

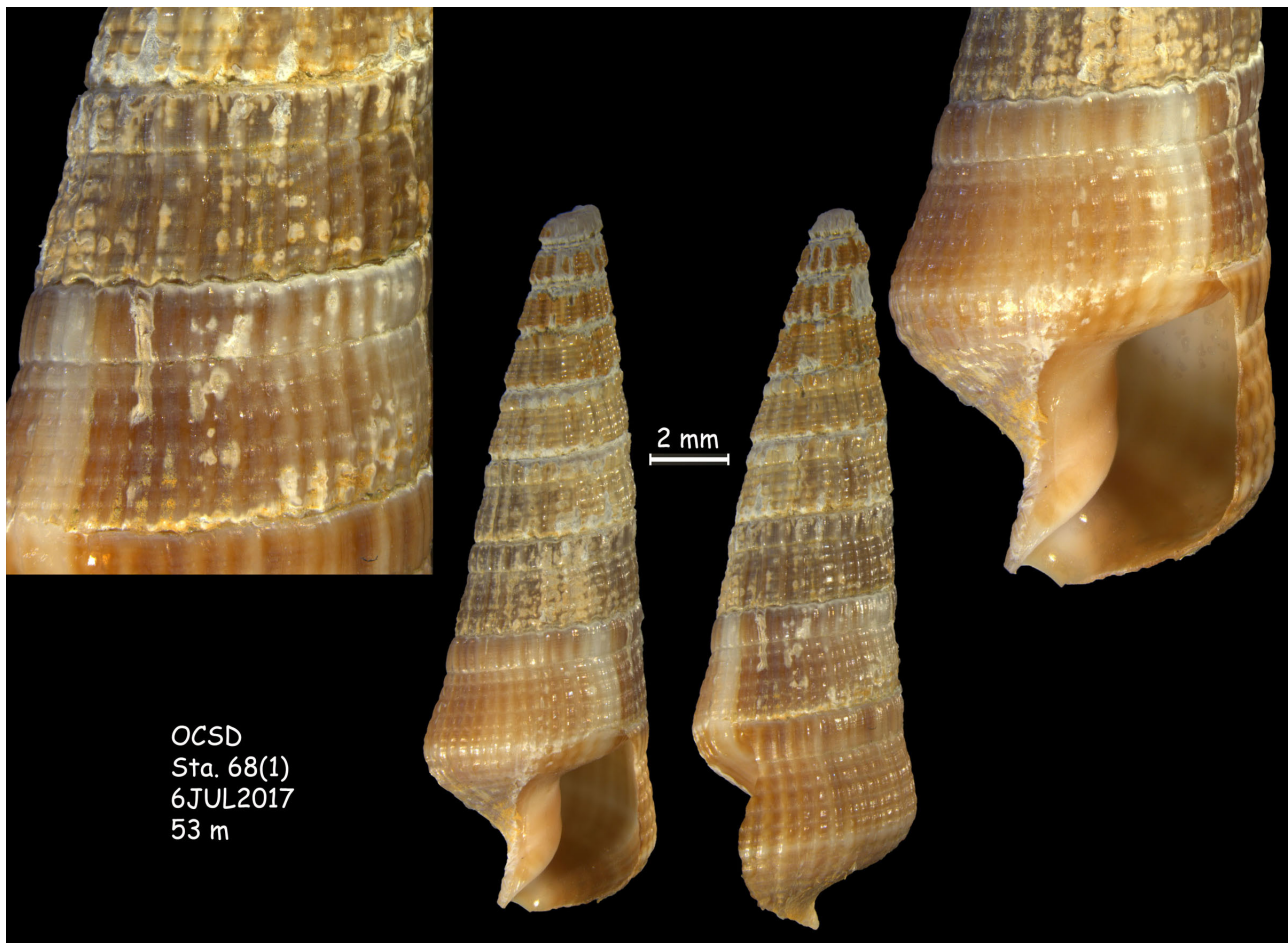
**SOUTHERN
CALIFORNIA
ASSOCIATION OF
MARINE
INVERTEBRATE
TAXONOMISTS**



May–June, 2018

SCAMIT Newsletter

Vol. 37 No. 1



OCSD
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Terebra pedroana, 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: 1 February 2019

7 MAY 2018, MOLLUSCA PROBLEMS, OCSD

Attendance: Megan Lilly, Wendy Enright, CSD; Erin Oderlin, Greg Lyon, CLAEMD; Jovairia Loan, Chase McDonald, LACSD; Mike McCarthy, Kelvin Barwick, OCSD; Katy Estes-Smargiassi, Austin Hendy, NHMLAC - IP; N. Scott Rugh, Invertebrate Paleontologist; Erica Keppel, Smithsonian (remote).

Kelvin opened the meeting by calling for a round of introductions for the sake of our remote attendee, Erika Keppel of the Smithsonian.

UPCOMING MEETINGS

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

Next the Treasurer, Erin Oderlin, reminded everyone that May is Membership month. She said that dues have increased but this is the first time since SCAMIT's inception in 1982. You can now pay by check, cash, or Paypal. Erin asked that however you pay, please always include the completed membership form for her records. If you do choose Paypal you will have to absorb the associated fees. Megan Lilly, SCAMIT Secretary, then gave an update on Newsletter production. Recently, she completed Vol 36 No. 3 & 4. Both are now posted on the SCAMIT website and the printed copies will be mailed out the week of May 14th.

Kelvin Barwick, President, mentioned that the SCAMIT officer election is over and results are in but he doesn't have the official copy yet and therefore didn't announce the suite of officers. There was much guffawing by those present, knowing that the current officers were the only ones on the ballot, thus, leaving little doubt as to the outcome.

Megan then brought up the idea of a pre-Bight'18 trawl meeting for the invertebrate taxonomists to discuss protocols and conventions for field processing, e.g., vouchering, preservation, etc. A discussion ensued as to whether this should be more of a SCAMIT meeting or a Bight'18 meeting. It was decided that it will be announced under the auspices of the Bight'18 Trawl Field Committee rather than SCAMIT.

With that the taxonomy portion of the meeting began. Kelvin started with a review of specimens he had examined with Katy Estes-Smargiassi (NHMLAC-IP). One "trick" they discovered when working with many of the scaphopods is to dry them before examination as this is helpful when trying to view sculpture.

Dentalium vallicolens has sculpturing of lines which continues all the way from the aperture down to the apex and a pronounced curve. In comparison, *Graptacme semipolium* has faint sculpturing that disappears prior to the aperture and overall the animal is "stubbier"; the curvature, however, looks very similar to *D. vallicolens*.

Rhabdus rectius is a bit easier to distinguish, it is straight, with a relatively thin shell and has no sculpture. If worried about confusing it with *Antalis pretiosa*, the latter is going to be wider and significantly more curved. As part of Katy and Kelvin's review, specimens from participating agencies identified as *A. pretiosa* were found to be a mix of *G. semipolium* and *R. rectius* (Table 1). Along with tabulated results (Table 1) of their review, an ID sheet comparing these 3 species is attached at the end of this newsletter. The absence of verifiable specimens of *A. pretiosa* warrant further investigation.



Table 1 - Dentaliida review at NHMLAC-IP with Katy Estes-Smargiassi on March 2, 2018

Agency/ Owner	Voucher #	Station	Collection Date	Depth	No.	Original ID	Final ID
LACSD	NA	0790- 2B/22	Aug-90	151 m	1	<i>Dentalium semipolatum</i>	<i>Rhabdus rectius</i>
LACSD	NA	0714-10B	15-Jan	151 m	1	<i>Antalis pretiosa</i>	<i>Graptacme semipolatum</i>
OCSO	2416	58(1)	10-Jul-14	293 m	1	<i>Antalis pretiosa</i>	<i>Rhabdus rectius</i>
OCSO	1751	C4(1)	7-Jul-11	187m	24	<i>Rabdus rectius</i>	<i>Rhabdus rectius</i>
CLAEMD	NA	SMB	15-Jul	131 m	1	<i>Antalis pretiosa</i>	<i>Graptacme semipolatum</i>
CSD	NA	B11	26-Jul-17	87 m	1	<i>Dentalium vallicolens</i>	<i>Dentalium vallicolens</i>
CSD/KB personal collection	None	I20(1)	27-Jan-97	189 ft.	1	Scaphopoda	<i>Dentalium vallicolens</i>
CSD/KB personal collection	None	I7(2)	23-Jul-97	165 ft	1	Scaphopoda	<i>Dentalium vallicolens</i>
CSD/KB personal collection	None	I21(2)	22-Jan-97	136 ft.	1	Scaphopoda	<i>Graptacme semipolatum</i>
CSD/KB personal collection	None	2180	30-Jul-96	315 ft.	2	Scaphopoda	<i>Dentalium vallicolens</i>

We then moved on to the problem of the day – *Gadila tolmiei* and *Cadulus californicus*. As promised after the November 5, 2012 meeting on the same subject, Kelvin was preparing voucher sheets for both species. He came to the realization that the issue was still unresolved. Therefore, he was turning, again, to the collective wisdom of SCAMIT members.

The issue raised in 2012 was that Pilsbry & Sharp (1897-1898) had stated that *C. californicus* was larger, in general, than *G. tolmiei* as well as more inflated. This was born out by the published illustrations of the types. However, SCAMIT (1996) reported that upon examination of museum specimens of the two species: “It was apparent that what was being recorded as *P. californicus* by LA County was actually *P. tolmiei*. The two species differ in their general shape, *P. californicus* being more slender than *P. tolmiei*, with a less prominent inflation of the shell prior to formation of the adult aperture. Even immature specimens should be separable based on inflation.”

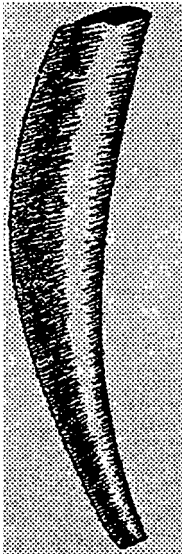


Fig. 1. *Cadulus tolmiei*
(modified from Dall 1897)

Kelvin went back to the beginning and looked at the original descriptions for the two species. *Cadulus tolmiei* was described by Dall in 1897 (Victoria, Vancouver Island, 60 fms.). The description is rather terse and accompanied with a small shaded line drawing (Figure 1). Shimek (1989) reported that the type was lost and designated Dall’s figure as the paratype. Steiner and Kabat (2004) speculate that it is most likely the holotype.

Pilsbry and Sharp published their description of *C. californicus* (Tilamook Bay, Oregon, 786 fms.) the following year in 1898. Within the same publication they described a specimen of *C. tolmiei* but not the type. It is here that they state that it was “smaller and less inflated than *C. californicus*.” A variant of *C. tolmiei* was also described, *C. newcombei*; this was later synonymized by Steiner and Kabat (1994).



Kelvin drew everyone’s attention to a couple of phrases found in the original descriptions for *C. californicus*. First it states, “outline of concave side noticeably convex in the region of greatest swelling.” The second phrase postulated that “two lateral nicks may be normally present” at the shell apex. See figure A(5) in the accompanying *C. californicus* voucher sheet. Significantly Dall reported that the “posterior orifice” of *G. tolmiei* is lacking sculpture.

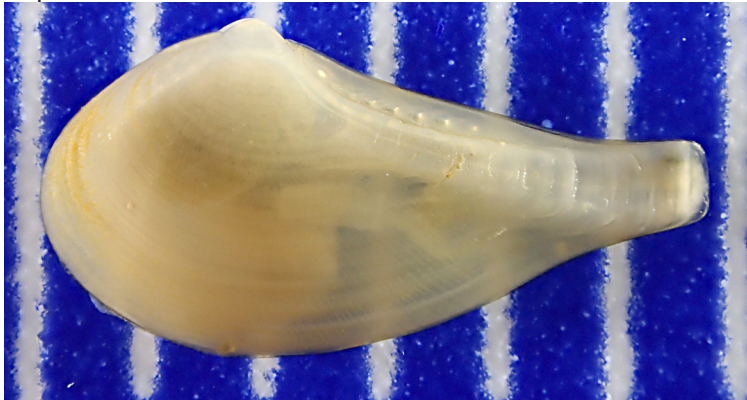
With this in mind, Kelvin began by exhibiting the type images with images of specimens provided by the participating agencies that had been previously ascribed to one or the other taxa. A few things became readily evident to all present: First, all the specimens with intact apertures appeared to have lateral nicks described for *C. californicus*. Second, when comparing the concave and convex regions they all seem to match *C. californicus* as well. When looking at the historical literature it is important to keep in mind that the convex side is ventral and the concave side is dorsal.

All those present agreed that the published description for *G. tolmiei* was insufficient; making it unclear how to apply it to local taxa. Furthermore, it was concluded that all the material provided for this review best resembled *C. californicus*. To clarify and codify this Kelvin will prepare a voucher sheet for *C. californicus* (see attachment at the end of the newsletter).

With Kelvin’s presentation on Scaphopods complete, we started to look at FID specimens that attendees had brought.

First up was an unusual looking *Terebra pedroana* which Kelvin said threw him initially but eventually he decided it was just a variant of this species (see cover photo).

Greg Lyon had brought an image of a “smoothish” *Nuculana hamata*. It was decided that the images should be sent to Paul Valentich-Scott for his opinion. This has since happened and Paul’s response is below:



“I have never seen this particular form of *Nuculana hamata* before, especially with the strong radial striae. As you noted in our Panamic book, we were very frustrated with this group and basically couldn’t solve the issue through standard shell morphology. Bottom line, I’d continue to track it and maybe call the various morphs *hamata* A, B, etc.”

CLAEMD - FA17, July 12, 2017, 83m. Tick mark = 1mm.

Photo by G. Lyon

Greg then brought up the issue of *Rhamphidonta* and *Cymatioa* and his efforts of comparing and contrasting the two. *Cymatioa* has 2 teeth on the left valve and a wavy ventral margin; most of the specimens he examined (down to 2 mm) were *Cymatioa*. He noted that the wavy margin becomes evident at approximately 5 mm and becomes more obvious as they get larger. It was requested that Greg share his presentation (it can be found on the SCAMIT website in the Taxonomic Tools). Don told people to also keep in mind that *Rhamphidonta* should have an iridescent periostracum.



After lunch we addressed the issue of *Lirobittium* which has been troubling SCB taxonomists for some time. At the same 2012 meeting where the deep-water Gadilids were discussed, it had been decided that *Lirobittium larum*, *Lirobittium quadrifilatum* and *Lirobittium rugatum* were a complex and that they would be combined. However, at the time a name was not assigned. It was later decided that all three species should be referred to as *Lirobittium rugatum* Cmplx. Exceptions would of course apply if sampling in an unusual habitat and a unique and “different” species is seen. Austin commented that Ellen Strong is working on this genus, but agrees that they are a “mess” and in need of work.

Next up was *Crepidula* spp. The question was posed - What literature to use for identification? People suggested, Hoagland 1977, McClean 1969, and Light’s Manual, 2007. Austin then spoke up and said that Rachel Collin is working on Calyptraeidae. He will check with her and let us know what she recommends.

Cyclocardia spp, and at what size to back off to genus, were discussed next. During a 2012 SCAMIT meeting with Gene Coan it was decided that a 5mm size limit was appropriate. People were reminded to see Coan 1977 for his preliminary review of Cardiidae. It was agreed that this information needed to be sent out to the Bight’ 18 list server so that all mollusk taxonomists are on the same page.

Aplacophora – how are we going to handle them? Some agencies are using birefringence for their identifications and some are not. It was agreed that birefringence is primary and morphometrics secondary. We discussed needing to check with molluscan taxonomists and making sure they have the ability to use birefringence in order to standardize Bight’ 18 aplacophoran identifications. Greg and Erin then asked if there was a minimum size for identification? There was a brief discussion and it was decided not to set a strict size limit, but rather taxonomists should do the best they can and if the spicules seem underdeveloped back off to Chaetodermatidae and set aside for a post-Bight reconciliation meeting.

Tellina spp. were then reviewed. At OCS D taxonomists use the rule that if there is absolutely no evidence of sculpturing at all, they are called *Tellina* sp B everything else is called *T. carpenteri*. CSD disagrees and feels that *Tellina* sp B (which is probably *T. cadieni*) can have some sculpturing, and they rely more heavily on color pattern. Greg Lyon chimed in and said that CLAEMD uses a similar approach to CSD. Wendy and Megan will try to photograph the differences and send the images out to SCAMIT list server to see if there is agreement or consistency.

Don Cadien then had the floor and wanted us to know that prior to Bight’ 18, everything we have known about the taxonomy of aeolid nudibranchs is now wrong. Massive changes have occurred to this group based on a paper by Korshunova *et al.*, 2017. The changes are based on DNA and morphology and are extremely comprehensive. Edition 12 of the Species List will reflect these changes.

Lastly, Kelvin reviewed the mollusk hold list of the Species List. It is very small and there wasn’t much to go through. It was realized that some of the Weston species will never be documented and therefore need to go to a “permanent hold/archive” list, and a few others have been dealt with already.



11 JUNE 2018, ORBINIIDAE, NHMLAC, B. HAGGIN & A. LOVELAND

Attendance: Kelvin Barwick, Mike McCarthy, Ernie Ruckman, Rob Gamber, OCSD; Ashley Loveland, CCSF; Jennifer Smolenski, Greg Lyon, Erin Oderlin, CLAEMD; Larry Lovell, DCE; Gabriel Rodriguez, CSD; Angelica Zavala Lopez, MTS; Bill Furlong, Christine Boren, Norbert Lee, Brent Haggin, LACSD; Leslie Harris, NHMLAC.

The business meeting began with the usual announcements of upcoming meetings. Afterwards, Kelvin let attendees know that the SCAMIT Species List Review Committee (SLRC) is on track to publish Ed. 12 by July 1, 2018.

With regards to the upcoming Bight'18 project, LACSD has volunteered to do all the Re-IDs, with CSD performing QC for LACSD. Additionally, the SCAMIT list server will be the official list server for Bight'18 taxonomy questions. Kelvin offered to demonstrate, at a later meeting, how to use the list server's Archive function.

The taxonomy portion of the day was opened by Brent Haggin. He gave a thorough and detailed presentation covering the morphology of the various subfamilies and groups of Orbiniidae, as well as provided a comprehensive character table to the family, and reviewed voucher sheets for 9 provisional species and 4 described species. His presentation, character table, and voucher sheets, can all be found on the SCAMIT website in the Taxonomic Tools section.

After Brent's presentation was complete, it was time for Ashley Loveland from CCSF to take the floor. She started by reviewing species from "her neck of the woods".

Scoloplos sp SF1 (Norris 2007): lacks subpodial lobes; the branchiae begin around setiger 10 or 11; thoracic uncini slightly curved with uneven tines; there is some morphological variation with fewer spines per setiger in larger specimens. *S.* sp SF1 has eyes which are normally not seen in the genus, however, Blake states that juveniles of the genus do have eyes and therefore CCSF could be seeing only juveniles.

Ashley wonders if the morphological variability within *S.* sp SF1 is related to development and size, or should they explore this further and possibly designate additional provisionals? Are there enough character differences between *S.* sp SF1 and *Scoloplos acmeceps* to warrant its own provisional designation? Leslie noted that the size of SF species tends to be much smaller than So Cal species. Ashley responded by saying they don't ever see any gravid specimens. However, she noted that CCSF does record *Scoloplos armiger* which tends to be just as small as *S.* sp SF1, but they do get larger specimens of *S. armiger* on occasion. She also stated that the first setiger with branchiae does tend to correlate with thoracic width. Leslie mentioned a paper which describes juvenile *Leitoscoloplos* as having spines, but losing them as adults, whereas *Scoloplos* is the opposite.

The floor then went back to Brent who told attendees he is also working on an updated key for Orbiniidae. Brent noted that most original IDs are based on anterior fragments; therefore, the key will try not to put too much emphasis on when the branchiae start (on which setiger), cilia on branchiae, etc. He emphasizes starting with setiger 5 to look for parapodial characteristics. {This key is now complete and it too can be found in the Taxonomic Tools section of the website.}



SCAMIT TREASURY SUMMARY 2018

Please find the 2018 Treasury Summary attached at the end of the newsletter. SCAMIT is in “good health” financially, and we always encourage people to apply for, and take advantage of, SCAMIT’s publication grant.

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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:

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The SCAMIT newsletter is published every two months and is distributed freely to members in good standing. Membership is \$20 for an electronic copy of the newsletter, available via the web site at www.scamit.org, and \$35 to receive a printed copy via USPS. Institutional membership, which includes a mailed printed copy, is \$65. All correspondences can be sent to the Secretary at the email address above or to:

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SCAMIT Treasury Summary 2017-2018

Below is the treasurer's report for 2017-2018. We are raising dues for the first time since the start of SCAMIT in 1982 from \$15 to \$20 for electronic memberships, \$30 to \$35 for hardcopy memberships, and \$60 to \$65 for institutional memberships. We have over 150 members across the US and worldwide. SCAMIT did not award a publication grant this past year. Please help get the word out that these funds are available. As stipulated in our grant policy, we have **\$7,750.89** or 25% of our operating budget of \$30,512.72 available for publication grants this year. The taxonomic database support tools on our website were maintained by our webmaster. The database expense totaled \$425.00.

Account Balances (as of 5/31/18)

Checking	\$ 20,478.33
Certificate of Deposit	\$ 10,034.39
Total	\$ 30,512.72

Income

2017-2018 Membership dues	\$ 1,978.00
Interest from CD	\$ 4.36
Total	\$ 1,982.36

Expenses

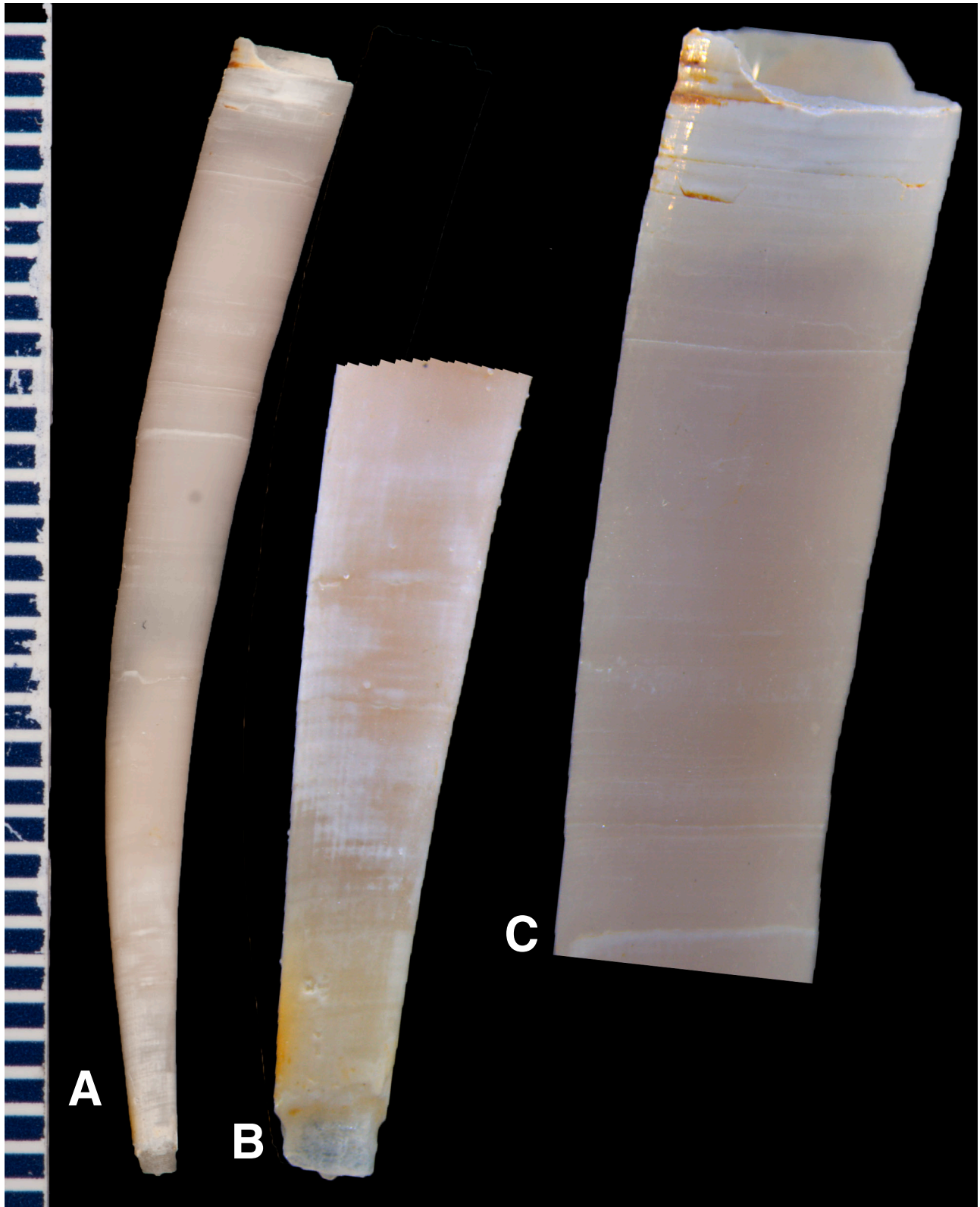
Meeting refreshments	\$ 556.93
Executive Committee Luncheon	\$ 145.62
All-Member Christmas Luncheon	\$ 192.40
CA Tax Board: tax exempt re-application fee	\$ 25.00
March 2018 Ascidian workshop	\$ 454.60
Website Content & Design	\$ 425.00
Newsletters (printing/postage)	\$ 549.99
Total	\$ 2,349.54

Dentalida



Dentalium vallicolens Raymond 1904 – **A** dry shell; **B** detail, apex; **C** detail, near aperture (CSD Station B11, 26JUL2017; 87 m; tick marks = 1 mm)

Dentalida



Graptacme semipolatum (Broderip & Sowerby 1829) – dry **A** shell; **B** detail, apex; **C** detail, aperture; (LACSD 0714-10B, 151 m; tick marks = 1 mm)

Dentalida



Rhabdus rectius (Carpenter 1864) – dry (OCSD Voucher #1751 Station C4(1), 7JUL2011, 187 m; tick marks = 1 mm)

SCAMIT Voucher Sheet

Species: *Cadulus californicus* Pilsbry & Sharp 1898

Group: Family Gadilidae

Vol. 37, No. 1

Date examined: May 7, 2018

Prepared by: K. Barwick

- Material Examined: 3 specimens Tanner Basin, Oregon Station R-53 EB5, 25OCT1971, 1150 m
1 specimen Bight 2008 Station 7155, 31JUL08
1 specimen Bight 2008 Station 7526, 13AUG08, 390 m
1 specimen CSD Regional Station 8626; 20JUL2017; 469 m
2 specimens OCSD Sta. 62(1), 13JUL2006, 300 m
- Synonyms: *Cadulus (Platyschides) californicus* of Abbott 1974
Polyschides californicus of SCAMIT Ed 4
Gadila tolmiei of authors SCB not Dall 1897
- Description: “Shell large and solid, well curved; smooth and glossy, growth-lines being very faintly indicated; opaque white, the posterior half bluish, subtranslucent, with similarly colored rim at the mouth, or sometime slightly bluish throughout. Stout, decidedly swollen anteriorly, the greatest diameter contained $4\frac{1}{5}$ to $4\frac{2}{3}$ times in the length of shell; the equator about at the anterior fourth, either oblique, well-marked and slightly subangular or less distinct and gently rounded, tapering rapidly toward both ends; outline of concave side noticeably convex in the region of greatest swelling. Section of tube a trifle flattened between the convex and concave sides at the equator or throughout. Aperture subcircular, somewhat oblique. Anal orifice rather large, slightly oval, with no noticeable callus within, its edge irregular from breakage, but possibly two lateral nicks (see Fig. 7) [Fig A herein] may be normally present” (Pilsbry & Sharp, 1897-1898). Local shells mostly translucent with occasional irregular narrow bands of white that may represent growth lines. Posterior aperture with 4 equally spaced slits on the apex; one each on the right, left, dorsal and ventral aspects (Fig. B - D).
- Related Species: *Polyschides quadrifissatus* (Pilsbry & Sharp 1898) differs from *C. californicus* by having a slimmer, semi-translucent shell with prominent, evenly spaced bands alternating from clear to opaque white. *P. quadrifissatus* is found at shallower depths.
- Distribution: Pilsbry & Sharp (1897-1989) reports from off Tillamook Bay, Oregon to off San Diego and Gulf of Panama; 252-1270 fathoms; depths from material examined: 300 -1150 m.
- Comments: SCAMIT (1996) reported that *Cadulus californicus* was more slender than *C. tolmiei* “with a less prominent inflation of the shell prior to formation of the adult aperture.” This was the general understanding until 2007 when Pilsbry and Sharp (1897-1898) became available to the author electronically. A check of the descriptions and illustrations revealed that, in fact, the reverse was true, i.e., *C. californicus* was the chubby one. A review of material provided by workers in Southern California was presented at the November 5, 2012 meeting (SCAMIT 2012) and followed up with a second discussion at the May 7, 2018 meeting (SCAMIT 2018). At the later meeting it was agreed that all local records of *Gadila tolmiei* (Dall 1897) should be referred to *C. californicus*. For the first time it is presented here as a synonym, of authors SCB not Dall. Dall’s (1897) original description and image of *Cadulus tolmiei* make no mention of apical slits. In their re-description, Pilsbry and Sharp (1897-1898) described the “anal orifice [apex] sub-circular, simple” (Fig. A5-8). It is unclear as to whether they saw Dall’s specimen.

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They report the size of the “Type” but appear to have only reprinted Dall’s original measurements.

Steiner and Kabat (2004) reported that the Holotype for *C. tolmiei* was “not located” but surmised that Dall’s figure is of the type (USNM 107613 “figured paratype” designated by Shimek (1989)).

Literature Cited:

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- Steiner G., Kabat A. R. 2004. Catalog of Species-Group Names of Recent and Fossil Scaphopoda (Mollusca). Zoosystema 26(4): pg. 549-726.

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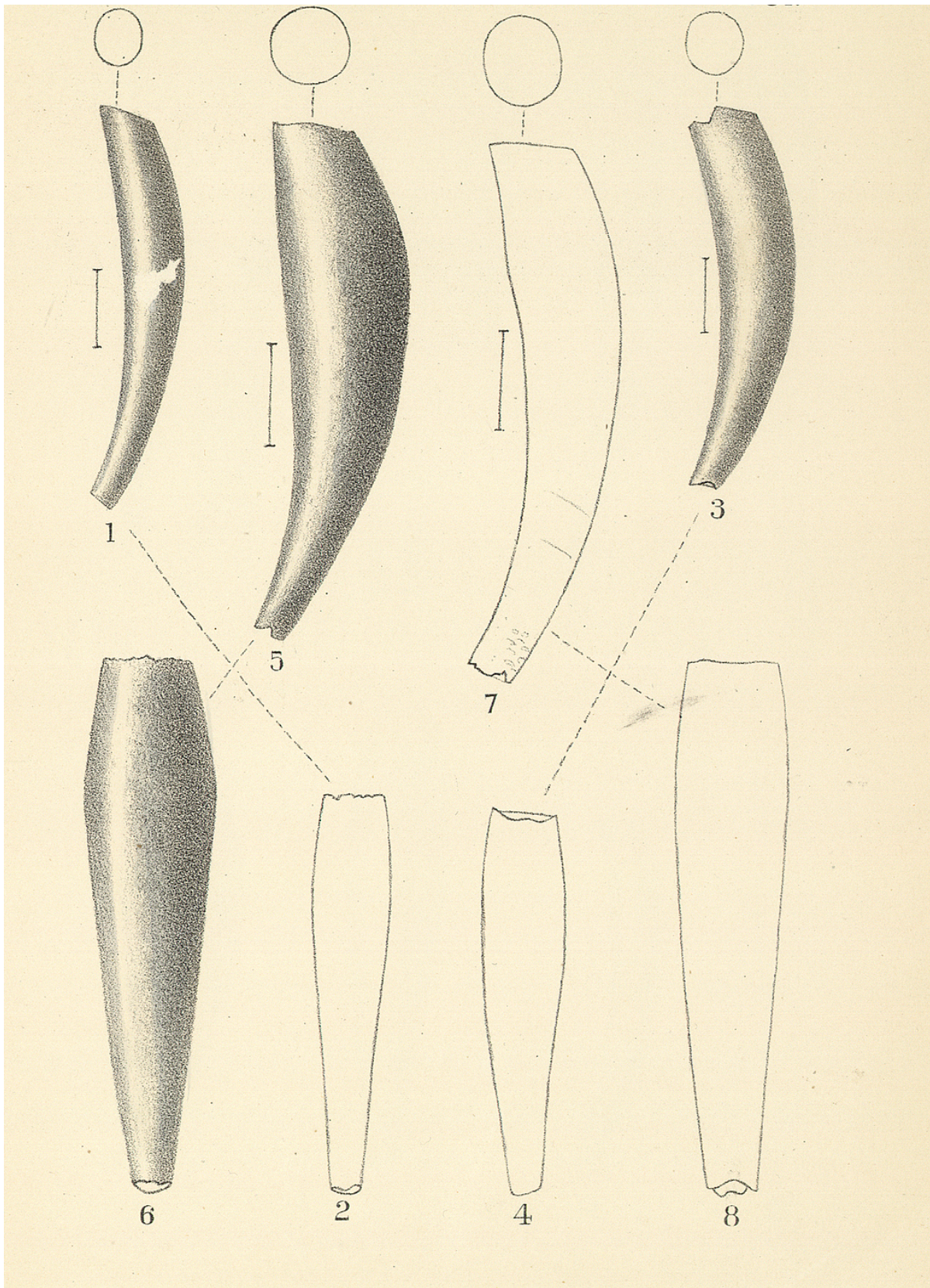


Figure A – 1, 2. *Cadulus (tolmiei* var.?) *newcombei* P.&S. n. var. (11.0 mm); 3, 4. *C. tolmiei* Dall (10.7 mm); 5-8. *C. californicus* P.&S. Type USNM No. 107,698 (14.3 mm). (modified from Plate 34 Pilsbry & Sharp, 1897-1898)

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Figure B – *C. californicus* Tanner Basin Station R-53 EB5, 25OCT1971, 1150 m (tick marks = 1 mm; K. Barwick personal collection)

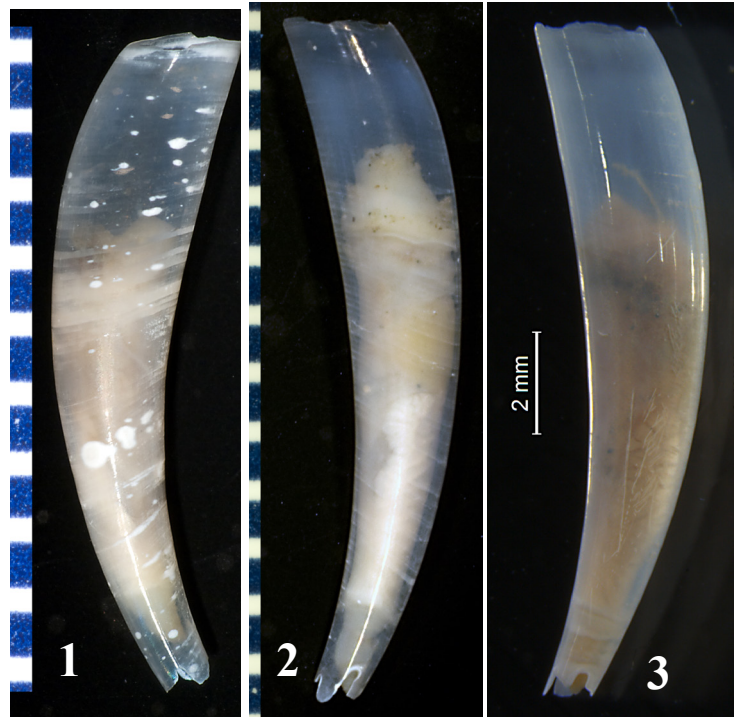


Figure C – *C. californicus* 1. Bight 2008 Station 7155, 31JUL08, 570 m; 2. Bight 2008 Station 7526, 13AUG08, 390 m (tick marks = 1 mm); 3. CSD Regional Station 8626; 20JUL2017; 469 m..



Figure D – *C. californicus* OCSA Sta. 62(1), 13JUL2006, 300 m (tick marks = 1 mm).