

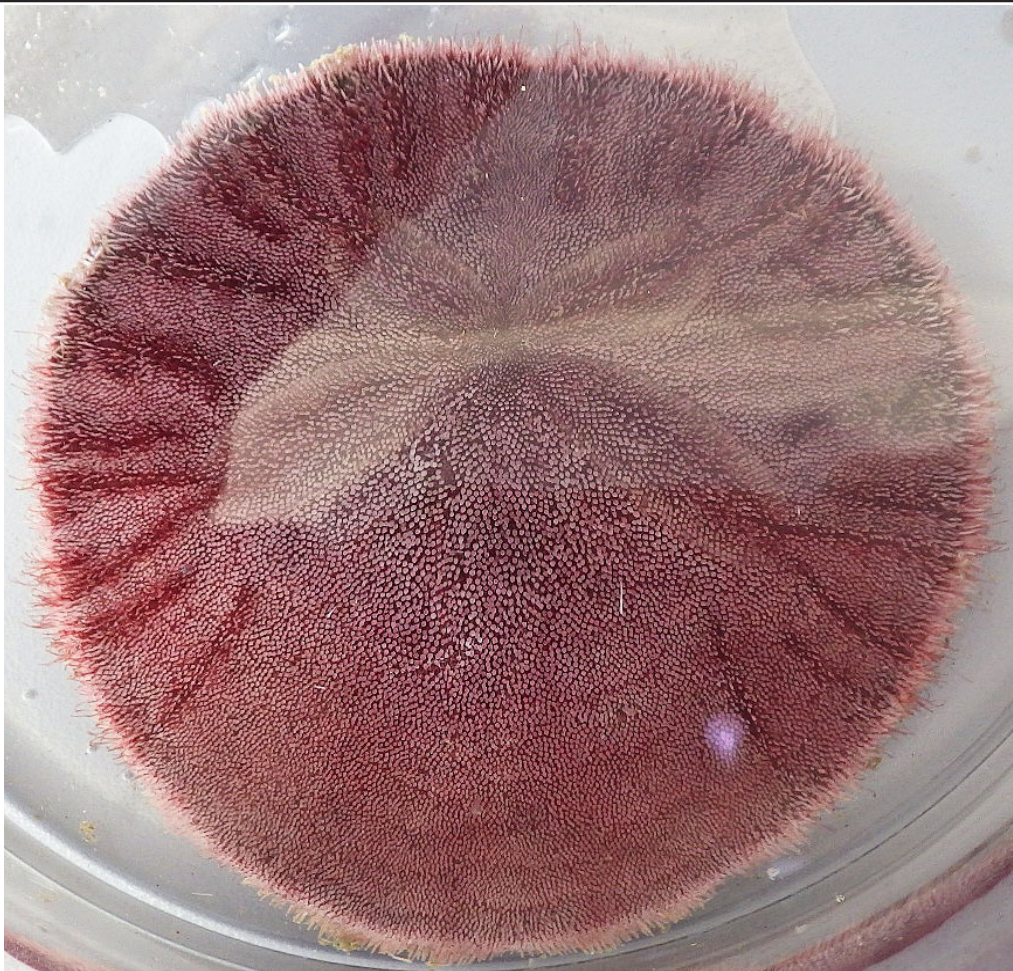
**SOUTHERN
CALIFORNIA
ASSOCIATION OF
MARINE
INVERTEBRATE
TAXONOMISTS**



September–October, 2018

SCAMIT Newsletter

Vol. 37 No. 3



Dendraster excentricus
CSD Trawls, B'18 10237, 1 August 2018, 11m
Photo - Zoë Scott

This Issue

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

Publication Date: October 2019

10 SEPTEMBER 2018, BIGHT'18 TRAWL FIDS, OCSD, LEAD - M. LILLY

Attendance: Laura Terriquez, Danny Tang, Ben Ferraro, Ernie Ruckman, Kelvin Barwick, OCSD; Jennifer Smolenski, Greg Lyon, Erin Oderlin, CLAEMD; Don Cadien, Jovairia Loan, LACSD; Wendy Enright, Megan Lilly, CSD.

The business portion of the day started with a discussion of recent activities of the SCAMIT Executive Committee. They have voted to donate \$2000 to the International Polychaete Conference (IPC) Student Fund in honor of Dr. Don Reish. Kelvin is

looking for a volunteer among the attending SCAMIT members who would be willing to say a few words in his honor, preferably someone who knew Dr. Reish well.

UPCOMING MEETINGS

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

Megan then announced that the March/April newsletter was in progress and should be published in the next couple weeks. After that all bets are off as your Secretary digs into Bight'18 benthic samples.

Kelvin showed us a very short archived silent French film from 1928, “Sea Urchins”, by pioneering French filmmaker and scientist Jean Painlevé. It can be viewed at:

<https://youtu.be/9rkMpkpy5Qg>

After watching the film and ordering our lunch it was into the *Brisaster* abyss we go...

Erin showed us her table of measurements and expressed concern about the fact that she arrived at different answers when she measured them multiple times and these differences, on occasion, lead her to arrive at different species diagnoses.

Lots of discussion ensued regarding everyone's experiences during trawls as it related to large hauls, most common species, trouble-shooting difficult situations, etc.

We briefly looked at Megan's table of Bight'08 *Brisaster* occurrences and whether there may be a pattern from north-south and shallow-deep perspectives. There is a hint of a pattern but more data is needed before any conclusions can be made. We will put together these same data from B'13 and B'18 since sample sizes were quite small 10 years ago. It was decided to collate everyone's measurements from here on out. Please send your results to Megan at: mlilly@sandiego.gov

A general philosophical discussion of trawl animals developed regarding what animals to count in the trawl data (fouling vs not; infauna vs epifauna; reef or hard substrate-associated vs soft bottom only, etc.). Many members requested “hard rules”, but unfortunately, we have never been able to agree, as a taxonomic community, on those rules and so it remains a “best judgement” call in the field.

The discussion of heart urchins then resumed. Regarding mixed lots of heart urchins and the separating of juvenile animals - if the current protocol of 30 animals returned and measured is followed, is it appropriate to apply the resulting ratio to the entire catch or should an estimate of the proportion of animals less than 30mm be made? No firm decision was reached.

The conversation then turned to other interesting or problematic echinoderms. OCSD encountered a pink juvenile echinoid that was determined to be *Strongylocentrotus fragilis* but its shallow depth (less than 40m?) had caused them to initially question the ID. Megan will investigate the



differences between *Strongylocentrotus* and *Lytechinus* spine and pedicellaria morphology to give us a, hopefully, more precise answer for future questions.

Dr. Rich Mooi is rumored to be interested in paying us a visit in the future so be sure to save interesting specimens and have your most burning questions answered including the size limit at which juvenile *Dendraster* specimens may be separated. Don asserts that he can see a difference at 1-2 mm... witty repartee ensued.

Back to *Brisaster*, most people present took turns measuring a few representative animals. Although measurements were close, there remained a 0.4mm range in test length and a 0.3mm range in petaloid width among participants. In the present case, the ratios still fell out to *B. latifrons* but this degree of variability could potentially yield conflicting answers for smaller animals. It was determined that for all measurements, multiple sets of eyes/measurements were required and the idea of a larger size limit for specific diagnosis was raised again although no action was taken and the protocol remains unchanged. Megan would still like to move the minimum test length up to 35mm, but this will be a question for our, “hopefully”, future meeting with Dr. Mooi.

Diverting again from *Brisaster*, we looked at photos from OCS D of a juvenile holothuroid that was likely *Apostichopus parvimensis* based on the black papillae. The specimen was small, at approximately 8 mm, so it’s unclear whether the ossicles would be developed enough for diagnostic purposes.

Jojo and Erin then shared some “cheez-it” stars. Erin’s was confirmed as *Odontaster crassus* with its characteristic giant recurved tooth on the apex of the jaws. Jojo’s animal superficially resembled the *Odontaster* but upon closer examination, key differences were noted. Although it had a strong tooth on the jaw apex, it wasn’t recurved, nor was it as large as the one exhibited on Erin’s smaller specimen. Also, the paxillae differed with one specimen having “spiny starbursts” and the other having “broccoli florets”. Megan took the specimen with her for further investigation and will email Dr. Chris Mah for assistance (which she has yet to do...).

Erin brought out a sweet potato (*Molpadia arenicola*, formerly *Caudina arenicola*) holothuroid for confirmation. Discussion ensued regarding ossicle morphology, separation of *Molpadia* and *Caudina*, and the possibility of other species coming in during warming events.

The last specimens we examined were CSD ophiuroids. We confirmed *Ophiopholis bakeri* and *Ophiacantha diplasia*. It was an excellent teachable moment for many of us.

15 OCTOBER 2018, SPIONIDAE, NHMLAC, LEADS - L. HARRIS & T. PHILLIPS

The business meeting began with the standard announcement of upcoming meetings. It was then mentioned that early registration was open for the IPC. SCAMIT volunteers are needed for registration and throughout the weekend. Anyone who volunteers will be provided with a free t-shirt.

With the business portion complete it was time to move on to spionids. The taxonomy aspect of the day started with a talk by visiting researcher, Arturo Alvarez Aguilar, who gave a presentation titled, *Spionids from Tijuana to Ensenada Coast*. He found that 65% of polychaetes from benthic samples were spionids, with the most dominant species being *Spiophanes norrisi*. The lowest diversity was found in the northern region (just south of the Tijuana River). Arturo believes that depth, salinity, Cu, & Zn are responsible for the low species diversity. It was decided that it would be interesting to compare Arturo’s results with past Bight data from the area.



Next up was Tony Phillips who presented - *Spionidae of the Southern California Bight: Polydorins*. Almost not officially declared a subfamily, the term polydorin is used for spionid genera with the 5th chaetiger enlarged and bearing large hooks.

Local polydorins are mostly found in soft sediments of bays and estuaries and in rip-rap. Useful characters for both genera and species are as follows:

- Start of branchiae on chaetiger 2 or after chaetiger 5
- Presence of 1 or 2 types of spines on the modified 5th chaetiger
- Presence of companion chaetae on the modified 5th chaetiger
- Presence of superior and/or inferior chaetae on the modified 5th chaetiger
- Prostomium shape
- Presence of eyes
- Presence of chaetae on 1st notopodia
- Presence of a median antenna
- Length of caruncle
- Start of the neuropodial hooks
- Presence of notopodial spines in posterior chaetigers
- Shape and dentition of chaetae
- Is pigmentation present
- Methyl green stain patterns
- Shape of pygidium and presence of pygidial lobes

Tony recommends using the MMS Atlas (Blake 1996), Light's Manual (Light 2007), and the table created by L. Harris and C. Brantley, which can be found on the SCAMIT website in the Taxonomic Tools section.

Tony then moved on to "*Common Infaunal Polydorids of the SCB*":

Boccardia basilaria: Single dark pigment spots that run down the center of the dorsum, large beast. Bill Furlong noted that in the L. Harris Table, the description for *Boccardia basilaria* matches that of *Boccardia pugettensis* except for the pygidium description. Tony believes that *B. pugettensis* isn't found south of San Francisco, therefore, we most likely only encounter *B. basilaria*.

Carazziella sp A: Incised prostomium, shallow shelf and harbors, brushtop notochaetae with a protruding tip.

Dipolydora bidentata: Tony's slide showed paired methyl green spots as a character but Leslie warned attendees not to rely on stain pattern solely for the ID of this species as other spionids have very similar paired pigment spots after staining.



Dipolydora socialis: Paired pigment spots from staining start further back at about setiger 20. Shallow bays and harbors. Leslie stated that most *Dipolydora* species have gizzard plates, but none are as hard as those of *D. socialis*; you can feel them with your forceps and they are usually found between setigers 16-21.

Tony then moved on to ***species that might occur*** in the infauna of the SCB:

Boccardia proboscidea: Found in fine sands, intertidal to 15 meters. Prostomium has black bands on each side.

Leslie mentioned that *Boccardia claparedei* (Kinberg 1866), described from Brazil, has been found in Newport, Oregon. It is similar in appearance to *B. proboscidea* but differs in the placement of the black coloration on the prostomium and caruncle length. People should check their specimens of *B. proboscidea* carefully to make sure *B. claparedei* isn't occurring as well. See Leslie's composite photo showing both species at:

<https://www.scamit.org/documents/polychaete/>

Boccardiella hamata: Anterior dorsum and ventrum with black speckling. Bays and estuaries.

Dipolydora akaina: Could be found in intermediate shelf depths 45-200 meters, no real stain pattern evident, maybe some slight banding between the parapodia. Distinct modified chaetae that can only be seen under high power, and no companion setae. Cone-shaped bundles of smooth notopodial spines in posterior notopodia, usually only tips are visible, need to check with substage lighting or on compound microscope.

Dipolydora barbilla: Have a convex shelf on spines of the modified 5th chaetiger. Posterior notopodial spines present, spines have small barbs and are not emergent from parapodia; need to check with a compound microscope.

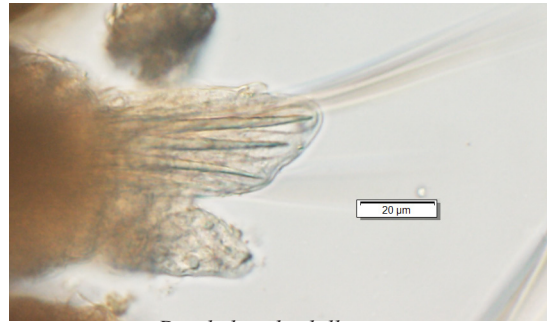
Polydora cirrosa: Very enlarged modified 5th chaetiger. Medial antenna present, branchiae start on chaetiger 7.

Polydora cornuta: Modified 5th chaetiger has spines with distinct accessory tooth, no superior or inferior chaetae present.

Polydora narica: Lateral black bands on palps and on each side of several anterior chaetigers. Modified 5th chaetiger very enlarged compared to 4th & 6th chaetigers. Slight incision of prostomium. Leslie mentioned that Hartman (1961) and Blake's (1996) *P. limicola* are actually *P. narica* and that Blake's *Polydora* sp (p. 176) is also *P. narica*. True *P. limicola*, described from the Sea of Japan, has no pigmentation. *P. narica* can be found from intertidal and shelf depths, and in estuaries.

Polydora nuchalis: Lateral pigment spots next to the prostomium, has superior and inferior chaetae on the modified 5th chaetiger. No apparent stain pattern with methyl green.

Pseudopolydora paucibranchiata: Rounded prostomium, modified spines of 5th chaetiger form J-shaped (can sometimes vary and look like a "U") double row, outer row of geniculate spines, inner row of simple falcate spines. Invasive species common in bays, harbors, and estuaries.



Dipolydora barbilla
Bight 2013 Sta. 9152 31jul13 27 m
Image by K. Barwick



It was then time for Leslie to take the floor and give her own thoughts on the Spionidae of the SCB. She presented a large PowerPoint with information on characters, keys, generic definitions, species lists, and most of the described and provisional species for the area.

To begin, Leslie stressed that if you have an individual that doesn't fit anything in the key, don't try to force it. Go to the best possible descriptions of similar species in the key or table you use and then decide if you have a match. The SCB still has many undescribed local species as well as new introduced species. For example, during the 2011 CDFW Invasive Species survey Leslie found *Polydora hoplura* Claparede, 1868, the first occurrence for this coast (see Radashevsky & Migotto, 2017). Document any oddball specimens and share the information so others can be on the look-out for more. Also, small juveniles may not have fully developed pygidiums which can lead to incorrect identifications. Specimens that are incomplete and don't have unique species-level characters (such as a type of major spine, pigmentation, or stain pattern found only in one species) should be left at genus.

Aonides spp:

Prostomium conical, tapered anteriorly and peristomium poorly developed. When using the key in Blake (1996) it's important to remember that while our local species have prostomiums that are distally rounded they are relatively narrow compared to the broadly rounded prostomiums of most other spionid genera. Do not confuse them with *Prionospio lighti* or similar species. Two species we ID locally are *Aonides glandulosa* and *A. sp.* SD1 Langan, 2002. Leslie has made a table with *Aonides* spp characters and it will be uploaded to the SCAMIT website soon.

Dispio spp:

Elongated chaetae on chaetiger 1, pointed prostomium, first ~10 chaetigers with divided postchaetal lobes, and accessory branchiae on posterior side of anterior and median chaetigers. Delgado-Blas & Diaz-Diaz 2016 described 3 species from the SCB and restricted *D. uncinata* to the Gulf of Mexico. They provided a key to *Dispio* which doesn't align with what POTWs are seeing in the SCB. The difficulty may be that the specimens they used to describe the new species are smaller than we usually see and may have developmental differences. There are three species discussed by Delgado-Blas & Diaz-Diaz 2016: *D. anauncinata*, *D. lenislamellata*, *D. longibranchiata*.

Leslie stressed again we need to better describe our local species and document intraspecific variability, because they often don't match published descriptions.

Laonice spp:

Prostomium rounded to slightly incised, nuchal organs extend posteriorly, peristomium reduced, fused, or free, interparapodial genital pouches present, and sabre chaetae present. Leslie believes that when the local *L. cirrata* is run through molecular analysis, it will be shown to be separate from northern Europe specimens. For help with *Laonice*, see Rowe & Harris July 2005. Their Table includes two described, and three provisional, species: *L. cirrata*, *L. nuchala*, *L. sp A* Harris, *L. sp* Rowe, and *L. "pugettensis"* Phillips.

Malacoceros spp:

Prostomium with frontal horns, occipital antenna absent, branchiae are basally fused to dorsal lamellae and start from chaetiger 1 to near end of body, and hooded hooks either bi-, tri-, or quadridentate. *Malacoceros punctata* (Hartman 1961) was previously synonymized under *M. indicus*, a reportedly cosmopolitan species. *M. indicus* is currently being separated into distinct regional species and *M. punctata* will be revalidated (V. Radashevsky, pers. com. to L. Harris).



Spio spp & *Microspio* spp:

There are many undescribed species in these 2 genera that are being forced through the few keys that are available, and therefore are being incorrectly identified. If you have something that doesn't fit any current description, set them aside and try to describe your individual because it is quite likely a new species.

Some people believe that these 2 genera should not be separate. Phylogenetically they are very closely related. The morphological difference is: *Spio* have branchiae starting on chaetiger 1, while *Microspio* have branchiae starting on chaetiger 2. The use of shirlastain will help when struggling to decide if there are branchiae on chaetiger 1 or not. Species in both genera often have distinctive stain patterns, and some have unique arrangements of ventral organs which are most visible with methyl green. Among the local species are *Spio maciolekae* (previously referred to as *S. sp A* Lovell 1986 and *S. sp B* Harris), *S. maculata*, *S. butleri*, *S. cirrifera*, *S. sp A* Harris (syn. *Spio filiformis* of authors NEP), *S. sp. C* Harris, *S. sp D* Harris, *Microspio microcera*, *M. pigmentata*, *M. spinosa*, *M. sp A* Harris, *M. sp DC1* Lovell.

Pygospio spp:

Branchiae may be present from chaetiger 1,2, or 7, variable before chaetiger 7 and then continuing posteriorly after 7, basally free from postchaetae lamellae before 7 then fused to lamellae; modified chaetae in some anterior neuropodia; bilobed frontal margin but no horns; hooded hooks in neuropodia only. There are 3 species to watch for: *P. fauchaldi* (Lovell 1994, shelf), *P. antennata* Blake & Maciolek 2018 (1820 m), *P. occipitalis* (930 m). (Syn.: *Pseudatherospio* Lovell 1994 fide). The two genera were primarily separated by whether the branchiae started on chaetiger 1 or 2. The revision by Blake & Maciolek (2018) showed that anterior branchial distribution was variable.

Pygospio spp:

No frontal horns, branchiae present after chaetiger 10 and fused with notopodial lamellae (males with an additional single pair of branchiae on chaetiger 2 that is **not** fused to the lamellae), hooded hooks in neuropodia only, and pygidium with 4 thick glandular lobes. Use Blake's 1996 key for the 2 species - *Pygospio californica* and *P. elegans*. A third species, very small and heavily pigmented, is found intertidally and will be described by Radashevsky and Harris.

Rhynchospio spp:

Prostomium with frontal horns, caruncle present, occipital antenna absent, hooded hooks only in neuropodia, and sabre chaetae present. Similar to *Malacoceros* spp but branchiae start on the 2nd chaetiger instead of the 1st. There is only 1 species found locally - *Rhynchospio arenicola*. This was formerly synonymized under *R. glutaesus* but reinstated by Radashevsky et al 2014.

Scolelepis spp:

Prostomium sharply pointed, caruncle present, palps may have basal sheath. There are 2 subgenera: *Scolelepis* (hooded hooks falcate with 0-2 small apical teeth and straight shaft) and *Parascolelepis* (hooded hooks multidentate with large main fang, several apical teeth, and curved shaft). See L. Harris Table, April 2017. NEP species include *S. (P.) texana*, *S. (S.) acuta*, *S. (S.) occidentalis*, *S. (S.) tridentata*, *S. (S.) bullibranchiata*, members of the *Scolelepis (S.) squamata* complex, *S.(P.) sp SD2*, *Scolelepis (S.) sp SF2*, *S. (P.) sp A* Norris, *Scolelepis sp B* Brantley.

Leslie pointed out that one reason for the difficulty in determining characters like start of branchiae, number of branchiae, and presence of antennae, is that once they're detached there may not be any scars. If the structures are lost while the animal is still alive the skin &



surrounding tissue can swell up and cover all traces of the attachment site. Scars are typically present if the structure falls out after preservation. Shirlastain shows attachment scars much better than methyl green.

Streblospio spp:

Small occipital antenna, peristomium forms large wings, single pair of large branchiae on chaetiger 1, noto- and neuropodial lamellae low and rounded, and pygidium with lappets, lacking cirri. One species: *Streblospio benedicti*, which many people feel is a complex.

Apoprionospio spp: Prostomium subtriangular, occipital antenna absent, notopodial postsetal lamellae of anterior chaetigers lateral rather than dorsal, branchiae from chaetiger 2: 3 pairs of cirriform and 4th pair with flattened plate-like pinnules. Can occur in large numbers in the right conditions. One species locally, *A. pygmaea*.

Paraprionospio spp: Prostomium is elongate, without caruncle, and flanked by lateral wings. 3 pairs of branchiae with flattened flabellate or bifoliate plate-like pinnules. Distinct transverse ridge or membrane between branchial bases on chaetiger 1. One species locally, *Paraprionospio alata*.

Prionospio spp: Prostomium without frontal horns, rounded or truncate. Noto- and neuropodial lamellae largest in branchial region; notopodial lamellae often connected by dorsal ridges. Many species in this genus have been described from other areas of the world. See key to species of *Prionospio* from California (Blake, 1996). Besides the species mentioned below there are *P. marsupialia*, *P. sp A Blake*, *P. sp A Harris*, *P. sp J Harris*.

- *P. ehlersi* should be changed to *P. lobulata* for ed. 13 in Leslie's opinion
- *P. heterobranchia* should be changed to *P. newportensis* for ed. 13: *newportensis* reinstated and elevated to species rank by Delgado-Blas 2014
- *P. jubata* (syn: *Prionospio* sp A SCAMIT)
- *P. dubia* (syn: *Prionospio* sp B SCAMIT)
- *P. lighti* (syn: *P. cirrifera* of authors NEP)
- *P. steenstrupi* (Malmgren 1867 in Blake, 1996): Leslie feels this species is probably not local and needs confirmation by DNA

Spiophanes spp:

Lovell's Table on *Spiophanes* species is useful and can be found on the SCAMIT website in the Taxonomic Tools Section.

The Karen Meißner (2005) paper/presentation, *Revision of the genus Spiophanes (Polychaeta, Spionidae); with new synonymies, new records and descriptions of new species*, is very useful with SEM pictures and figures that clearly define the characters. Six species to watch for: *Spiophanes duplex* (syn: *S.s missionensis* Hartman), *S. norrisii* (syn: *S. bombyx* of authors NEP), *S. wigleyi*, *S. berkeleyorum*, *S. fimbriata*, *S. kimballi*.

And with that, a very information-filled day was concluded.



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