SOUTHERN CALIFORNIA ASSOCIATION OF MARINE INVERTEBRATE TAXONOMISTS

November/December, 2013 SCAMIT Newsletter Vol. 32, No. 4

Paguristes bakeri inhabiting a shell fully covered by the sponge *Suberites* and with an *Ophiopholis bakeri* for a neighbor.
Bight'13 Trawl Station 9287, 201.5 m
Photo by Greg Lyons, CLA-EMD

This Issue

Publication Date: 5 February 2014

APLACOPHORA, 8 NOVEMBER 2013, PAM NEUBERT, CSD

Attendees: Don Cadien, Larry Lovell (LACSD); Kelvin Barwick (OCSD); Wendy Enright, Megan Lilly, Kathy Langan, Ron Velarde, Adriano Feit (CSD); Seth Jones (Marine Taxonomic Services); N. Scott Rugh (Invertebrate Paleontologist); Pam Neubert (EcoAnalysts – Presenter), Susan Kidwell (University of Chicago – Presenter), Tony Phillips, Dean Pasko (DCE).

UPCOMING MEETINGS

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

Business:

Larry opened the meeting with his usual announcement of upcoming meetings. Tony Phillips took a minute to remind attendees that at his December 9th cnidaria review meeting, he will be dealing with infauna species and will not be discussing trawl specimens. Larry then reviewed all the upcoming B'13 trawl invertebrate review meetings which are as follows: Monday, November 18th – Arthropods at LACSD's marine biology lab in Carson. Monday, December 16th – sponges, cnidarians, mollusks, urochordates, sipunculids (if needed), echiurans, polychaetes, and ectoprocts at LACSD. Tuesday, January 7th – Wrap-up meeting for any remaining specimens for further identification (FID) not previously addressed (except Echinoderms) at LACSD.Wednesday, January 29th – Echinoderms (including assessment of all *Brisaster* specimens) to be held at CSD. Many of the 2014 SCAMIT meetings will be dealing with difficult species encountered during the processing of the Bight'13 samples. As of now there are no meetings scheduled for 2014, but that will be changing soon. There was discussion of how the meeting will handle trawl *Brisaster* identifications and how will participants deal with the large number of specimens to be identified and the mixed lots likely expected. Megan anticipated that the specimens will be segregated by depth and that the expectation of mixed lots may be overblown.

The group also discussed use of Bight'13 list server, particularly that it should be used more fully. Larry encouraged everyone to also use the list server to raise questions and issues early in the process. Kelvin reminded everyone to "respond to all" when using the list server to keep everyone in the loop. Responding to just the originator of the email can inadvertently prevent other Bight'13 taxonomists from receiving important information. We also discussed the potential of having meetings or workshops to which participants could bring the not-yet-funded specialty taxa (i.e., *Photis*, Cirratulids, Oligochaetes). Everyone was reminded that Bight'13 taxonomists should separate these groups into separate vials within their sample vial (1/4 dram would be fine), so that they could be easily pulled for the specialty taxonomy, should funds become available, or for identification "workshops" early in the year.

The need to revisit Tellinids was also suggested, but there was no resolution as to who would lead it, or when it might occur.

Finally, Larry summarized the status of the Taxonomic database tool. There is a beta version housed on the SCCWRP website that is nearly ready to release. Larry is preparing documentation to seek additional/continued support from SCCWRP and the major POTW agencies. Additionally, SCAMIT will be hiring an intern to mine images from various computers, etc., to populate the Database tool and clean-up existing vouchers and names in Taxonomic Toolbox. Some of the clean-up will require the expertise of the local taxonomists and we may dedicate portions of monthly meetings to address these issues.

Next Susan Kidwell of the University of Chicago presented a summary of her past decade of work, "Putting the dead to work..." Susan was visiting Southern California to attend the CERF conference and agreed to update SCAMIT on her recent work. Her visit to the CERF conference involved introducing this community to the value of death assemblages for ecological analysis, especially in settings with various kinds of human impacts. She has two new publications providing an overview of her team's findings: "Time Averaging and Fidelity of Modern Death Assemblages: Building a Foundation for Conservation Paleobiology," published in Paleontology, July 2013 (v56, p 487–522); and "Implications of time-averaged death assemblages for ecology and conservation biology", due out in November in the Annual Reviews of Ecology, Evolution, and Systematics (v44). She will be happy to send you pdfs if you email her (skidwell@uchicago.edu). Her team includes former post-doc Adam Tomasovych, who many of you have probably met during previous visits to southern California (he is now back home at the Slovak Institute of Geology), and new post-doc Jill Leonard-Pingel, a recent PhD out of Scripps.

Susan and her lab have been using the grunge (the shelly debris of benthic sediment samples after all the "live" animals have been removed for taxonomic identification) from the monitoring programs of the City of San Diego, Los Angeles County Sanitation District, Orange County Sanitation District and from regional Bight programs. Death assemblages are "time-averaged" accumulations of the skeletal remains of past generations of living organisms. If not too biased by loss or too influenced by exotic input, they should provide insight into local historical ecological conditions. Susan and her team have been using grunge samples from the 1975 BLM survey and Bight'03 as well as recent agency samples from 2004 through 2012, generating species data from dead mollusk assemblages to compare with living assemblages at the same sets of sites. They use far-field reference sites to evaluate the fidelity of death assemblages under relatively natural conditions, and use sets of samples along pollution gradients to evaluate the ability of dead shell remains to detect historical change in ecological conditions.

The following is a brief summary from the wealth of information presented on some very interesting research. Using radiocarbon-calibrated amino-acid racemization dating, Susan's lab can determine the absolute magnitude of time-averaging that these dead shell assemblages represent. She presented *Nuculana taphria* shell-age distributions showing some specimens from agency-sampled Southern California Bight (SCB) sediments to be 12,500 years old. Overall, however, the time-averaged assemblages usually have a L-shaped shell-age frequency distribution, with most shells being less than 100 years old. Another local species, *Parvilucina tenuisculpta*, showed a much younger profile with most shells less than 50 years old. It was interesting that both taxa had older average shell ages on the San Pedro shelf than on the other shelves (e.g., off San Diego, Santa Barbara, Orange County). This might be a signal that living populations there have been especially suppressed during the urban 20th century.

Susan then described her most recent sampling program in the SCB. Using insights into the preservation quality of currently forming death assemblages, she was able to generate a successful NSF grant application to evaluate how the reliability of shell assemblages might change with progressive sedimentary burial, using sediment cores. This work would also give her and her team a chance to reconstruct historical responses to urbanization in the marine environment, going back before the Clean Water Act. Susan collected box and sediment cores using the R/V Melville in September 2012 off Malibu (muddy sediments with no DDT), off the Palos Verdes Shelf and LACSD outfall (muddy sediments with DDT contamination), and near the OCSD outfall (sandy sediments without DDT). They are focusing first on a 50 m site along LACSD's Line 10 where

cores have abundant shells. They use the bivalve portion of LACSD's "live" data from 1972 to 2009 to create a prediction of what they should find down-core if the cores are effective recorders of ecological history. In the live data, the bivalve community sampled in the 1970s and early 1980s exhibit high community stability, dominated by the indicator species *P. tenuisculpta*, a signal of anthropogenic stress (steady high nutrients). Over the next several decades, the living bivalve community has contained fewer *Parvilucina* and exhibited greater inter-annual variability in species composition: you get greater instability with cleaner environments, and these samples also had greater evenness among a larger number of functional groups. Their box cores collected sediments ranging in age from 2009 to 1954 with each 2 cm representing 5 years, based on Lead-210 age-dating by collaborator Clark Alexander. The core increments from the 1970s and early 1980s show a peak of *Parvilucina*, consistent with the known ecological history.

Moving beyond the known history since 1972, her comparative analysis showed that shell assemblages from mid-to late 2000s were comparable to those of the 1950 increment. The core thus recognizes that the PV shelf has changed remarkably from its highly degraded state when the Clean Water Act started, and specifically that its recovery has progressed to a state comparable at least to the middle of the 20th century. She and her team are now processing samples from longer vibracores at this PV site in order to get pre-outfall (1937) assemblage information and reach several additional centuries into the pre-urban past.

Susan and her colleagues have gone through extraordinary efforts to rescue historical information on living bivalve communities. For example, they have digitized 6000 pages of CSD data from pre-and post-discharge samples, by quarter and station, collected between 1962 and 1984. In addition, they have digitized the "live" Mollusca data from both the 1954-56 State Water Board and the 1975 BLM surveys along the SCB. The 1975 BLM live data along with the dead data they produced from the grunge of some of those samples is already available publicly at DRYAD (www.datadryad.org), a non-profit organization and general purpose repository of data that provides long-term storage of and access to ecological data used in publications. However, the other historical data will require some taxonomic clean-up, and she hopes that SCAMIT may be able to help in this effort. Larry mentioned that Shelly Moore of SCCWRP has built a tool based on prior SCAMIT lists to take historical data sets and match old records to current SCAMIT names.

Pam Neubert, Aplacophorans

Pam started with a little background on the Aplacophorans. The aplacophorans represent a monophyletic group that is exclusively benthic and marine, occurring across all the world's oceans. All modern forms are shell-less and form two distinct clades, Solenogastres (Neomeniomorpha) and Caudofoveata (Chaetodermatomorpha). There are currently thought to be 18 families and 320 species but this is an underestimate given there are numerous undescribed species. Aplacophorans are traditionally considered ancestral, but as is often the case, that idea is not uniformly held. They have their greatest diversity at 1000 m or deeper.

Amelie Scheltema and Luitfried von Salvini-Plawen are the two dominant workers in the field. Prof. Scheltema believes in the use of hard parts (spicules, radula) to distinguish taxa, whereas Prof. Salvini-Plawen uses anatomical/histological character states. Prof. Scheltema believes they are derived mollusks, whereas Prof. Salvini-Plawen suggests they are ancestral.

Aplacophorans have the following in common with the "typical" mollusc: Radula, mantle cavity, aragonite spicules, but no shell. But are they monophyletic? Most recent evidence

suggests yes. Using genetic data, Kocot *et al.* (2011) found that the Aculifera were monophyletic (Chaetodermompha, Neomeniomorpha) and were sister taxa to the Monoplacophora. Sherholz *et al*. (2013) looked at internal anatomy of monoplacophorans and neomeniomorphs and determined that these two groups share developmental traits further supporting the concept of Aculifera. Once they develop to adulthood, the shared traits are lost. Additionally for the first time Todt and Kocot (in manuscript) have found brooding Neomeniomorpha.

Pam then reviewed some of her post-doc work on *Spiomenia*, which has capitate spicules and a radula with denticles lateral to the radular buttress. Pam's work as a post-doc investigated whether Simrothiellidae was monophyletic but that Cavibelonia was not. Dimitry Ivanov shared with Pam how to quickly distinguish four genera of prochaetodermatids. He provided four drawings that demonstrated different patterns of the surface spicules and how they are aligned along the body axis: *Spathoderma* have spicules that spiral outward from antero-ventro center; *Prochaetoderma* have linearly arranged spicules lying longitudinally along the body axis; *Claviderma* have obliquely arranged spicules angled from ventrum-to-dorsum towards the posterior; and *Chevroderma* spicules are arranged in a diagonal chevron type pattern from anterior to posterior.

Having been updated on recent research on aplacophorans, we moved on to discuss the practical aspects of sectioning them. Sectioning is important for new species descriptions and provides useful insights as noted above regarding phylogeny**.** Prior to such invasive analysis, however, information on the external features should be gathered, particularly the morphology and arrangements of the aragonitic spicules that cover the body. These should be carefully scraped off from several areas of the body including the margins of the pedal groove and the mid dorsal area. If there are different types of spicules in different areas all should be gathered and documented. Use of polarized light birefringence patterns can help describe these spicules by providing information of their thickness and three-dimensional forms. Once the spicules have been documented, the spicules and tissues need to be removed to allow for radular dissection. Bleaching the specimens helps rid them of spicules; but maintains the radula. Preparing aplacophorans for sectioning requires multiple steps. Pam showed histological slides of *Spiomenia* from her post-doctoral work and discussed methods for preparing and drawing aplacophorans, and reconstructing internal structure of whole organisms from the histological sections. We also reviewed some of the permanent slides of these specimens, during which Pam demonstrated the capitate spicules of *Spiomenia*. Spicules usually vary in different regions of the body, and many Solenogastres have special modified spicules, which tend to be located on the postero-dorsal portion of the body.

We also saw examples of the copulatory apparatus, including spicules with hooked ends and bifurcate tips. The morphology of the hook and general shape is diagnostic for different genera. These types of copulatory spicules are present only in the Solenogastres.

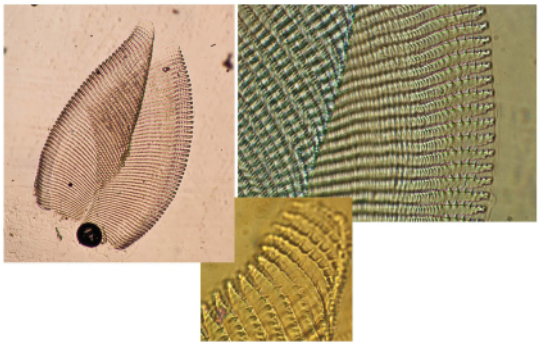
We next looked at slides of radula structure. There was some discussion of the functioning of the radula and how it works without large musculature attachments. Pam has seen specimens with cnidarian nematocysts as well as sponge spicules in the gut.

We discussed the difficulty of aplacophoran identifications, during which Pam congratulated Kelvin and Don on their key, noting that she uses it all the time. However, there is still some ambiguity regarding *Chaetoderma pacificum* vs. *C. marinelli* vs. *Chaetoderma* sp A, which should be resolved with the discovery of additional specimens. With the various presentations complete, we jumped into the examination of specimens for FID. Wendy had pulled CSD

specimens for review by Pam. Two specimens came from 676 m, station 9095 near Encinitas/ Carlsbad area, along the lower slope. The first specimen had a large fat oral shield or "lips". We performed a spicule preparation. There was some discussion of the preferred media for spicule preparations – H2O (Pam) vs. EtOH (Kelvin) – but both preferred to get them from the same area of the body by routine. The sample included two species, one denuded specimen originally thought to *C. pacificum* based on general gestalt and the other was something different. Kelvin removed the few remaining spicules from the denuded specimen and mounted them for view via Nomarski polarization. These were long with a narrow base, almost parallel sided, but there were not enough of them to identify the specimen. They then dissected spicules from the second specimen, which had spicules over the entire body. After careful review by Pam, Kelvin, Wendy, Tony, and Ron this specimen was determined to be *Chaetoderma* sp A SCAMIT 2005. As it turns out, Station 9095 was just north of Station 4100 from which *Chaetoderma* sp A had been originally collected. This was only the second specimen of this species found to date.

The second set of specimens came from off the South Bay Ocean Outfall (CSD), Station 9009, 648 m. Of the three specimens, two were determined to be *Falcidens hartmanae*, while the other was *Chaetoderma hancocki*.

Kruppomenia sp radula (ID Pam Neubert). Specimen courtesy of Don Cadien:
Cascadia slope station EBS - 64 950m 05 July 1975
photo credit: Kelvin Barwick



Larry took this opportunity to segue into SCAMIT's Taxonomic Database Tool (DBT). Kelvin and Don's key to the chaeteodermatidae is an excellent example of how the DBT could be used. Each species is linked to the color images of the specimens and their spicules. The beta version of the DBT allows you to click on a species, and pull up information on depth range, phylogeny, distribution map, and, most importantly, images. We're all looking forward to seeing how this tool develops.

Don then introduced a specimen from the Oregon slope that Pam thought might be interesting. It was a member of the Neomeniomorpha, which is as far as Don was able to go with it: Neomeniomorpha sp CS14, a.k.a. the plump C-shaped neomeniomorph. Pam dissected spicules from the dorsal ridge, some of which turned out to be hollow, elongate, and spatulate (thinning and distally curved). There was discussion about whether hollow spicules were specific to *Philodoskepia*. Kelvin, under guidance of Pam's direction, then dissected out the radula, which was hooked. Kelvin cleaned and mounted it revealing a bilateral radula with rows of broad-based, closely packed denticulate bars. This made Pam speculate that it was in the family Simrothiellidae, quite likely *Kruppomenia* sp, representing the first west coast record. Kelvin and Wendy then brought back some beautiful images of the radula.

Don brought out another specimen from the same station. This specimen was full of grouped spicules. It generated a lot of curiosity, but alas as the meeting was reaching the end of a long day, interest dwindled. However, before packing up for the day, Pam and Don identified this second neomeniod from off Oregon as a possible *Tegulaherpia* sp, which would also be a new geographic record for this genus.

Publication Date: 5 February 2014

BIGHT'13 TRAWL FIDs, ARTHROPODA, 18 NOV 2013, LACSD

Attendees: Larry Lovell, Chase McDonald, Cheryl Brantley, Don Cadien (LACSD); Kelvin Barwick, Danny Tang, Ken Sakamoto (OCSD); Wendy Enright, Megan Lilly, Matt Nelson, Maiko Kasuya, Ron Velarde (CSD); Kelly Tait (AMEC); Mark LeBlanc (NHMLAC); Wayne Dossett (MBC); Emmanuel Riccet, Greg Lyon (CLAEMD); Jim Mann (ABC); Tony Phillips, Dean Pasko (DCE); Emile Fesler (BioNeyda).

Business:

This was the first SCAMIT sponsored Bight Trawl identification meeting. There was some discussion about the upcoming meetings, their meeting dates and locations. Please see the SCAMIT website or read the General Membership emails for the latest developments. After some discussion, the group decided to hold the January 2014 meeting to discuss Echinoderms at the City of San Diego laboratory.

Specimen review:

Don began by asking what had been brought for further identification (FID).

- **CLAEMD** - Shrimp confirmations; along with *Paguristes bakeri*, and *Pachycheles pubescens*
- **MBC** - One peneid shrimp
- **AMEC** - Several anomurans, shrimp, and brachyurans
- **OCSD** - Several samples of shrimp for verification
- **CSD** - Squat lobster (*Munidopsis aspera*) to show and tell, and, if time allows, incidentally collected sergestid shrimps and mysids,
- **ABC** labs - A number of shrimp, brachyurans, and pycnogonids

Ron asked if anyone pulled *Neocrangon recima*/*zacae* from their trawls for fixation in 95% EtOH for genetic analysis. Ethanol fixed specimens of both species were collected by CLAMED, CSD, LACSD, and OCSD. Eric Pilgram of the EPA Cincinnati lab will be performing the genetic analysis to resolve these co-occurring species.

We decided to take specimens in order of pycnogonids, brachyurans, anomurans, finishing with the more numerous shrimp. Larry suggested that we also discuss relevant literature that laboratories should consider using in the field or in the laboratory to complete these identifications in the future.

Although the workshop was successful in finalizing the identifications of all of the specimens brought to the meetings, not every identification was documented in detail. For the most part, the Secretary took notes of specimens being identified by D. Cadien while other taxonomists worked at other microscopes available at other locations in the laboratory. During the latter part of the day, R. Velarde confirmed shrimp specimens from other laboratories to insure that all specimens were completed before day's end.

Pycnogonida

ABC brought a few specimens of *Nymphon pixillae* for identification. No other species of pycnogonids were examined.

Anomura:

CLAEMD brought a beautiful specimen of *Paguristes bakeri* that had burrowed deeply into a shell overgrown by the sponge *Suberites*. Greg had an excellent cross-section photo of the specimen within the sponge (see cover photo). We discussed the application of a mechanism for deciding whether the chelae are "very broad" or not. Dean had measured many specimens (large and small) when working for the City of San Diego, and found that the width of chelae – measured at the widest portion of propodus behind the dactyl – in *P. bakeri* is ≥75% of the length; where as it is ≤66% in *P. turgidus*. In addition, Tony noted that the corneal spines of *P. bakeri* are much less pronounced and less pointed than those in *P. turgidus*. The primary references for this group is Janet Haig's key updated by SCAMIT (J. Haig: A preliminary key to the hermit crabs of California. AHF, Revised 14 February 1990) or Wicksten (2012).

ABC Labs brought another, smaller, *P. bakeri* housed in a *Megasurcula* shell. This specimen was collected from the Santa Barbara Channel, and was verified by D. Cadien.

CLAEMD also brought in a specimen of *Munnidopsis aspera*, from 466 m that was confirmed. The primary reference for this group is Cadien (1997: California Galatheids, D. Cadien, CSDLAC, 10 December 1997) or Wicksten (2102). *M. aspera* differs from *M. depressus* in absence of a strongly upturned rostrum or ventro-lateral spines, and the presence of setose chelae. *Munnidopsis* are easy to quickly separate from other galatheids by their "white" eyes. *M. aspera* is an addition to the SCAMIT species list. It is not often collected due to preference for hard bottom substrates; whereas *M. depressa* is thought to be associated with multi-armed seastars. Ron then passed around their specimen of *Munnida tenella* (see photo in SCAMIT NL, Vol. 32, No. 1).

We then reviewed a CLAEMD specimen of *Pachycheles pubescens*, which was confirmed using Wicksten's key (2012). The specimen initially keyed to *P. holosericus*, but is distinguished by the presence of 7 telson plates vs. 5 in *P. holosericus*.

Brachyura

We made a valiant effort to work our way through the Brachyurans before lunch. AMEC brought a number of vials for review, most of which were immature Majoids (left in Majoidea). Nearly all of these were very small (carapace diameter < 1cm), and although many looked like juvenile *Pyromaia*, they were determined to be not reportable because they did not meet the criterion of having a diameter of ≥1 cm. Only one or two specimens were considered countable by this criterion, and then confidently identified as *P. tuberculata*. The primary identification aid for this group remains Debbie Zmarzly's Understanding Majid Crabs (we all need a little understanding) an internal publication of the City of San Diego Lab that has been widely circulated among SCAMIT member agencies, along with Wicksten (2012) and Garth (1958).

Kelly also had several specimens labeled as *Lophopanopeus.* Unfortunately, many of these specimens were also <1 cm and considered too small to identify. However, one station contained several specimens that exceeded the 1 cm mark, and also retained their chelae. All keyed to *L. frontalis* with the absence of several key characteristics: a large proximal tooth on the dactyl, bilobed carpus of ambulatory legs, and granulate chelae. Don reviewed several other specimens from other stations and all were confirmed as *L. frontalis* based on one or more of the above characters.

ABC brought a small, densely decorated *Loxorhynchus* that was determined to be *L. grandis*

by the presence of the two vertically stacked hepatic spines, relative to one in *L. crispatus*. Wicksten (2012) confirms the use of this character over the spread or deflexed nature of the rostrum or use of the crab's carapace decorations. Several other Majoidea samples brought for review contained mixed batches of *P. tuberculata* and *Podochela lobifrons.* A different sample contained a specimen decorated with an anemone (*Urticina* sp A, recognized by the uneven rows of verrucae on the column) with a nearly 1 cm broad disc, and a large barnacle (*Paraconcavus pacificus*). Although this specimen was relatively large, it could not be easily identified because the barnacle had completely overgrown the carapace along the posterior margin and obscured the key characters; however, after some debate, the specimen was identified as *P. lobifrons*.

P. tuberculata was then confirmed from another station.

The OCSD representatives brought a kelp crab collected from 78 m off northern San Diego County. There was some debate over the identity of the specimen as it did not readily key using Wicksten (2012). No one was sure if the difficulty was the result of the specimen (roughly 5 mm in carapace width) being an immature representative of a large taxon, or a poor specimen of something smaller. The key in Wicksten and descriptions in Garth (1958) kept leading us in the direction of *Pugetia*, but the specimen just didn't fit any description or image correctly. Eventually, recognizing that it was a male, we pulled the gonopods and, comparing these to the figures in Garth, Dean concluded that the specimen might represent an immature *Chorilia longipes* (Plate P, Figure 4). However, the specimen did not show the extended rostral horns. There was some debate that the gonopod also resembled that of *P. producta* (Plate L, Figure 2), but again the carapace did not resemble the images or description. Alternatively, there was some resemblance to the gonopod represented of *P. richi* in (Plate L, Figure 3), which everyone was initially leaning towards based on the Wicksten's key. In the end, the specimen and gonopods were return to the OCSD staff with some confidence that it belonged to the family Epialtidae, but unsure of the specific identification, with a blessing to decide for themselves given all the information that had been discussed and debated.

Shrimps

Wayne (MBC) brought a specimen of *Sicyonia* from Station 8355 in the Harbor area that had been collected with many *S. penicillata*, but the specimen just "looked different." The key literature for this group is Perez-Farfante (1985). The specimen was fairly small, relative to the co-occurring adults, and had a broken rostrum. The defining characters of the spination of the rostrum, carapace, and abdomen were not developed to the point of allowing for a confident identification. It had some characteristics of *S. penicillata*, but could not be verified, although better judgment suggested that it was probably the same as the other specimens from the same trawl.

ABC brought several samples containing large numbers of crangonids. These were predominantly mixed lots of *N. zacae*/*resima*, and one *Neocrangon alaskensis* from Station 9424 (63 m).

AMEC brought a *Heptacarpus palpator* confirmed by R. Velarde, from Mission Bay, Station 8152, about 12 m, while a *Metacrangon spinosissima* from station 9431 was confirmed. Station 9419 from 191 m contained a mixed bag of *N. resima*, *N. zacae*, and *Heptacarpus tenuissimus*.

CLAEMD received confirmations from R. Velarde of *H. stimpsoni* (Stn 8318, in LA Harbor); *Lysmata californica* (Stn 9319, SMB), *Spirontocaris holmesi* (Stn 9287, SMB), *S. prionota* (Stn 8322, LA Harbor).

Publication Date: 5 February 2014

CNIDARIA, 9 DECEMBER 2013, TONY PHILLIPS, OCSD

Attendees: Carol Paquette (MBC); Terra Petry, Larry Lovell (LACSD); Erica Jarvis, Rob Gamber, Ken Sakamoto, Laura Terriquez, Kelvin Barwick (OCSD); Greg Lyon (CLA-EMD); Megan Lilly, Nick Haring, Wendy Enright (CSD); Beth Horvath (SBMNH); Tony Phillips, Dean Pasko (DCE)

Business:

The Jan 7th meeting will be follow-up from the December 16th B'13 Trawl meeting covering all things not arthropod or echinoderm.

The January 29th meeting will cover trawl Echinoderms at CSD.

Larry put out a general request for 2014 meetings. Most will likely be Bight'13-related. Megan suggested a meeting dealing with small sipunculids in grab samples and how to distinguish them (e.g., *Siphonosoma ingens* vs. *Sipunculus nudus*); although the single topic may not be enough for full meeting. Tony mentioned that he is getting *Thysanocardia* from Puget Sound that look different externally.

This prompted additional discussion of potential Bight'13 meetings in a workshop format to take some burden off the host. For example, one or more individuals could host the workshop where Bight'13 taxonomists could bring their troubling specimens for further ID, resolution, confirmation, or just to inform others (e.g., provisional taxa demonstrations), without the host(s) being burdened with creating large presentations.

Larry also reminded everyone to vial specialty taxonomy taxa (oligochaetes, cirratulids, *Photis* spp) into separate vials and within jars by taxa. This effort will facilitate the identification of these taxa should the funding come through in succeeding years.

Don Cadien will be divesting himself of a large portion of his literature collection. He intends to donate it to SCAMIT members and SCAMIT so that it could be sold to raise money for SCAMIT.

Tony then began the presentation titled: Infaunal Anthozoa of the SCB, Big John's Legacy. Tony explained how he came about getting these samples when helping clean out John's storage and collection. During the clean-out and organizational effort, Tony found many of John's personal voucher specimens, including a number of provisional taxa that had not been clearly documented. He added other donated specimens from Carol, Don, Dean, and his own collection to compile this presentation. Tony also paid tribute to John's work and the reliance we all had on John such that many of us let this very difficult group go without giving it a lot of effort. [We all owe Tony a big favor for spending many hours and hours photographing and documenting as well as possible John's legacy in this presentation. It was a Herculean effort!]

In going through John's material and notebooks, and in his efforts to give himself a better understanding of the subject, Tony found the following material of great value: The MMS Atlas, Volume 3 has a lot of value including an excellent glossary and great species descriptions; Light's manual has an excellent key, but poor glossary; the British Anthozoa (Manuel 1981) is a great resource for general family and generic descriptions and illustrations; and John's notebook that provided a great history of the evolution of his thinking on these taxa. He discussed the difficulty of the soft internal characters used by Cnidarian specialists to identify specimens that has been a stumbling block for us all (e.g., siphonoglyph; actinopharynx; primary, secondary, tertiary

mesenteries; acontia; etc.). Tony did not try to deal with the scleractinia but suggested Bythel (1986) "Guide to the Living Corals", and Cairns (1994) "Scleractinia of the Temperate North Pacific". Carlgren (1949), the survey of the actiniara includes keys to all taxa but uses internal characters that are often difficult to interpret or apply. Definitions of the various families and genera can be found in Carlgren's publication. Tony explained that he was not trying to provide a workshop of "how to id the anthozoans" but wanted to provide us an opportunity to get on the same page by providing images of material collected from the SCB. The presentation of images followed the organization of SCAMIT Ed. 8, and using John's identifications and names as he applied them; however, this was not intended to be an exhaustive review of all the taxa listed in SCAMIT Ed 8, only a review of John's collection. Some of those IDs were changed according to collective discussions that took place during the meeting. An updated presentation will be made available at the December 16 Trawl Review meeting. Tony also said that this is a "living" presentation: As other species listed in Ed 8 or new species are identified from Bight'13 samples, he will photograph them and add them to this presentation.

Tony started with describing the list of taxa he would be covering. [Secretary's clarification: in the polyp phase of cnidarians, the proximal end is the basal end where the physa or pedal disc is located, and the distal end is the mouth-tentacle end.]

Heterogorgia tortuosa – Beth Horvath looked at these in 2012 and initially believed them to be something else (probably *Leptogorgia*). Tony followed Beth's lead and went to literature and found support for Beth's claim that our *Heterogorgia* is probably not so. The species referred to as *H. tortuosa* by members of SCAMIT actually has a calix with "flaps" that fold over the polyps, which are characteristic of *Leptogorgia*. Real *H. tortuosa* have polyps placed irregularly over the rachis, and are bright yellow. However, Beth clarified that the sclerite form of this species was more true to *Eugorgia*. Beth will be describing this species as a *Eugorgia* sp nov (not *Leptogorgia*). For now, SCAMIT members should continue to use *Heterogorgia tortuosa* to reference this white gorgonian with alternating polyps arranged opposite each other, and with slits that fold over the polyps because Bight'13 identifications are to be based on the SCAMIT Edition 8 listing.

Tony then showed *Thesea* sp B with polyps placed randomly around stalk, colored gray to yellow-white and calyx with 8 lobes surrounding opening of polyp. *Eugorgia*, *Filigorgia* and *Thesea* all have eight lobes. The ensuing discussion of *Thesea* sp A (stalk is white) vs *Thesea* sp B, concluded that no one really sees a *Thesea* sp A; however Beth later mentioned that she has some specimens that she got from John. Her recollection was that they were the same. *Thesea* typically has "football" sclerites, but some specimens/colonies will develop without them. Beth plans to revisit some of these specimens from John to help resolve this question. [At the trawl FID meeting on December 16th a specimen of *Thesea* thought to be sp A was shown by San Diego. The specimen was white like *Thesea* sp A, but differences in general morphology (width of stalk, placement of polyps and difference in sclerite size) had Beth come to the conclusion that this could be another species. At this time it will be called *Thesea* sp SD1. Pictures have been taken by Tony of the individual and will be added to the presentation.]

We then looked at juvenile Renillidae, *Renilla koellikeri*. Juveniles, taken from shallow waters in fine sediments, look very different from the adults with 4 mm specimens having a single main polyp.

Stachyptilum superbum was next, another juvenile, but this time from deep water. This juvenile

specimen had a single calyx with large spines that surrounded a solitary polyp, and had spicules along the axis.

Tony then moved into the members of the Virgulariidae. *Acanthoptilum* has sclerites at the base of each extended leaf. The MMS Atlas includes descriptions of two species, *A. album* Nutting 1909 and *A. gracile* (Gabb 1863), and makes mention of a third, *A. annulatum* Nutting 1909. One species, *Acanthoptilum* sp Type 1, is probably *A. annulatum*. It has reddish sclerites below the extended leaf. Another species, *Acanthoptilum* sp Type 2, appears to have white sclerites below the leaves. However, the distinctive SCB shelf species with the reddish peduncle will continue to be referred to as *Acanthoptilum* sp per SCAMIT Edition 8 protocol.

Stylatula elongata is another common taxon collected in our trawl and benthic samples. *S. elongata* has many sclerites below the tightly grouped polyps of each leaf. Megan has observed specimens in the field with pigment at the base of the polyps, even though the species is described as being white. The pigment is generally uniform on the polyps, like that on *Virgularia californica*, but fades with time in EtOH. We also discussed juvenile *S. elongata*, which will have tightly packed leaves vs. *Stylatula* sp A, which has the polyps widely separated and fewer supporting spicules per leaf. We then clarified that counts of *S. elongata* are handled a little differently than other sea pens. We typically include a count of one (1) even when the peduncle is not present because *S. elongata* have a very elongate rachis with the peduncle oft well below the penetration depth of the van veen grab, and the rachis is often broken to fit the specimen within the sample vial. This method of counting is not followed with the other sea pens.

Virgularia agassizii, *V. californica*, and *V.* sp B do not have sclerites below the leaves. *V. agassizii* has just a few polyps (three to five) and with very little color.

V. californica has six to eight polyps per leave, although 17–18 are reported in the literature. The polyps have dark pigmented cores and the siphonozooids are also darkly pigmented. Tony noted that the polyp color can fade with time, but the siphonozooids maintained their color.

Virgularia sp B has 5–7 polps per leaf and siphonzooids that are <u>not</u> darkly pigmented. Instead *Virgularia* sp B has a brownish ground color at the base of each polyp which extends down to the rachis. The actual tips of the polyps are white. The specimens came from OCSD samples, in 50–60 meter water.

Tony also showed some beautiful pictures of *Pennatula phosphorea*, a deep-water animal from depths >400 m. It has sweeping reddish polyp leaves with long sclerites that all bend to one side, with a rachis base that is white, and which contains groups of small sclerites within. Tony noted that the MMS Atlas is a very good reference for these deep-water taxa.

We finished the sea pens with a few pictures of *Ptilosarcus gurneyi*, the brightly colored orange-red pen with a thick peduncle and large rachis.

We next dove into the Ceriantharia, a difficult group for most of us. Cerianthids are true tube-dwelling anemones that are exclusively infaunal. They are defined as having simple tentacles in two cycles: longer marginal and shorter oral tentacles, and unpaired complete mesenteries. They are quite distinctive in having a long, tapering, smooth column that ends in a typically narrowed end. Tony noted a difference in color between the different cerianthids in John's collection, particularly *Arachnanthus* and *Pachycerianthus*. *Pachycerianthus* is distinguished by having a chocolate brown column, whereas *Arachnanthus* are typically a lighter shade of brown and some specimens from the Channel Islands were white. *Arachnanthus* have mesenteries that reach toward the end of the body and end in acontoids. *Arachnanthus* sp A is defined as a brown cerianthid with a single pair of mesenteries running the length of the body, each ending with a single acontoid. However, during a review of Molodtsova 2003, Tony learned that *Arachnanthus* can vary from having zero to two acontoids. In *Arachnanthus* sp A the acontoids are typically cream colored, but those from the Chanel Island specimens were bright white. Another specimen from the Channel Islands had a brown column but two acontoids per mesentery.

Tony found a couple of vials labeled as *Ceriantharia* sp C, which John had defined as a cerianthid with mesenteries that stop about 1/2 to 2/3 the way down the base. However, Dean raised the point that John had told him that he had stopped recognizing *Ceriantharia* sp C because he considered it an invalid taxon. After some discussion, the group decided that we should keep a lookout for specimens representing this mesentery arrangement, but would report it as *Ceriantharia*.

Pachycerianthus, in addition to being chocolate brown, are very large by comparison. The largest Pachycerianthids can be 50+ cm, and live in meters-long tubes. Carol mentioned that she has seen specimens that are large enough to fill a quart jar. In reviewing the specimens, Tony noted that *Pachycerianthus* has labial palps and a ribbed actinopharynx, which were absent in *Arachnanthus*, and mesenteries that are much more thickened in the middle of the column.

We then discussed how to deal with specimens that are tangled such that they cannot be reliably dissected or that have broken bases. These should all be referred to the Order Ceriantharia. In addition, some are clean but do not have acontoids or other distinguishing characters. These too are referred to Ceriantharia. Tony and others recommended that when collecting benthic grabs, it is good practice to separate the cerianthid tubes from the remainder of the sample by placing them in a whirl pack or separate container because they can create such a mess when dismantling them to collect the anemone.

After a lunch break, we moved into Part II of Big John's Legacy: The actiniarians, corallomorphs and provisional/unidentified species. Tony noted that the actiniarians are the most commonly encountered anthozoans in our samples and that for the purposes of identification, cross-sections seem to be more valuable than longitudinal sections.

We began with the Edwardsiidae. Edwardsids are elongate, infaunal anthozoans, whose body is divided into several distinct regions: capitulum, scapus with periderm, scapulus without periderm, and an aboral end that may be differentiated into a physa. They have eight primary mesenteries – enumerate the primary mesenteries only, i.e., those attached to body wall and pharynx. The presence or absence of nemathybomes – ectodermal invaginations of the mesogela containing nematocyst batteries – is of generic value.

Publication Date: 5 February 2014

Drillactis sp (=*Nematostella vectensis*) is a small edwardsid with brownish coloration to the column and very thin tentacles. There were no descriptions of the species from preserved material. They differ from *Edwardsia* and *Scolanthus* by the presence of fine tentacles, tapered distal end, and absence of nemathybomes. This species has only been found in estuaries between 1 and 5 meters.

As Tony looked through vials of *Edwardsia* and *Scolanthus* he found vouchered specimens that did not match the descriptions. This group has represented a conundrum for many years among those of us performing cnidarian identifications in the SCB. Tony spent quite some time trying to make sense of the publication (Daley and Ljubenkov 2008) relative to the specimens at hand, but ran into some difficulties.

Edwardsia californica – Tony mentioned the disconnect between the description of *E. californica* relative to the key, particularly couplet 4B, which suggests that the nemathybomes are inconspicuous. However, Tony noted that the nemathybomes are very prominent and quite easily seen in straight rows raised above the epidermis. He also noted that the physa is very thin and the body has a soft, flimsy structure. Do not use presence of debris on the physa as a distinctive character as this was seen on several different species.

Megan showed an image of a San Diego specimen that may be a new species of *Edwardsia*. They are hoping to collect more specimens.

E. handi – Daley and Ljubenkov (2008) note that *E. handi* replaces *E. californica* north of Point Conception. *E. handi* has large protrusive nemathybomes in low density between mesenteries, with basotrichs of two different sizes.

E. juliae – a compact animal with small nemathybomes that do not protrude notably above the epidermis. There are two forms pictured: a smooth form and one that is tightly packed and wrinkled. They are typically collected from 10 – 15 m in outer harbor areas, but can be found on the shallow shelf to 45 meters. Tony noted that many of the specimens he has seen have an ivory white physa.

E. olguini – The basal end of *E. olguini* is expanded, making them look like *Scolanthus*, but the nemathybomes appear smaller and more depressed than those of *Scolanthus*.

E. profunda – This deep water species is distinguished by the rosette-shaped physa. It also has tiny nemathybomes that occur in a single row proximally and spread out as you move away from the base.

Scolanthus scamiti – This bay species is reddish brown and has small nemathybomes in irregular rows that occur in higher concentrations proximally than distally.

S. triangulus – This nearshore edwardsid has large nemathybomes arranged in irregular rows. The large nemathybomes have large basotrichs that lay one on another and appear like stacked bananas.

The Halcampoididae are also elongate, vermiform anthozoans, without a sphincter, and with a physa-shaped, rarely flattened, proximal end. *Pentactinia californica* is our local representative. It has tenaculi with adherent sand grains along the column, white tentacles without internal pigment, and five pair of perfect mesenteries. Juveniles generally do not have the full complement of mesenteries. For example Tony reviewed one 4 mm specimen with eight mesenteries.

The Limnactiniidae are a vermiform anemone that do not have any tentacles, nor a sphincter. There are eight to 10 perfect mesenteries and the oral disc has a very thickened ectoderm. John had recognized one species, Limnactiniidae sp A, and Tony provided some excellent images. It has no tentacles, but typically retains some coloration in oral region where tentacles might be placed if present, and a long actinopharynx.

Among the Haloclavidae, we discussed *Anemonactis* sp A, *Harenactis attenuata*, and *Peachia quinquecapitata.* There are supposed to be 20 tentacles in *Anemonactis*, but Tony never found one with that many. The tentacles often have pigment within, and have capitate tips, which can be wider than the remainder of tentacle, while the wrinkled column has rows of papillae externally, and a large basal pore. Juvenile *Anemonactis* have fewer tentacles, but the tentacles are still capitate.

Harenactis attenuata has a physa-like aboral end that is often flattened. It has 24 tentacles, a smooth column with cinclides (pores). The specimen reviewed was collected from 30 m on D transect off LACSD.

Peachia quinquecapitata has 12 tentacles that are nipple-like to digitiform, six pairs of primary mesenteries that are continuous along the entire column. A longitudinal section is valuable to verify that the mesenteries run the full length of the animal.

The Halcampidae are not too different from the Haloclavidae. John had a specimen of *Cactosoma arenaria*, which had 24 tentacles, and the columns of a couple of specimens were covered in adherent material. These also had six pairs of mesenteries.

Halcampa decemtentaculata has 10 tentacles and five pairs of perfect mesenteries. Generally, *H. decemtentaculata* is white, with a clear physa, and tentacles without pigment, although CSD staff mentioned that they get specimens with pigment, both associated with the tentacles and occasionally with a pigmented column.

Halianthella sp A has six pairs of mesenteries, groups of 12 tentacles with pigment, and a physa. The column is almost always found with encrusting material, typically of uniform sized sand grains. In contrast, *Pentactinia* has more heterogeneous sand grains adhering to the column. *Halianthella* sp B was not covered here, but is included in John's presentation of Anthozoa from Bight 2003.

Among the members of Actiniidae, Tony showed a small, 2.5 mm specimen that had been labeled as *Anthopleura* sp; however, the group felt that there was not enough evidence to identify the specimen at the generic-level.

Tony then showed a few pictures of specimens labeled as *Epiactis prolifera*. These had a distinct pedal disc, many tentacles, and a wrinkled to smooth column. Tony noted that the mid-portion of the tentacles was larger than either the base or tip, which may be something worth watching for.

Urticina sp A is a relatively large specimen with large veruccae on the distal end of the column, beneath the tentacles. The veruccae occur in tight longitudinal rows. Tony mentioned that *U. macpeaki* was described from the Pacific Northwest by Hauswaldt & Pearson (1999), but the authors made no reference to MacPeak's *Urticina* sp A.

Zaolutus actius (Isanthidae) is another common elongate anemone with a slightly papillated column, elongate tentacles, and a pedal disc. We had a lot of discussion about whether all of the

specimens John referred to *Zaolutus* were representative of a single taxon. Some specimens were very similar to other lots listed as *Diadumene*. We found there to be a discrepancy in several pictures, which Tony noted for correction.

Flosmaris grandis (Isopheliidae) has a large pedal disc, with many tentacles (from 80 – 100) and occurs in shallow water. The specimens that Tony photographed were quite large.

Sagartia catalinensis (Sagartiidae) often occurs on hard substrates (rock, shell, etc.) and forms to the shape of the substrate.

Bunodeopsis sp A (Bolocerodidae) is a small species with long tentacles for its small size. A large specimen is only 2–3 mm tall. These tentacles are not retractile, and are often shed upon collection. *Bunodeopsis* are hard to cross-section because they reproduce asexually and you get mixed counts of mesenteries.

We looked at a few pictures of *Metridium* sp (Metridiidae) which have up to 100 tentacles, a pedal disc, generally ribbed column, and an outer lip that is always ribbed (vs. *Epiactis* or *Urticina*, each of which has smooth lips). *Metridium* also have numerous primary mesenteries.

Corynactis californica (Corallimorphidae) is another small species found attached to rocks and debris, but is distinguished by the clearly capitate tentacles.

We then reviewed several pictures of John's provisional taxa that could not be neatly placed into any of the existing anthozoan families. *Actiniaria* sp 10 (as recorded in Bight'03) is the same, we think, as *Acontifera* sp A (recorded from Bight'08). This is a small species reported from off the Channel Islands, that has adherent shell hash, or not, but is often attached to shell hash. There is very little else to go on.

Anthozoa #49, commonly referred to as "The Brown tent anemone," is a distinctive creature sometimes overlooked because of how it tightly compresses against the substrate to which it attaches (shell or other material). It has six pairs of mesenteries, with muscles positioned towards middle.

Zoanthidea sp A is a small, elongate species from Bigth'03 that is completely encrusted with sand grains and shells. It has tentacles that appear cupped.

Zoanthidea sp B, also from Bight'03, is similar in basic appearance to Zoanthidae sp A except that the specimens are connected. It also has cupped tentacles, and is likely the same species: We couldn't distinguish any differences between the two species!

At the very end Tony showed pictures of specimens that none of us could identify, but were good for all of us to see. Species (?) 1 had been taken from 45 m at a couple of sites in Santa Monica Bay in 2010 and 2011. It had a brown mottled column with distinctive mesenteries. Species (?) 2 is another small, 5 mm specimen collected in Bight'08 from shallow waters. It is a clean, de-nuded species with eight clear mesenteries visible through the body wall, and clear in cross-section. Species (?) 3 is another Bight'08 species collected at 42 m, and distinguished by a dense mesoglea in cross section and a large number of mesenteries. There were specimens labeled as Species (?) 4 but looked like juvenile *Halcampa decemtentaculata.*

Tony showed a few slides comparing Species ?1 and ?5 which seemed to represent two different species. Although very similar in overall appearance, the number of mesenteries differed.

Finally, Tony showed specimens that one should only list as "Actiniaria." These are specimens without any clear qualities or which are exploded leaving one without anything to go on other than the fact that you have a countable specimen.

B'13 TRAWL FIDs, 16 DECEMBER 2013, OCSD

Attendees: Mark LeBlanc (NHMLAC); Greg Lyon (CLAEMD); Megan Lilly, Matt Nelson, Maiko Kasuya, Wendy Enright (CSD); Beth Horvath (SBMNH), Kelly Tait (AMEC); Jim Mann (ABC); Tony Phillips (DCE); Ken Sakamoto, Laura Terriquez (OCSD); Larry Lovell, Cheryl Brantley, Don Cadien (LACSD).

Business:

Larry called the meeting to order with a round robin of introductions and reminded us that Part 2 of the Mollusca & Miscellaneous Phyla review will occur at LACSD Tuesday, January 7th. The final Trawl FID meeting will be Wednesday January 29 at CSD to address Echinodermata.

There seem to be some continuing issues with emails to/from the Bight'13 taxon listserver either not coming in or going out. If you're having problems, please check with your local IT staff for potential issues.

Tony clarified a couple of corrections to his Cnidarian (Anthozoan) presentation from last week and re-distributed his corrected power points (e.g., *Heterogorgia tortuosa* will be transferred to *Eugorgia* sp 1, *Edwardsia handi* is actually *E. californica*, etc.). However, these changes will be proposed for Edition 9 and name usage for Bight'13 identifications will follow Edition 8 of the SCAMIT Species List.

Larry turned the meeting over to Don and the meeting broke up into Mollusca, Cnidaria, and other groups with Beth Horvath on hand to help ID the gorgonians right away.

ID resolutions:

Mollusca – We confirmed specimens of *Tegula eiseni*, *Caesia fossatus*, *Argopecten ventricosus*, *Norrisia norrisi*, *Megastraea undosa* for Kelly and then identified *Janolus barbarensis*. During the process we realized that the picture of *J. barbarensis* in David Behrens' nudibranch book (Behrens 1991) is "awful" and not representative of the actual animal. A picture of a live specimen brought in by Kelly looked like a *Limacina crockerelli* upon initial inspection. The key character is the indigo blue band beneath the tips of the cerata, which can be either white or more commonly golden.

Platydoris macfarlandi, *Flabellina,* and *Polygireulima rutila* were idenfied for the CLA-EMD staff. There were no specimens of the *Flabellina*, photos only, so we were unable to identify the specimen any further.

Confirmed *Calliostoma keenae* for CSD and identified specimens of *Antiplanes thalea* and *Borsonella merriami,* a new record of live occurrence in the SCB.

Confirmed *Octopus rubescens* for ABC and identified *Calinaticina oldroydii*, *Cancellaria crawfordiana*, *Calliostoma tricolor*, *Antiplanes catalinae*, *Rossia pacifica*, *Acanthodoris brunnea*, and *Tritonia tetraquetra*. A *Simnia* sp was put off for the January meeting when Ron Velarde could attend.

Confirmed *Lamellaria diegoensis* for OCSD. The specimen was without the dermis, and the shell looked quite a bit like *Sinum scopulosum*.

The CSD lab also had a specimen of *Opisthoteuthis* for confirmation. Don Cadien reminded us that *Opisthoteuthis californica* has a larger web and is more disc-shaped/flatter than *Opisthoteuthis* sp A. Megan will still perform a dissection of SD's specimen to do a gill lamellae count to confirm her identification.

Cnidaria – Don also reminded us that *Thesea* sp A Ljubenkov 1986 is bright white, very thick, with scattered polyps (i.e., a 5 cm section will have about 8–10 polyps). Wendy brought a white *Thesea* that was not sp B, and which will become *Thesea* sp SD1. A voucher sheet is in preparation. *Thesea* sp SD1 is white and otherwise very similar to *Thesea* sp B; however, Beth confirmed that the sclerites are different: smaller and without the "footballs" common in *Thesea* sp B.

Beth looked at many gorgonians for us, including *Muricea californica* (CLA-EMD), *Thesea* sp SD1 (CSD), *Eugorgia* sp 1, which Beth will be describing in her upcoming manuscript, *Thesea* sp B, *Adelogorgia phyllosclera*, and *Eugorgia rubens* (OCSD).

Other Cnidarian identifications/confirmations included *Virgularia agassizii*, *Tubularia* sp A, *Aglaophenia* and *Plumularia* (CLA-EMD), *Stephanauge* sp, *Stylatula elongata* (CSD), *Parazoanthus*, *V. agassizii* (OCSD) and *Acanthoptilum* sp (ABC).

Other Miscellaneous Phyla –We then dove into the few remaining specimens of various sorts.

Echiura – *Nellobia eusoma* was confirmed for OCSD.

Ectoprocta – Membranoporidae, *Scrupocellaria diegensis*, Crissiidae were reviewed for CLA-EMD.

Annelida – *Aphrodita longipalpa*, notable for the absence of eyes, longer palps, and presence of a cirriform median antennae, *A. negligens*,and *Chloeia pinnata* were confirmed for ABC Labs. A few specimens of "trawl caught", but true infaunal annelids were examined and identified for AMEC.

Sponges will be addressed at a separate meeting since most (all?) specimens brought for FID by AMEC were from SD Bay. Megan will set up a separate meeting to review those.

The meeting successfully handled all the trawl FID material that was brought to the meeting. Thus the Jan 7 meeting will not be necessary and was cancelled.

BIBLIOGRAPHY

APLACOPHORA LITERATURE

Kocot, K., Cannon, J.T., Todt, C., Citarella, M.R., Kohn, A.B., Meyer, A., Santos, S.R., Schander, C., Moroz, L.L., Leib, B. And K.M. Halanych. 2011. Phylogenomics reveals deep molluscan relationships. Nature. Vol. 477: 452–457.

Scherholz, M., Redl, E., Wollesen, T.,Todt, C. and A. Wanniger. 2013. Aplacophoran molluscs evolved from ancestors with polyplacophoran-like features. Current Biology. Vol. 23: 1–5.

TRAWL FID MEETING LITERATURE – 18 NOVEMBER

Farfante, I.P. 1985. The rock shrimp genus *Sicyonia* (Crustacea: Decapoda: Penaeoidea) in the eastern Pacific. U. S. Fishery Bulletin 83 (1): 1–79.

Garth, J.S. 1958. Brachyura of the Pacific Coast of America. Oxyrhyncha. Allan Hancock Pacific Expedition. Vol. 21, Parts 1 and 2.

Wicksten, M.K. 2012. Decapod Crustacea of the Californian and Oregonian Zoogeographic Provinces. Zootaxa 3371: 1–307.

CNIDARIA LITERATURE

Bethyl, J.C. 1986. A Guide to the Identification of the Living Corals (*Scleractinia*) of Southern California San Diego Natural History Museum.

Cairns, S. 1994. *Scleractinia* of the Temperate North Pacific. Smithsonian Contribution to Zoology. No.557.

Carlgen, O. 1949. A survey of the Ptychodactiaria, Corallimorpharia and Actiniaria. Kungl. Svenska Vetenskapsakademiens Handlingar. Fjärde Serien Band 1, No. 1.

Hauswaldt, J.S., and K.E. Pearson. 1999. *Urticina mcpeaki*, a new species of sea anemone (Anthozoa: Actiniaria: Actiniidae) from the North American Pacific coast. Proceedings of the Biological Society of Washington. 112(4): 652-660.

Manual, R.L. 1981. British Anthozoa (Synopses of the British Fauna, No. 18). Academic Press, London and other cities. 241 pp.

Molodtsova, T.N. 2003. On *Isarachnanthus* from Central Atlantic and Caribbean region with notes on *Isarachnactis lobiancoi* (Carlgren, 1912). Zoologische Verhandelingen, 345: 249-255.

TRAWL FID MEETING LITERATURE – 16 DECEMBER

Behrens, D.W. 1991. Pacific Coast Nudibranchs: A Guide to the Opisthobranchs Alaska to Baja California. Second Edition. Sea Challengers, Monterey, CA.

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

SCAMIT OFFICERS

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

President	Larry Lovell	(310)830-2400X5613	llovell@lacsd.org
Vice-President	Leslie Harris	(213)763-3234	lharris@nhm.org
Secretary	Dean Pakso	(858)395-2104	deanpasko@yahoo.com
Treasurer	Laura Terriquez	(714)593-7474	lterriquez@ocsd.org

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, and $30 to receive a printed copy via USPS. Institutional membership, which includes a mailed printed copy, is $60. All correspondences can be sent to the Secretary at the email address above or to:

SCAMIT
PO Box 50162
Long Beach, CA 90815