

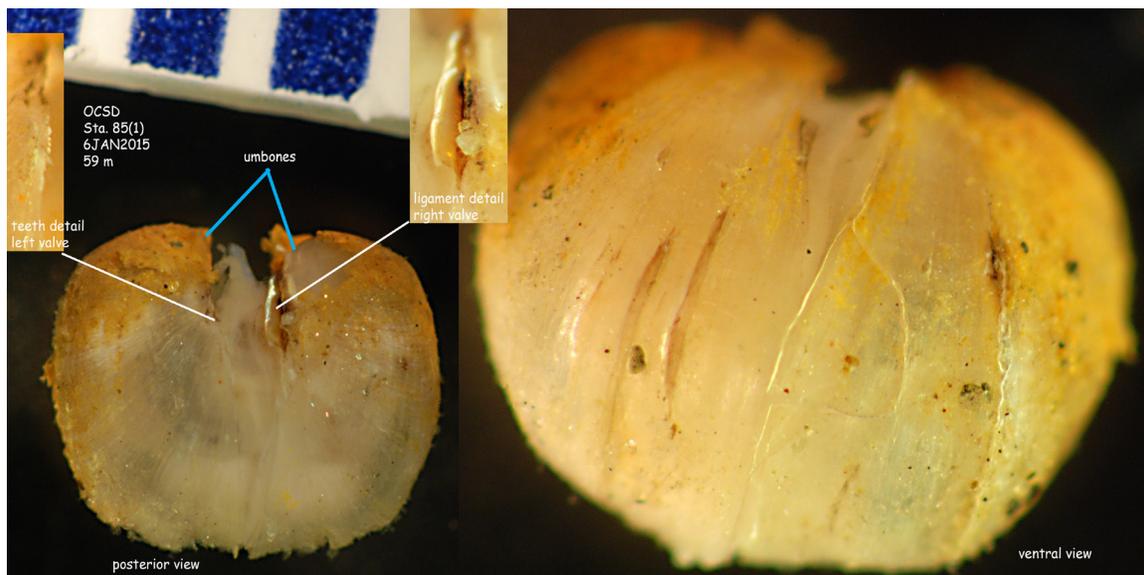
SOUTHERN
CALIFORNIA
ASSOCIATION OF
MARINE
INVERTEBRATE
TAXONOMISTS



March–April, 2016

SCAMIT Newsletter

Vol. 34 No. 6



Mytilimeria sp from OCSD station 85(1), January 2015, 59m; Photo by K. Barwick

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

Publication Date: 9 August 2016

22 MARCH 2016, LUMBRINERIS SPP, NHMLAC

Attendance: Ron Velarde, Kathy Langan (CSD); Bill Furlong, Brent Haggin, Larry Lovell (LACSD); Greg Lyon, Erin Oderlin (CLAEMD); Kelvin Barwick (OCSD); Leslie Harris (NHMLAC); Karen Green (Leidos)

Business: President Larry Lovell opened the meeting with the business portion. He announced that the Board of Officers was re-elected, and thanked everyone who voted.

UPCOMING MEETINGS

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

The upcoming meeting will focus on bivalve and other mollusk taxonomic issues at Orange County Sanitation District (OCSD) on April 18th. The new staff at CLAEMD will be leading this meeting and discussing issues related to *Crenella* uncovered in their voucher collection during recent training activities. Host, Kelvin Barwick, will send out additional information.

The Southern California Academy of Sciences (SCAS) Annual Meeting at the University of Southern California will be held May 6–7. There will be a celebration of the 125th year of SCAS. SCAMIT will have a membership table set up on Friday, May 6th; Erin Oderlin has volunteered to work the table, and she would be very happy to have another person there.

There is no meeting scheduled for May as there is not a topic yet. On June 20th and 21st, there will be a 2-day meeting; morphometrics and various taxa at The Santa Barbara Museum of Natural History. Monday the 20th will be a morphometrics workshop led by Gabriella Navas. We will start the business meeting at 8:30 that day. Tuesday the 21st, Lisa Gilbane will briefly present the work BOEM is doing with Dr. Page at UCSB to document and model the spread of *Watersipora* species at oil platforms. Lisa is interested in recruiting SCAMIT's taxonomic expertise to help identify invertebrates from this study, mainly amphipods and bryozoans, at a future meeting. Lisa's talk will be followed by presentations by Beth Horvath on her ongoing gorgonian work and Jeff Goddard on nudibranchs and their allies. Paul Valentich-Scott will also make himself available to help resolve any problem bivalve identifications. This will make for exciting days in Santa Barbara. There is no meeting in July as many members will be field sampling. [Editor's note: Unfortunately Gabriella and Beth had to cancel due to unforeseen circumstances. Gabriella hopes to hold the Morphometrics Workshop at a future SCAMIT meeting.]

The International Polychaete Conference 12 is August 1–5 at the National Museum Wales, Cardiff, UK. At this conference SCAMIT would like to propose that IPC13 (in 2019) be held at Cal State Long Beach. It will be the 30th Anniversary of IPC3, which Don Reish organized in 1989!

Leslie Harris gave us an introduction and demonstration of the Coastal Biodiversity Risk Analysis Tool (CBRAT). She attended a workshop recently and told us that CBRAT was originally used to track and report invasive species as well as commercially important species. This large ecoinformatics platform has been greatly expanded over the past several years. It contains information on approximately 20,000 species, ranging from Alaska to the Gulf of California. Some of the categories of information included are Taxonomy, Biogeography ("eco-regions"), Abundance (categories), Environment, Life History (trophic levels), Specialization,



Morphology & Physiology, Invasion, and Comments. For more information, see the CBRAT website at www.cbrat.org

Next, Leslie shared some videos from Kelly Dorgan of various polychaetes, including *Cirriformia* and *Sternaspis* burrowing through a clear, viscous gel. It was very interesting to watch live worms expand and contract their bodies as they adeptly moved through this medium.

Then it was time to examine specimens. We started with a specimen of *Petaloclymene* that has a slightly different stain pattern than *P. pacifica*; there is a thin unstaining line at setiger 8, that interrupts the solid stain that extends past setiger 8 in *P. pacifica*. This worm was collected from San Diego Bay during Bight'13 sampling. Leslie commented she has seen it from SPAWAR samples (located in San Diego Bay) and showed us her illustrations of the staining pattern. Larry noted it is common at 30m stations. For Bight'13, this was recorded as *P. pacifica* but probably should be called *Petaloclymene* DC1, according to Larry. Larry brought out a very large specimen of *P. pacifica* from station C4, Newport Canyon, from a depth of 200m. The dorsal pores were clearly visible on setigers 8, 9, and 10. Larry gave the specimen to Karen Green for dissection.

While people were examining specimens Larry started a slide show of SCAMIT's Twenty Year Anniversary, featuring founding members and officers during the years 1982–2002. This slide show can be found on the SCAMIT website.

After lunch Larry began his presentation on the identification of anterior ends of *Lumbrineris* spp. He reviewed the resources available in the SCAMIT toolbox for Lumbrineridae. The benchmark Larry uses for identifying anterior ends is the specimen must have at least 10 setigers. If the specimen has fewer than 10 setigers, back off to species ("sp"). To determine acicula color, view the anterior acicula. Within a sample, Larry's methodology is to look at the longest specimen first, then work your way to shorter and shorter animals, focusing on examining post-setal lobe morphology at setiger 10.

Lumbrineris sp E is the same as the old *Lumbrineris* sp D of Lovell. *L. latreilli* is a Mediterranean species and may be *Lumbrineris* sp E. The jaws of these two species need to be examined. Larry suggested that *Lumbrineris* sp E should be described as a new species with *L. latreilli* of authors NEP (not Audouin & Milne-Edwards) as a junior synonym.

Lumbrinerids with dark acicula and composite setae starting on setiger 1 from local SCB samples are primarily *Lumbrineris ligulata*, *L. index*, and *L. japonica*. We examined large specimens of each of these three species and focused on the morphology of the postsetal lobes on setiger 10. The postsetal lobe of *L. ligulata* is symmetrical and rounded. The postsetal lobe of *L. index* is evenly tapered to a point. The postsetal lobe of *L. japonica* is rounded on the ventrum then tapers to a point extending out from the dorsum. A secondary character for *L. japonica* is its prostomium is more rounded than *L. ligulata* and *L. index*. Also, *L. japonica* usually has reddish brown pigment. We reached consensus that we could distinguish these three species based on postsetal lobe morphology of setiger 10. It was noted that these specimens are large, and it might be more difficult to distinguish smaller specimens.

Lumbrinerids with yellow acicula and composite setae starting on setiger 1 from local SCB samples are primarily *Lumbrineris cruzensis*, *L. limicola*, *L. latreilli*, and *Lumbrineris* sp E. We examined large specimens of each of these four species and focused on the morphology of the postsetal lobes on setiger 10. The postsetal lobe of *L. cruzensis* is asymmetrically rounded



with the dorsal portion larger. The postsetal lobe of *L. limicola* is rounded on the ventrum then tapers to a point extending out from the dorsum. The postsetal lobe of *L. latreilli* is broader at the base than *L. limicola* and the dorsal tip has a slight dip before the end. The postsetal lobe of *Lumbrineris* sp E is tapered to an upwardly (dorsal) pointing tip. We reached consensus that we could distinguish these four species based on this character. It was noted, again, that these specimens are large and it might be more difficult to distinguish smaller specimens.

Leslie showed us an image of a methyl green stained Lumbrinerid that had a pattern of triangles along the length of the animal. The bases of the triangles lined up with the setal fascicles; the tips of the triangles reached towards the mid-dorsum of the animal. She commented that she has seen other stain patterns on Lumbrinerids and suggested we try staining our specimens with methyl green.

Ron and Kathy brought a specimen of *Eclysippe trilobata* from San Diego, station 8438, depth of 530m that had some slightly different character states than our usual *E. trilobata*. Leslie examined the specimen and commented that there were no gaps between the branchiae, branchiae are large, palae are longer but still thin, different stain pattern, and the elongation of abdominal setigers is not as pronounced. The conclusion is that this animal is probably a different species, and a provisional voucher sheet should be produced.

18 APRIL 2016, MOLLUSCA, OCSO

Attendance: Erin Oderlin, Greg Lyon, Craig Campbell (CLAEMD); Terra Petry, Chase McDonald, Larry Lovell, Don Cadien (LACSD); Russel Carvalho (SFPUC); Mike McCarthy, Kelvin Barwick, Ken Sakamoto, Ernie Ruckman, Danny Tang, Ben Ferraro (OCSO); Megan Lilly, Wendy Enright (CSD); Tony Phillips (private contractor).

Business: Because no one had offered up a topic for May, Vice President Leslie will likely call a meeting to discuss one of the many remaining polychaete issues in need of resolution. Larry reminded everyone of the morphometric and mollusk meeting at the Santa Barbara Museum of Natural History on June 20 & 21.

Larry also announced the sale of Don Cadien's literature library, the proceeds of which will be donated to SCAMIT. Don's listing of 11,500 reprints will be auctioned off for \$8,625 (or about \$.75/reprint). Larry asked if the members on hand had an idea for a minimum bid. Shipping would not be included in any offer, and the buyer would have to arrange for the shipping separately.

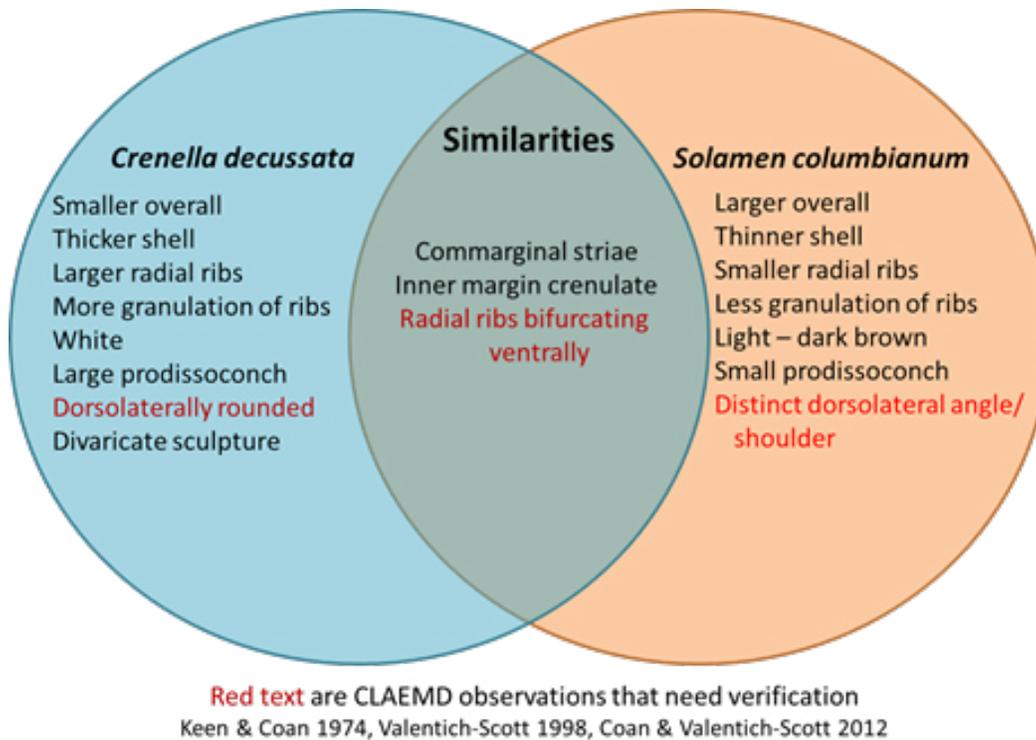
Following the business portion of the meeting, Erin Oderlin got things off the ground with a presentation of the City's investigation into small, white to yellowish, ribbed bivalves: *Crenella* vs. *Solamen*. After having been recently trained on Mollusca, Erin, Greg, and Craig ran into some problems distinguishing small specimens of *Crenella decussata* and *Solamen columbianum*. Simply, they were not clear on how to handle the small specimens, and when trying to identify them according to their recent training, they encountered some confusion over the interpretation of certain characters and character states.

Erin presented images of their specimens of *Crenella decussata* and compared them to images prepared by Kelvin (B'08, Station 7493). She followed with *S. columbianum* images (from holotype) and CLAEMD collections (SMB Station NA3, 7/14/2015), along with the illustration from Dall (1897). Kelvin questioned whether the Dall illustration truly represented the pictured



specimens, perhaps because of the seemingly emphasized ribbing. The side-by-side comparison showed a coarser ribbing/beading in *C. decussata* vs. *S. columbianum*. Don interjected that *Solamen* has nearly twice as many ribs than *Crenella*; however, Erin replied that counting the ribs is not practical for juveniles. Greg had spent time counting ribs in juvenile specimens of the two species and found the difference can be subtle and difficult to apply consistently; however, the effort yielded other characters of shape and sculpture that could be used to separate the species across a range of sizes. CLAEMD staff encounters juveniles of both species together in the same sample, although *Crenella* is generally found in coarser sand stations. Tony mentioned that he also sees *Crenella* in coarser sediments. Don countered that you can get both specimens in muddy sand sediments. *C. decussata* is generally a small species with “large” specimens reaching a whopping 4 mm.

Erin also presented an interesting Venn diagram comparing the published and observed characters used to distinguish *C. decussata* and *S. columbianum*.



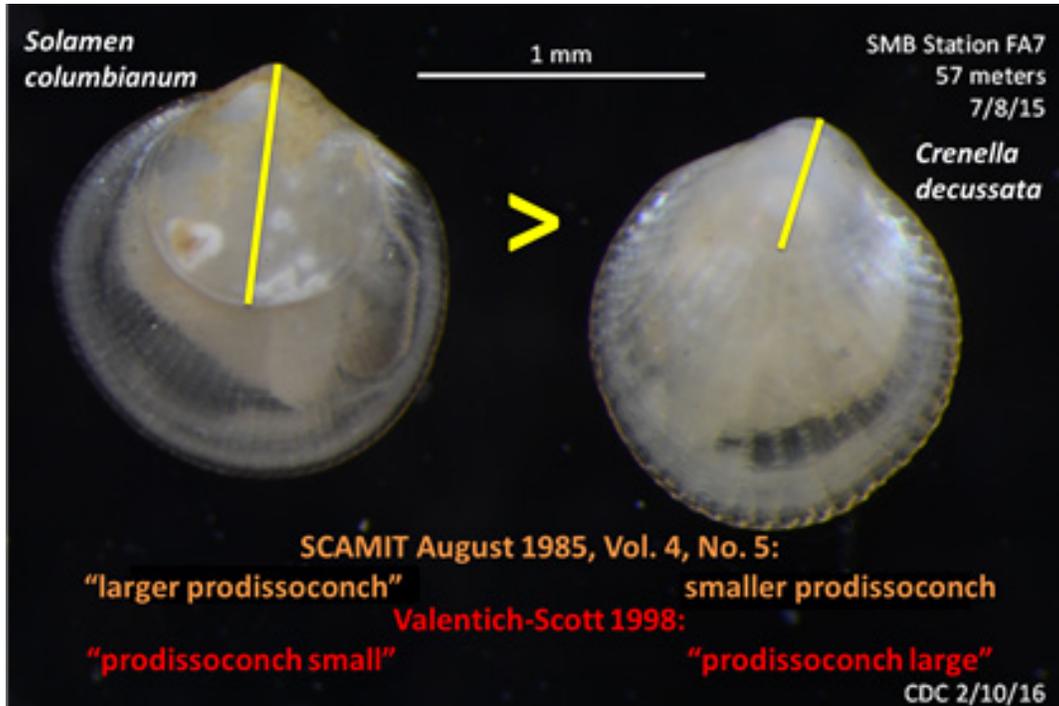
Some wonderful discussions ensued regarding clarification of the following subjects - “divaricate” vs. “bifurcating” sculpture, “terminal” vs. “prosogyrate” umbone, and prodissoconch size, among other topics.

The presentation next focused on some of the more confusing characters, to which CLAEMD staff provided some clarification.

- The prodissoconch: The comparison photo of juvenile specimens clearly showed that *S. columbianum* had a much larger prodissoconch that extended about 1/2 the length of the shell, whereas that of *Crenella* extended only 1/4 of the shell. Furthermore, in SCAMIT NL Vol. 4, No. 5 (1985) there was mention of *S. columbianum* having a “larger prodissoconch” than *C. decussata*. However, in the MMS Atlas in 1998, Paul Valentich-Scott states



“prodissoconch small” for *S. columbianum* and “prodissoconch large” for *C. decussata*. Everyone suggested that Erin send the slide (see below) to Paul Valentich-Scott at SBMNH and request clarification as to what Erin had portrayed relative to what Paul described back in 1998. [In an email communication with Erin, Paul responded that the “comparison of ‘large’ and ‘small’ (in descriptions can be) pretty defective (because) they are always relative to something. These comparisons refer to the full sized shell, and seldom work well with smaller specimens like (the juveniles pictured in the slides)”. Thus, the *Solamen* prodissoconch is small, when compared to a full-sized adult shell at 25 mm. Similarly for *Crenella*, its prodissoconch is large when compared to its adult shell which is usually < 5 mm.”



- Bifurcating radial ribs: CLAEMD staff (Greg Lyon) found that both species have bifurcating radial ribs, which were especially easy to view when the specimens were dried. This led to discussion of what “divaricate” means, especially as used by Keen and Coan (1974). Did they mean bifurcating? CLAEMD staff believes so because only *Crenella* has truly divaricating radial lirae. They found that bifurcate and divaricate has been used inter-changeably; however, they are not the same and divaricating is applicable only to *Crenella*. Some of this confusion stems from the use of “divaricating” and “bifurcating” characters states in past SCAMIT NLs.

CLAEMD proposed several differences for distinguishing the two species:

- *S. columbianum* has a distinct dorsolateral angle vs. the evenly rounded dorsolateral edges in *C. decussata*.
- All of the ribs radiate from (or originate from) the umbo in *Solamen*, but the lateral ribs of *Crenella* divaricate from the central radial ribs, and thus have two origins to the ribbing.
- *Solamen* often has sediment adhering to the shell; whereas *Crenella* is typically a clean, white shell.



Erin finished with a nice picture showing the divaricate ribs along the anterior end of *Crenella*, as well as the very distinctively beaded ribs.

The presentation concluded with an encouraging discussion of the benefits of pulling together information for a presentation, to which people chimed in that training also serves as a good learning tool. Hence, everyone should make an effort to pull together information for a SCAMIT workshop. It can only help to crystalize and resolve taxonomic problems.

Don pointed out that our locally reported species, *Crenella decussata*, is a widely distributed species originally described from the Atlantic. On going molecular investigations are likely to split this single species at some time in the future.

Kelvin next had the floor and shared pictures of *Mytilimeria* sp (Lyonsiidae), a new record for SCAMIT. He took the photo with their new Leica photo microscopy set-up. The identification of the specimen came from discussions on the SCAMIT list server over the past month with Paul Valentich-Scott, SBMNH. He mentioned that members of *Mytilimeria* are often found in association with sponges and ascidians, but Kelvin's specimen was found by itself. He showed a comparison of his specimens to images of *Mytilimeria nuttalli* from Coan et al (2000). Wendy commented that the valves were extremely inflated and that the images do not accurately show that trait. Kelvin concurred.

Kelvin then presented a few problems that he discovered during the process of training CLAEMD staff in molluscan taxonomy.

Problem #1: *Modiolus* sp. Juveniles have routinely been recorded as *Modiolus* sp, especially individuals below 35 mm (per SCAMIT NL 1985). Kelvin had been speciating *Modiolatus neglectus* at smaller sizes based on the presence and shape/character of the hairs on the shell. So the question was whether or not we should begin backing off to sub-family (Modiolinae) instead of genus (*Modiolus*) since two modiolid genera are possible. A related question is, "What should the size limit be?" CSD folks suggested that they use 1 cm as the size limitation. Wendy noted that at the 35 mm limit, you begin seeing the more "adult" character states associated with shell outline. Kelvin was offering up the idea of using the hair morphology to distinguish the couple of potential Modiolinae in the SCB. He showed pictures of the hairs from *Modiolus capax*, which are more fan-like, whereas the *Modiolus neglectus* shell has broad scale-like structures. Don suggested adopting the CSD 1 cm limit and look for the character of the hairs and scales. Coan et al. (2000) has a good comparative table and illustrations of these different morphologies. Wendy questioned whether or not the hairs were reliable on small specimens, thinking that their morphology could be affected by environment rather than systematic differences. Don mentioned that habitat defined some of the distribution. Russell discussed the City of San Francisco practice of distinguishing *Modiolus rectus* vs. *M. capax*, using the distance between the teeth (or what they have been calling crenulations) based on an outdated key. The discussion yielded the following convention (draft):

- Specimens >2 cm can be identified to species using a combination of characters outlined in Coan et al. (2000) (This negates SCAMIT's 1985 "35 mm" rule.)
- Specimens 1–2 cm can be identified to species using the shape of the shell and/or the periostracal setae.



- Specimens <1 cm or any specimens that are unidentifiable using the characters above should be placed in the Subfamily Modiolinae (Historically, records of *Modiolus* sp juvenile can be placed in Subfamily)

Problem #2: *Protothaca* sp: Juvenile *Protothaca* are difficult to separate from *Chione*. You can't differentiate them without looking at the pallial sinus. The idea was that if a deep pallial sinus was present, you could identify the specimen to *Protothaca*. But *Protothaca* has been split into *Callithaca* and *Leukoma*, and therefore you can no longer back off to *Protothaca*. Both *Callithaca* and *Leukoma* are shaped like *Chione*, but *Chione* has a shallow pallial sinus. So when faced with small specimens, one must back-off to subfamily Venerinae when they are too small to identify to species. In contrast, Tony suggested that the generally similar *Venerupis* can be identified by the elongated shell, even at 1 mm sizes.

Juvenile “*Protothaca*” convention (draft):

- Those juvenile Venerids that superficially resemble *Chione* sp should still be opened to observe the pallial sinus (This was first outlined in the “Micro-Bivalvia of Southern California and Central California” (SCAMIT, 2004)
- Those with a shallow pallial sinus should be recorded as *Chione* sp (no change)
- Those with a deep pallial sinus should be placed in the Subfamily Venerinae (Historically, records of *Protothaca* sp juvenile can be placed in Subfamily)

Problem #3: *Kurtiella* “*compressa*”. The species of “*Kurtiella*” that occurs in the SCB is actually a new species of *Kurtiella*, originally called *Mysella* sp D SCAMIT 1998. The question is whether to report it as *Mysella* sp D SCAMIT 1998 or *Kurtiella* sp D (SCAMIT 1998). The application of *Kurtiella* results from a mis-identification in Coan et al. (2000), but has since been clarified by Coan and Valentich-Scott (2012). The final decision was to report the species as *Kurtiella* sp D (SCAMIT 1998).

Tony mentioned the use of Shirlastain on bivalves to help delineate internal structure. It works with the pallial sinus, but it disappears quickly so you must look at it right away. Megan mentioned that it helps with revealing the presence of cerebral sense organs in the nemertea as well.

Lunch followed, and the Secretary made a hasty exit!

After lunch, we started looking at Nuculanidae. In preparation for a MS Kelvin has been digging around in the museums (SDMNH, NHMLAC, and CAS, thus far) for something on *Nuculana* sp A. A few possible specimens were found, often as part of mixed lots from the SCB. All the NHMLAC lots of *N. sp A* come from Bight projects material. However, there is a large amount of still unexamined material at CAS. It will require at least one return visit, if not more, to review it all.



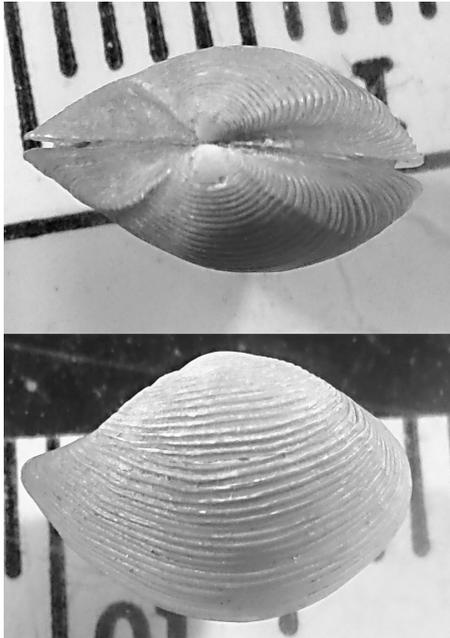


Figure 1. *Nuculana penderi* (Dall & Bartsch); dorsal and lateral views; tick marks=1 mm (paratype CAIZ064424; Canada: British Columbia: Vancouver Island: Barkley Sound, Ucluelet to ship channel. 8-36 fm)



Figure 2. *Saccella* sp OC1 Barwick, 2015; left and right lateral views; scale bar = 2 mm (OCSD Sta. 57(1), 10JUL2014, 195 m)

At CAS the paratype for *Nuculana penderi* was observed and photographed (Fig. 1). This reminded Kelvin of the question regarding the identity of our local specimens of *N. penderi* raising, in his mind, the possibility of yet another cryptic species. Its possible relationship to *N. sp A* was discussed but no consensus was reached.

Next a possible new species of *Saccella* was presented to the group. Kelvin stated that, after consultation with Paul Valentich-Scott, it was decided that it most closely resembled *Saccella laeviradius*, a panamic species. But the size, in relation to the tooth count, made that comparison problematic. Kelvin has decided to erect an in-house provisional for the time being, *Saccella* sp OC1 (Fig. 2). While training at CLAEMD a second specimens was found in their Santa Monica Bay samples.

Next, Tony showed a picture of a *Nuculana* with a squared off rostrum and heavy commarginal ribbing (though finer than *N. hamata*) that also seemed unusual.

Finally, Wendy had brought a few specimens for the group to look at including an as yet unidentified *Neomeniomorpha*, a *Periploma* with a deep sulcus that seemed unlikely to be one of our local species, and a tiny bivalve that was ultimately deemed a Lasaeidae. She also confirmed that The City of San Diego's vouchers for *Solamen* and *Crenella* matched those of CLAEMD.



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