one was tentatively IDed as *C. luteola*. The tentative IDs from the meeting were subsequently confirmed by examining the hinges.

Cymatinoa electilis – Greg had emailed Paul Valentich Scott about this animal and Paul suggested looking for undulations on the internal edges of the valves. Greg reported at the May 2018 meeting (Vol. 37 No. 1) that ventral undulations may be absent in specimens < 5mm length, and examination of the hinge (looking for 2 cardinal teeth in the left valve) is necessary to identify juvenile specimens. The specimens presented at the current meeting were later confirmed as *C. electilis* based on hinge examination.

Laevicardium juv - 5m in Long Beach Harbor; examined and confirmed as *Laevicardium substriatum*.

Crockerella evadne FID – 100m Channel Islands station. The majority agreed the specimen was odd and likely not *evadne* because its mid-whorl carina appeared to be formed by a pair of spiral cords. However, subsequent closer examination found a significant damage scar on the body whorl. The unusual appearance of the carina above the scar was likely due to damage or erosion. Below the scar, the carina was smooth and single, consistent with *C. evadne*.

Boreotrophon FID – 125m Channel Islands station. Tony and Don both felt this fit SCAMIT members' broad interpretation of *Propebela turricula*. Further investigation after the meeting has identified at least two forms encountered in the SCB that have been reported as *P. turricula* but differ from the described species and warrant provisional status. Voucher sheets are in prep and will be distributed for review. [Editor's note: There has since been much discussion around *Propebela* spp and this saga will be continued in a future NL]

Gastropod FID, juv – 90m Channel Islands station; determined to be a juvenile Nassarid.

Amphissa bicolor FID – 373m; consensus was to leave it at Family (Columbellidae).

Columbellidae FID – 22m Los Angeles harbor, station 10094; IDed as *Alia carinata*.

Acteocina FID – 15m Los Angeles harbor, station 10100; a conversation about *A. harpa* vs *A. inculta* developed. There was no consensus reached but the majority present felt it was *A. harpa*. It was recommended that the specimen be dried for a better look at sculpturing and if necessary, gizzard plates should be removed and examined. Gizzard plates later confirmed *A. harpa*.

Crepidula FID, juv - 5m, Long Beach Harbor; it was recommended that the interior shelf be checked to assist in identification. The shelf was straight, with a slight anterior projection on both sides; and the specimen was ultimately identified as *Garnotia naticarum*.

CSD

Propebela FID - B'18 10393, 93m; the genus was confirmed but it was felt the species was not *turricula*. It was most likely the same as the species sampled by CSD during B'03, and once confirmed will be called *Propebela* SD1. [See comments above regarding *Propebela*]



24 OCTOBER 2019, B'18 MISCELLANEOUS PHYLA FIDs, OCSD

Attendance: Megan Lilly, Wendy Enright, CSD; Kelvin Barwick, Ben Ferraro, OCSD; Don Cadien, Jovairia Loan (Jojo), LACSD; Tony Phillips, Dean Pasko, DCE; Jennifer Smolenski, CLAEMD

Kelvin opened the business meeting declaring that he had tentatively set the date for the Annual SCAMIT Membership meeting for 9 December 2019, however, he still needs to verify this with SCCWRP. He then mentioned the upcoming Bryozoa workshop that is being coordinated by Leslie at the NHMLAC. The dates for the workshop are 16 - 17 December 2019 and it is free to members or \$25 for non-members. It was pointed out that an annual SCAMIT membership is only \$20, so if one joined SCAMIT they would “get a discount”.

The next WSM (Western Society of Malacologists) meeting will be held at CICESE (Ensenada Center for Scientific Research and Higher Education) in Ensenada, Mexico. Dates will be announced later. As far as future SCAMIT meetings, there was some discussion as to whether both an arthropod FID and a polychaete FID meeting should be held in January or if an arthropod FID meeting needs to happen sooner. Dean mentioned that he had not heard a lot on the B'18 list server, or elsewhere, that indicated a B'18 FID arthropod meeting was necessary. Don mentioned that he had a few deep-water arthropods that he would like to share for input, and there are probably other FIDs pending. It was decided that the arthropod people would be queried, and a FID meeting will happen either next month in November, or in January 2020.

With that, it was time to move on to B'18 Miscellaneous Phyla FIDs. The meeting began with Megan showing an ID sheet she'd created for *Eugyra arenosa californica*. She had previously misidentified this species due to misinterpretation of the wide internal longitudinal vessels as branchial folds. She created a provisional species, *Molgula* sp SD1, which is now a synonym (in part, of authors SCB) of *E. arenosa californica*. The ID sheet showed internal characters and discussed both *E. arenosa californica* and *E. glutinans*, another possible species. It is attached at the end of this newsletter.

With that we moved on to examining FID specimens brought by the various agencies.

OCSD

Ascidiacea FID (one large, one small) - B'18 10245 (Santa Barbara Channel), 54m.

Larger specimen:

- Stigmata - Spiral (Curved)
- Branchial Folds - 6
- Gonad size and shape resembles *Molgula regularis*, but is not complete

After further dissection and discussion, the animal was confirmed as *Molgula regularis*.

The smaller ascidian was similarly structured but was missing gonads. It was determined by the group to also be *Molgula regularis*, because of similar appearance and proximity to (collected with) the larger specimen.



LACSD

Ascidacea FID - determined to be *Agnezia septentrionalis*

Cnidaria FID, cf *Harenactis attenuata* - found to be the same as the CSD specimen from a similar depth. It was to become a provisional species, Actiniaria sp LA1 with Jojo creating the voucher sheet. However, Dean noted that it looked very similar to his Hormathiidae sp 1 and we decided that we needed to compare all the specimens at a future meeting and make a decision.

CLAEMD

Acanthoptilum FID - with sclerites covering polyps and leaves was considered to most likely be *Acanthoptilum scalpellifolium* Moroff, 1902. However, due to its juvenile nature it was decided that the identification should be left at *Acanthoptilum* sp.

DCE

Diadumene lineata - determined to be unidentifiable due to mesenteries not being countable and tentacles being extremely thin. Should be left at Actiniaria

Edwardsia handi - determined to be *Edwardsia californica*

Zaolutus actius, juv - confirmed

Anemonactis sp A, juv - confirmed

Actiniaria juv - confirmed; small specimens with elongate, thin tentacles, 8 pairs of mesenteries with strong retractor muscles, base appears to show point of attachment

Nematostella vectensis - determined to be too juvenile for identification; leave at Actiniaria. Don mentioned that the tentacles of *Nematostella* will be annulated due to the clusters of nematocysts contained within

Metridium sp - determined to be *Diadumene* sp; decision was partially based on sampled habitat. *Metridium* are either intertidal or adherent to hard substratum, unlike *Diadumene* which can inhabit soft substrates (in which this animal had been sampled)

CSD

Zaolutus actius - leave at Actiniaria; this animal was felt to be the same as Jojo's and will either become Actiniaria sp LA1 or Dean's Hormathiidae sp 1

cf Lineidae LAH1 - leave at Lineidae; this type of Lineid (shallow cephalic grooves/lines, small CSO's, etc) was discussed and we may form a species complex "Lineidae Cmplx 1", but that won't be applicable to B'18 data and will be created at a future date

Cerebratulus lineolatus - determined to be *C. californiensis*



Thesea sp FID – went to Gorgoniidae; this was an unusual specimen, and no one felt comfortable putting a species level ID on it. A sclerite prep was advised



Gorgoniidae
B'18 10260, July 2018, 39m, off Huntington Beach.

Edwardsia cf juliae – was thought to be either *E. olguini* or *Scolanthus triangulus*; basotrichs need to be examined

Zoantharia sp B – confirmed

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Please visit the SCAMIT Website at: www.scamit.org

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CITY OF LOS ANGELES VOUCHER SHEET



Lineidae sp HYP3

SCAMIT Vol. 38 No.3

Group: Nemertea: Anopla: Heteronemertea: Lineidae

SCAMIT CODE: None

Date Examined: October 2, 2019

SYNONYMY: None

Voucher By: Cody Larsen & Dean Pasko

DIAGNOSTIC CHARACTERS:

1. Large, deep horizontal cephalic slit. Transverse groove/white line at posterior end of cephalic slit.
2. Two-layered Heteronemertean musculature, with lateral nerve cord (LNC) embedded on the outside of the circular muscle layer.
3. Distinct two-toned preservation band in esophageal region, with a thin white band dividing the two colors; reddish-pink posterior of the white band, and a yellow-brown anterior of the white band.
4. Large, distinct lateral sense organ (LSO) present at posterior end of preservation band.
5. Cerebral sense organ (CSO) present at proximal end of cephalic slit, in the shape of a small circle.
6. Head shape is ovate (egg-shaped); anteriorly tapered with a broad base (similar to Cerebratulus).
7. Moderately sized mouth, but without distinctive ribbing or musculature.



SPECIMEN COLLECTION(S):

- CLAEMD, Station B18-11000 (~394 m), East Santa Barbara Channel, July 2018
- LACSD, Station B18-10333 (~406 m), East Santa Barbara Channel, July (?) 2018

ADDITIONAL COMMENTS/DETAILS:

- The coloration intensity anterior to the white band can vary, as observed between the three specimens examined. The above pictures depict the darkest anterior coloration of the three specimens, with the lightest having coloration similar to the background tissue. The posterior pinkish coloration can also vary, probably due to preservation.
- The presence of an LSO in a Heteronemertean is unusual, if not unheard of (?), likely because LNCs in Heteronemerteans are located interior to the outer-most longitudinal muscle layer and are presumably restricted from developing a contiguous connection to the dermal layers. In contrast, 3-layer Palaeonemerteans, which are the predominant bearers of the LSO character, have LNCs located exterior to the outer-most muscle layer (circular muscle), with easy access to the dermal layer.
 - Interestingly, after examining of the position of the nerve cord with serial cross-sections, there was no substantial LNC migration towards the dermal layer. Rather, cross-sections located across the LSO exhibited a glandular (?) mass extending inward from the dermis, towards the LNC.

RELATED SPECIES AND CHARACTER DIFFERENCES:

Lineidae sp SD1

- Similar yellow-beige background color.
- Well-defined horizontal slit, although narrow.
- Partially complete white transverse line crossing mouth (at posterior end of cephalic slit).
- Absence of two-tone coloration (preservation band) and white band in esophageal region; no LSO.
- Head shape is more linear (parallel margins, like *Lineus bilineatus*) vs ovate



Lineidae sp SD1

Lineus sp AV1 (collected from Avalon, 42m)

- Darker background coloration than Lineidae HYP3 and Lineidae SD1
- Large, deep cephalic slit. Partial transverse white line crossing mouth.
- Larger mouth than Lineidae HYP3 and Lineidae SD1.
- Absence of LSO (?) and two-tone preservation band.



Lineus sp AV1

Eugyra arenosa californica

(=*Molgula* sp SD 1)

This species has a history of confusion for SCB taxonomists due to misinterpretation of the large, thick, widely spaced internal longitudinal vessels, as “true” branchial folds. The other species of *Eugyra* to watch for is *E. glutinans*, but that species has gonads on both sides of the body, whereas in *E. arenosa californica*, they are only found on the left side, situated within the primary intestinal loop. The genus *Eugyra* is within the Family Molgulidae and has branched branchial tentacles and a kidney on the right side of the body.

Specimen photographed is from CSD station I-33, July 2019, 31m.

