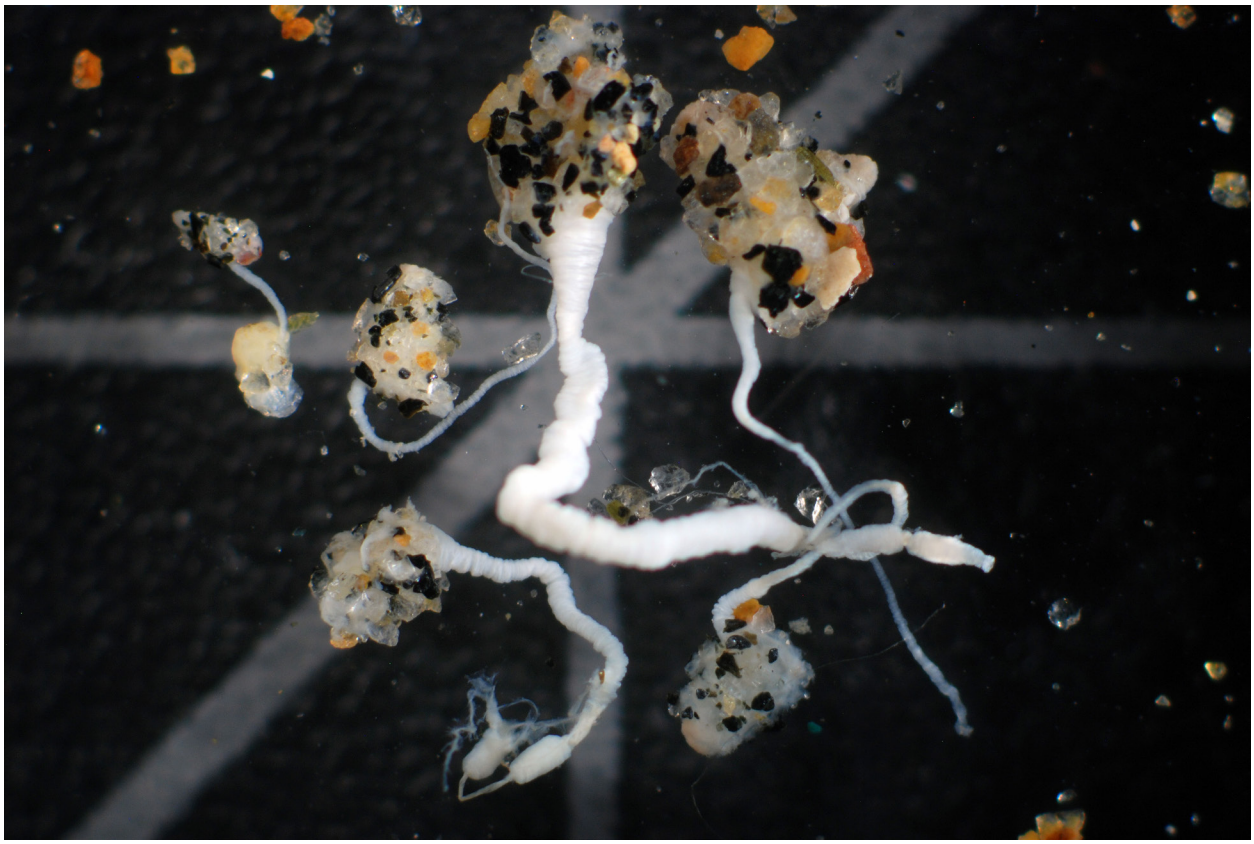
SOUTHERN CALIFORNIA ASSOCIATION OF MARINE INVERTEBRATE TAXONOMISTS

May–August 2022 SCAMIT Newsletter Vol. 41 No. 1-2



Cnemidocarpa rhizopus (Redikorzev 1907)
Collected by City of San Diego in South Bay samples, 30m, sandy coarse sediments
Photo by M. Lilly

This Issue

Publication Date: October 2023

16 MAY 2022, MISC PHYLA, LEADS M. LILLY & Z. SCOTT, ZOOM

Attendance: Brent Haggin, Don Cadien, Chase McDonald, Terra Petry, Wayne Dossett (LACSD); Megan Lilly, Zoë Scott, Wendy Enright, Lauren Valentino, Andy Davenport (CSD); Robin Gartman (CSD - Retired); Erin Oderlin, Greg Lyon, Jennifer Smolenski (CLAEMD); Ashley Loveland, Allison Fisher, Jessica Donald (SFPUC); Carol Paquette (MBC); Angelica Zavala Lopez (MTS); Matt Hill, Shay Hengen (EcoAnalysts); Mary Wicksten (TAMU).

UPCOMING MEETINGS

Visit the SCAMIT website at: www.scamit.org for the most current meetings announcements.

The business meeting opened with the announcement that the guest speakers for June and August have switched months. Now Tom Turner will be speaking in June on Sponges and Marie Nydam will be speaking in August on Ascidians.

Megan began the meeting reviewing the provisional voucher sheet for Pennatulacea sp HYP1 Smolenski & Lyon, 2018. CLAEMD has been routinely collecting this species from northern-central Santa Monica Bay since 2015 as both adults and juveniles and some of the ontogenetic changes have been reported on the voucher sheet. It can be found in silty to sandy sediment at depths of 50-70m. Those in attendance agreed that with minor edits to the voucher sheet, this species is ready for a SCAMIT designation and inclusion on the next SCAMIT list.

Megan continued the provisional species discussion with Lineidae sp B. She mentioned that the voucher sheet was originally published in SCAMIT newsletter 38(3) as the in-house provisional Lineidae sp HYP3. It was then published again in SCAMIT newsletter 39(4) with its SCAMIT designation Lineidae sp B. Megan was wondering how to avoid these types of double publications in the future. It was decided that occasionally this is unavoidable as the in-house designations are often published initially as part of a larger presentation on a particular phyla. When it gets its SCAMIT designation, it will be published again. For cases like Pennatulacea sp HYP1, it was only reviewed in the meeting. It will hopefully be fully SCAMITized before publication in the SCAMIT newsletter (complete with historical synonymies) and should avoid the problem of double publication.

A discussion ensued about adding a section in the newsletter dedicated to Provisional Species Review.

It was also decided that provisional species sheets to be reviewed at a meeting should be announced prior in the “next meeting topic” email blast.

Zoë continued the meeting by presenting an updated guide to the Sipuncula encountered in routine monitoring by the City of San Diego. The guide includes definitions of important terms used in the taxonomy of the Sipuncula, a table of characters associated with the defined terms, and tips on dissection techniques. Key terms defined were:

- Retractor muscles - Muscles connected to the body wall and introvert that are used to withdraw the introvert into the trunk region. Look for the number and arrangement or attachment points.

- Microvilli (or contractile villi) – Digitiform villi on the contractile vessel in the region of the intestines between the pharynx and descending loop. Look for presence/absence.
- Nephridia - Saclike organs in the anterior portion of the trunk used in the excretion of waste and as gonoducts. Look for the number of pairs and form (lobed or simple).
- Introvert - Retractable area of the body used for feeding and sensory perception. Look for length relative to trunk and the presence/absence of hooks or papillae.

Next, she went over recommendations for the dissection of Sipunculans:

1) Locate the ventral nerve chord and start cutting from the posterior (wider end) on the dorsal side (opposite of the ventral nerve chord). This way, you avoid cutting into any characters you will need to identify the animal.

2) To cut, use iris scissors and tent the skin to cut a window into the trunk. From there, cut anteriorly and pull up slightly on the lower scissor blade to minimize damage to the internal structures.

3) Cut to a point anterior of the nephridia.

4) Go slowly and be patient.

Wendy next presented an updated guide to the Echiura found during routine City of San Diego monitoring. The Echiuran guide also featured definitions of important terms, a table of characters, and tips on dissection. Key terms defined were:

- Anal vesicles - Pair of thin-walled hindgut sacs connected to the posterior digestive tract. May be simple or branched, and often have ciliated cups or funnels.
- Setae - Hooked or bristle-like structures present in the ventral body wall or encircling the anus.
- Longitudinal muscle bands - Thickening of the longitudinal muscles into extremely visible (although sometimes faint) bands.
- Nephridia - Saclike organs in the anterior portion of the trunk used for excretion and as gonoducts. Look for the number and form of associated structures (nephrostomal lips, nephridiopore, metanephridia).

Recommendations for the dissection of Echiurans:

1) Find the ventral nerve chord, start cutting from the posterior (wider end) on dorsal side (opposite of the ventral nerve chord). This way, you avoid cutting into any characters you will need to identify the animal.

2) To cut, use iris scissors and grasp the skin, make the first incision into the body wall and create a window. From there, cut anteriorly and pull up slightly on the lower scissor blade to minimize damage to the internal structures.

3) Cut from the anus to mouth, removing fecal pellets (Megan recommended using a pipette with ethanol to gently flush the fecal pellets from the animal's instestines) without tearing the anal sacs or nephridia. It may be necessary to move the animal to fresh ethanol periodically as the dish will fill with fecal pellets.

4) Go slowly and be patient.

Publication Date: October 2023

Don recommended that the local species of *Prometor* be added to the guide. *Prometor benthophila* Fisher, 1948 was described from off San Diego from a depth of 1,937m (1,059 fathoms) in green mud. *Prometor pocula* Hartman in Hartman & Barnard, 1960 was originally described from Long Basin, 68 miles southwest of San Clemente Island from a depth of 1,821m in stiff, silty clay. A provisional species, *Prometor* sp LA1, was erected by Don Cadien in 2003 for specimens found during LACSD monitoring, but the original material was damaged, and a voucher sheet was not created or distributed. The provisional species was found embedded in siltstone reefs between 100 and 300m. Additional material would be greatly appreciated. While the two described species are likely found deeper than we would sample, even during Bight surveys, their characteristics would help to point to the provisional species *Prometor* sp LA1 should it be encountered again.

Megan concluded the meeting by presenting her updated key to the Ascidians encountered by the City of San Diego during routine and Bight monitoring. The key is designed in a flow-chart format, rather than a dichotomous key, and includes digital images and the key characteristics at each junction. The key splits around the primary features of the branchial tentacles, the shape of the stigmata, and the location of the gonads. The current version will be circulated as a DRAFT and Megan will continue to work on updating the key with additional images and species.

She also shared images from a single sample with multiple sand-covered balls and urged caution when working with such samples. Superficially, they all look the same and the temptation to dissect only a few specimens and give them all the same name is high. After analysis, it was found that there were 3 different species in the sample, so it is important to dissect all of the specimens for accurate identification.

13 JUNE 2022, SPONGES, LEAD TOM TURNER, ZOOM

Attendance: Thomas Turner, Sienna McKim (UCSB); Brent Haggin, Don Cadien, Jovairia Loan, Chase McDonald, Wayne Dossett (LACSD); Kelvin Barwick, Ben Ferrarro (OCSD); Wendy Enright, Megan Lilly, Zoë Scott, Lauren Valentino (CSD); Robin Gartman (CSD-Retired); Craig Campbell (CLAEMD); Heather Peterson, Diane O'Donahue (SFPUC); Leslie Harris, Lindsey Groves, Kathy Omura (NHMLAC); Tony Phillips, Dean Pasko (DCE); Angelica Zavala-Lopez (MTS); Carol Paquette (MBC); Marie Nydam (Soka University); Constance Gramlich (SDSU); Mary Wicksten (TAMU); Omar Ojeda (Universidad Nacional Autónoma de Mexico); Bryce Perog (former student of Marie Nydam and Thomas Turner & former OCSD intern); Erica Keppel, Smithsonian; Jessica Goodheart (affiliation unknown)

We had two guest speakers for the day - Thomas Turner (UC, Santa Barbara) to discuss sponges and an addition of Omar Ojeda (Universidad Nacional Autónoma de Mexico) to talk about Eulimids.

We started with Tom's presentation on Sponges which he'd broken into two parts: Part 1 - Practical Identification and Biodiversity of Local Sponges and Part 2 - Sponge Taxonomy.

Tom provided a link to a YouTube video on "how to make a sponge spicule prep" (Smithsonian Tropical Research Institute YouTube Page) by Dr. Bob Thacker - Professor, Ecology & Evolution; Stony Brook University. youtube.be/cxGitjU7X5I.

He then covered his history with sponges and his current work. His talk was interactive, and he stopped frequently to ask for questions and comments. He is delving deeper into morphology and

DNA but is having difficulty sequencing specimens from older collections. Sponges appear to be even more difficult than other phyla to sequence after a bit of time and wondered if it might have to do with the sponges' unique biochemistry. He thinks there are probably about 200 species in the subtidal although previously only about 100 species have been listed. On that note, he stated that the biggest problem in using Lee's key (Lee et al 2007) is that a huge number of species aren't included. One of his goals is to update the key to the sponges of CA and to create a field guide; there are some species that can be identified from photos/ morphology.

With regard to literature he recommended, A Guide to the Classification of Sponges (Hooper, J. et al. 2002) as a good resource. He did give a warning, however, that it is difficult to use as morphology is limited and the keys can be frustrating; there are many terms like "sometimes" and "always".

Additionally confounding is that genetic research is providing dramatically different results. Morrow and Cardenas 2015 changed things, and it is now difficult to match up DNA results with morphology results. There is the possibility for epibiont contamination in DNA work on sponges or even cross-contamination between species since they often grow on each other.

Tom then went on to discuss spicule mounts. It is not uncommon to get "malformed" spicules, for instance many diacts may be present and then you will find a monact; use caution as it could be just a malformed diact. Also, since they develop over time, small, thin spicules can actually be new ones forming.

Sponges can take up spicules from the environment and accordingly, some species don't even make their spicules, rather, they use broken ones from the environment. They uptake sand and use spicule bits.

Getting into more specifics, *Halichondria* and *Haliclona* have very different skeletal structures which is a good way to tell them apart. But how to clear sections to see skeletal structure more easily is another matter. Tom uses proteinase K or dehydrates sections in ethanol and then uses histoclear. Soft sponges can be frozen and thin-sliced. As with all sponge characters there was a note of caution regarding skeletal structure - the hydrodynamics of an environment can modify skeletal structure.

Halichondria panicea (Pallas, 1766) and 2 other sibling species, *H. hygieia* (type A and type B) are all genetically separate but are not morphologically distinct.

Halichondria bowerbanki Burton, 1930 – supposed to be in marinas, however true *H. bowerbanki* is only in one marina and other specimens found so far have mostly been subtidal. However, other species look just like *H. bowerbanki* but are genetically distinct.

He took a moment to warn us that there are many introduced species in marinas which is not surprising.

Tom wonders if exposure to air inhibits the ability to get good DNA samples as sponges start to digest themselves. For this reason some samples are better in formalin, than in those species without spicules. If the skeletal structure needs to be examined, formalin is the way to go.

Tom has been working on converting the Lee et al. (2007) key into a database. In this way he can filter for characters and has removed the dichotomy. He may eventually make it public.

Publication Date: October 2023

He then reviewed his draft of a preliminary picture "key" to the sponges of the Santa Barbara channel. He is creating it to help student divers conduct surveys. Sponges can "relax" while filtering but other times they can contract/harden which subsequently affects their appearance.

Megan showed images of the very common undescribed species of *Suberites* from SD Bay and occasionally their shallow South Bay trawls. Tom asked for ethanol-preserved tissue.

Leslie then thanked Tom for his great presentation on California marine sponges. The meeting was recorded and will be available for download. She also wanted to mention that Tom's three recent papers on local sponge systematics can be found on his lab website: https://turner.eemb.ucsb.edu/publications

Thankfully his two Zootaxa papers are open-access.

Our next speaker took a turn to another phyla. Omar Ojeda is a graduate student at the Universidad Nacional Autónoma de Mexico. He won a student award that allowed him to work at NHMLAC researching tropical Pacific Eulimids.

Excerpts from his presentation are below:

Eulimids are parasites on echinoderms; there is even a species that is an internal parasite and is highly modified and shell-less.

Currently there are 105 species (but it should be noted that not all are correct). The majority (> 60%) of described species are found in the tropical Panamic region with the most common genus being *Melanella*. They are not the most abundant group but they are usually always present.

The various morphometric features used in identification are:

- Shell outline
- Convexity of the whorls
- Proportions of the whorls
- Protoconch
- Aperture shape
- Outer lip

Kelvin asked about curvature of shell and if it is distinctive, as Warén 2008 had questioned this feature. Omar replied that the curvature of the shell is not necessarily of taxonomic relevance. It could be related to growth stage.

Wendy wondered if the species are host-specific or if they are opportunistic. Omar said that the species can be specific to a certain point, as in each genus associates with a certain class of echinoderms. Among these genera further specificity can arise, with some being restricted to certain families within a class, but other genera, like *Melanella*, can be found on almost any sea cucumber.

Brent asked if the species modified as internal parasites have a normal external morphology before parasitizing a host. Omar noted that the larvae have a shell but once they become an internal parasite they change. This is an assumption, and it has not been well studied.

20 JUNE 2022, SCAMIT SLRC, ZOOM

Attendance: Brent Haggin, Jovairia Loan, Don Cadien (LACSD); Wendy Enright, Ricardo Martinez-Lara, Veronica Rodriquez, Zoë Scott, Megan Lilly, Andrew Davenport, Katie Beauchamp (CSD); Kelvin Barwick, Ben Ferraro (OCSD).

Kelvin started by overviewing taxa assignments. He apologized for not yet completing a draft RFP for the database project.

Kelvin asked attendees if the match/not match list generated from Worms was useful. Wendy said yes. Veronica agreed and said she always starts with the match/not match list and finds value in it. Kelvin asked if it was worth his time and effort to do that for all the groups. Zoë let us know that she had created an R code that simplifies the Worms output and is willing to share. Kelvin asked for a separate meeting to discuss the R code options and to set up a workflow.

We reviewed the proposed schedule and changed the emends submittal deadline to 15 May 2023. Brent and others would like to see Ed 14 available for B'23. This led to some discussion regarding the difficulty of updating agency lists in a short time frame, so June 1st became the new deadline for the entire list to be reassembled and sent to the editors for review.

Next, we moved on to the provisional species sheet review and the associated database. Taxa leads need to check the database and decide about whether to retain or remove the provisional species from the Species List. If they decide to remove any species, they must provide a list of taxa removed for insufficient material which will be added to the front matter. At this point, Brent suggested an appendix that lists species removed rather than adding to the front matter. Wendy and Don both voted for an appendix versus adding to the front matter. Don wanted to make sure we could discuss the reasoning for removal. He suggested creating a key to removal reasons and then "key" the species in the appendix. New guidelines were developed - if recommending removal of a species be sure to explain why in the emend file. The species will move to the hold list and not be deleted entirely. In the hold list describe your justification for removal and then the editors will create a key to removal justifications.

Kelvin then moved on to the new voucher sheet guidelines document and asked for any comments or questions. We reviewed the document as a group. Kelvin added a caveat for new species proposals that gives editors 1st right of refusal for any new taxa. Brent noted that at least some editors should be at any meeting and can give feedback. A discussion about DCE provisionals arose as they use different naming conventions – DCE/locale/agency. Don stated that DCE doesn't need to standardize their in-house naming conventions because SCAMIT can only dictate convention for SCAMIT provisionals, not in-house provisionals.

Don suggested adding a note to include the size of the specimen being described and, if aware, of adult and juv sizes of the species. Any ecological information is also a good addition.

To avoid double-publishing a species, first as an in-house provisional and then again as a SCAMIT provisional, it was decided that a provisional species sheet should only be published in a newsletter once it receives a SCAMIT designation. As an in-house provisional it can be discussed in the minutes and the sheet can be accessed on the wixi site.

Cody is working on the wixi site to add a way to hide columns as "true" so that eventually those provisional species that have been through the whole review process will show as approved and ready to be added to the next edition of the Species List.

8 AUGUST 2022, ASCIDIANS, MARIE NYDAM, ZOOM

Attendance: Marie Nydam, SOKA University; Gretchen Lambert, retired; Don Cadien, LACSD; Greg Lyons, Erin Oderlin, Jennifer Smolenski, CLAEMD; Constance Gramlich, SDSU; Dean Pasko, Tony Phillips, DCE; Mary Wicksten, TAMU; Kelvin Barwick, OCSD; Zoë Scott, Lauren Valentino, Wendy Enright, Megan Lilly, CSD; Kathy Omura, NHMLAC; Tom Turner, UCSB; Quang Pham, affiliation unknown.

The day started with Kelvin telling us he met the authors of the latest edition of the Behrens nudibranch book at the recent WSM meeting. He gave a short presentation previewing this latest edition. Some updates include, a few more pictures per species and the name changes since the 2005 volume. Kelvin was a little disappointed that there were no radular formulas given, but no one else shared in his disappointment. There is a somewhat limited reference section and it is printed on non-glossy paper and bound a bit weaker so Kelvin doubted its ability to stand up well in the field. but overall he recommended it. As far as he knows there is no electronic copy available. It can be ordered on molamarine.com for $40.

Mary Wicksten had the floor briefly to note that California Fish and Game are asking for any citings of Black Abalone. Please contact Mary if you see any and note where and when they were observed. You can email Mary at: wicksten@bio.tamu.edu.

Marie Nydam then took the floor for the main topic of the day, ascidians. Marie is a professor at Soka University in Aliso Viejo, CA. It is a small liberal arts college and is supportive of marine research. Marie has been focused on ascidians for her entire career.

She started by giving a comprehensive overview of ascidian biology and physiology. With regards to taxonomy she gave us some helpful pointers. In the field solitary phlebobranchs can be separated from solitary stolidobranchs by the number of folds in the siphon; phlebobranchs have 6+ folds on both siphons and for stolidobranchs the incurrent siphon has 4-6 folds and the excurrent siphon has only 4 folds.

Colonial ascidians are more difficult to sort out in the field as usually both siphons can't be seen, however as a general rule, aplousobranchs share a common tunic except for *Clavalina*. Colonial aplousobranchs will have 2 or 3 body sections.

In contrast colonial phlebobranchs don't share a common tunic but are inter-connected by stolons. They have a single body section and the gonads are attached to the intestine.

Colonial stolidobranchs are embedded in a common tunic but have only 1 body section and the gonads are attached to the body wall. The only colonial stolidobranchs are in the Family Styelidae.

What has historically been identified as *Ciona intestinalis* (Linnaeus, 1767) in the SCB has turned out to be *C. robusta* Hoshino & Tokioka, 1967. Gretchen doesn't know why *C. intestinalis* isn't found in the SCB as it is widespread on the East Coast and Europe.

Some helpful taxonomic notes:

- In the branchial sac longitudinal vessels run anterior to posterior, while transverse vessels run left to right/dorsal to ventral.

- Molgulids have a renal sac on the right side of the body. One theory is that the renal sac might allow molgulids to live in lower salinity habitats. Gretchen said that *Molgula manhattensis* (De Kay, 1843) is very common in San Francisco Bay and can survive very low salinities.
- *Molgula ficus* (Macdonald, 1859) and *Molgula verrucifera* Ritter & Forsyth, 1917 have 7 branchial folds per side, whereas *M. manhattensis* has only 6.
- *Molgula verrucifera* is native to the Southern California Bight and tiny, being usually 1 cm or less and is found offshore.
- If the branchial sac has 4 folds it either a Pyuridae or Styelidae
- There are two species of *Boltenia*: *B. echinata* (Linnaeus, 1767) which has no stalk and *B. villosa* (Stimpson, 1864) which has a stalk.
- The similar-looking "spiny" ascidians, *Halocynthi* and *Boltenia* can be separated by the character of the tunic spines. In *Halocynthia igaboja* Oka, 1906 the tunic spines are **not** branched at the tips whereas in *Boltenia echinata* the tunic spines are branched at the tips.
- Hematoxylin stain is great for ascidians and can be ordered from Fisher Scientific.
- *Microcosmus squamiger* Michaelsen, 1927 is the only *Microcosmus* sp found on docks. It is a deep purple in life.

NOTES ON BATHYAL PLATYISCHNOPIDAE

D. B. Cadien, 20 August 2023

Ortiz and Winfield 2023 recently described a new *Tiburonella* from the bathyal Gulf of Mexico. Their species, *T. minima*, is based on a single very small female which may not be mature. However, the fact that their animal was taken from a depth of 2321m in the Bay of Campeche off the northern coast of the Yucatan Peninsula is significant. This represents the first report of any member of the family Platyischnopidae in the world occurring below the nominal shelf-break depth of 200m. It also represents the deepest record of the genus *Tiburonella* by a very considerable margin.

Previous records of *Tiburonella* ranged down to 30m (although Chiesa and Alonso 2014 report the genus to 127m), but is typically much shallower, with many species associated with seagrass beds. The family contains ten genera, only one of which has been taken at depths exceeding 100m. This is *Skaptopus* Thomas and Barnard 1983, found in outer shelf depths of 129-175m off the US East Coast. The genus is monotypic at present, as are several other Platyischnopid genera. Collections in recent years in the Gulf of Mexico and off Angola have, however, provided additional material of *Skaptopus* from bathyal oil exploration areas. Two specimens were taken from the NW Gulf within the Cinturon Plegado Perdido exploration block in 2017, one at 780m, one at 842m. This has been designated *Skaptopus* GOM1 and can be separated from *S. brychius* by having the merus of P6 bearing a large subquadrate posterior flange absent in the type species, as well as details of the antennae and gnathopods. These two specimens represent both sexes. The male antenna 1 configuration (enlarged art 3, effuse long setation of setal brush) are the same in the two taxa. The accessory flagellum is biarticulated in both, with the distal article much longer in *S. brychius* than in *S.* sp GOM1.

Publication Date: October 2023

A second species was taken in 2021 in oil exploration of Block 15 in the Gulf of Guinea off Angola, designated *Skaptopus* WA 1. Two specimens were also taken there, one at 745m, and one at 765m. This species can be separated from the two the western Atlantic species, by having large teeth posteriorly on the basis of P7 absent in both of the others. In all three cases the anterior coxae are acuminate, overlap, and diminish in size from an enlarged Coxa 4 to Coxa 1. Members of *Indoischnopus* share this character, but the latter genus has a ventral head keel lacking in the former, and only has teeth dorsally on the posterior margin of Pleonite 3. The only currently recognized genus in the family without a ventral head keel is *Skaptopus*. As pointed out by Chiesa and Alonso (2014) it is also the only genus in the family with pleonites 1-3 having dorsally toothed posterior borders, a character shared by *S. brychius* and both undescribed forms.

Thus, members of the family have penetrated into the deeper waters of the Atlantic on at least three occasions, once reaching lower bathyal depths. As these records involve three species in two genera, it is likely that additional deeper-dwelling members of existing genera will be detected in the future, and new genera remain a distinct possibility as two new ones have been described within the last decade (Chiesa and Alonso 2014, Perez-Schultheiss 2017).

Cadien References:

Chiesa, I. L. and G. M. Alonso de Pina (2014). "A new genus and species of Platyischnopidae (Amphipoda: Gammaridea) from the Argentine Sea, South-West Atlantic Ocean." Zootaxa 3811 (1): 34-52.

Ortiz, M. and I. Winfield (2023). "First record of the genus *Tiburonella* Thomas & Barnard 1983 (Amphipoda, Platyischnopidae) from the deep-sea Gulf of Mexico, with the description of a new species." Gulf and Caribbean Research 34: 13-17.

Pérez-Schultheiss, J. (2017). *Ensigeropus,* a new genus of the family Platyischnopidae (Amphipoda: Amphilochidea) from Northern Chile. Zootaxa. 4311(3): 399-408.

Thomas, J. D. and J. L. Barnard (1983). "The Platyischnopidae of America (Crustacea: Amphipoda)." Smithsonian Contributions to Zoology (375): 1-33.

POLYCHAETE VOUCHER SHEETS

Attached you will find 4 additional polychaete provisional species voucher sheets authored by Brent Haggin. These species have all now been fully "SCAMITized" and are included in Ed 14 of the Species List.

LITERATURE CITED

Bouchet, P. & Warén, A. 1986. Revision of the Northeast Atlantic bathyal and abyssal Aclididae Eulimidae, Epitonidae (Mollusca, Gastropoda). Bollettino Malacologico. suppl. 2: 297-576

Fisher, W. K. 1948. A review of the Bonelliidae (Echiuroidea). Annals and magazine of Natural History (Series 11) 14 (120): 852–860.

Fisher, W. K. 1949. Additions to the echiuroid fauna of the North Pacific Ocean. Proceedings of the United States National Museum 99(3248): 479–497, plates 28–34.

Hartman, O. 1960. Systematic account of some marine invertebrate animals from the deep basins off southern California. Allan Hancock Pacific Expeditions 22(2): 69-216, plates 1-19.

Hooper, J., van Soest, R. 2002. Systema Porifera: A Guide to the Classification of Sponges (Two Vol. Set). Kluwer Academic/Plenum Publishers, New York.

Lee, W.L., Elvin, D., Reiswig, H. 2007. A guide and Key to the Marine Sponges of California. Published by: The Monterey Bay Sanctuary Foundation. 130 pp.

Morrow, C., Cárdenas, P. Proposal for a revised classification of the Demospongiae (Porifera). Front Zool 12, 7 (2015).

Warén, Anders. 2008. Descriptions of New Taxa of Eulimidae (Mollusca, Prosobranchia), with Notes on Some Previously Described Genera. Zoologica Scripta. Vol 9. Pp: 283 – 306.

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	Brent Haggin	(562)908-4288 x 5672	bhaggin@lacsd.org
Vice-President	Leslie Harris	(213)763-3234	lharris@nhm.org
Secretary	Megan Lilly	(619)758-2336	mlilly@sandiego.gov
Treasurer	Erin Oderlin	(310)648-5477	erin.oderlin@lacity.org

SCAMIT is a 501(c)(3) charity. The 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:

SCAMIT
PO Box 50162
Long Beach, CA 90815

Voucher Sheet

B. Haggin
April, 2023

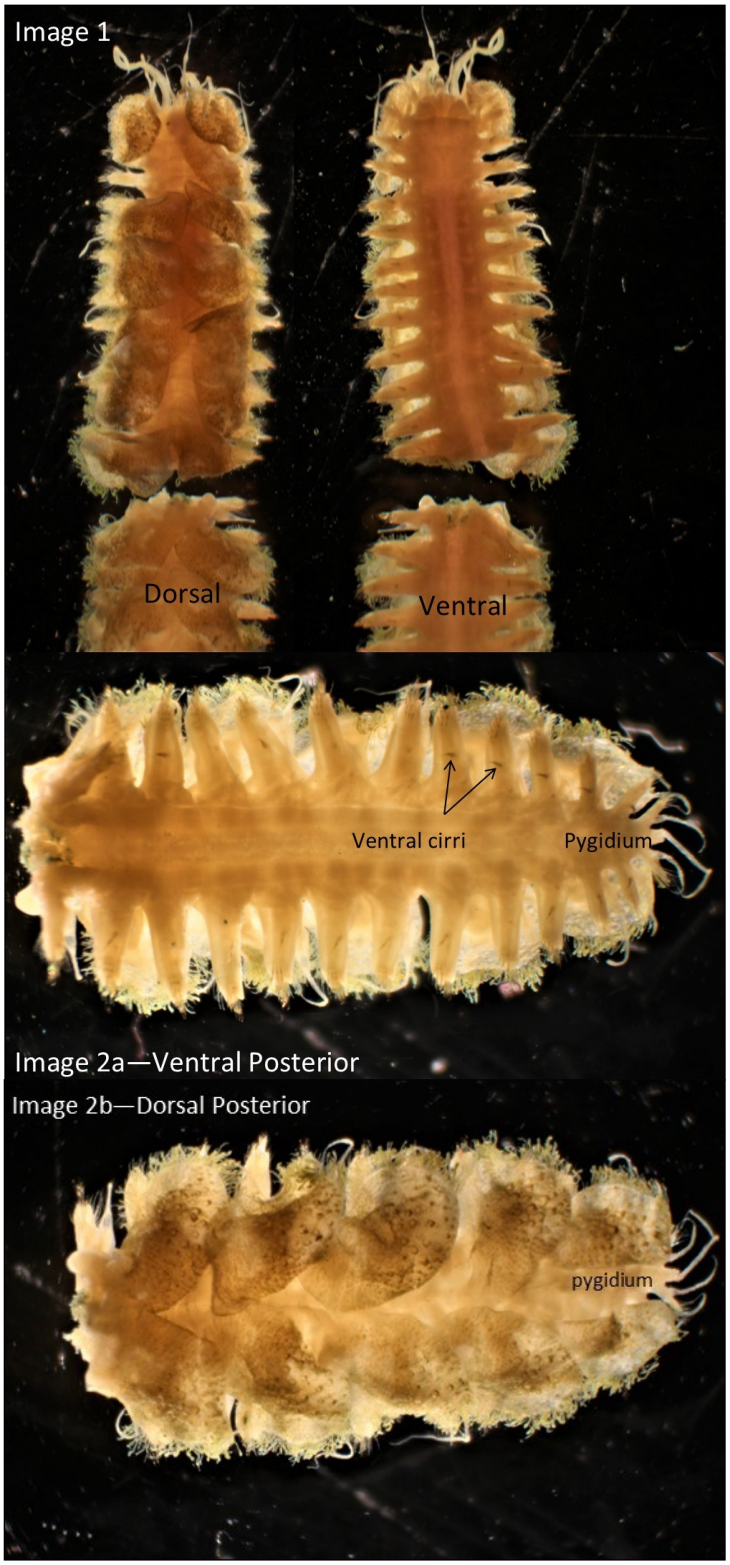
Species: *Lepidonotus* sp A SCAMIT, 2023 §
Synonyms: *Lepidonotus* sp LA1 Haggin, 2019 §

P-code—none assigned
ITI-code—none assigned

Subfamily: Lepidonotinae
Family: Polynoidae
Suborder: Aphroditiformia
Order: Phyllodocida
Subclass: Errantia
Class: Polychaeta
Phylum: Annelida

Diagnostic Characters:

1) ~18 mm X ~2 mm (4 mm with parapodia), complete but broken into 2 pieces **(Images 1, 2a & 2b)**.
2) Prostomium indistinctly bilobed, anterior portion projecting forward as ceratophores of lateral antennae; eyes present, 2 pair, posterior pair small and less pigmented **(Image 3)**.
3) Median antennae (MA) attached subterminally on distinct ceratophore in deep envagination created by lateral antennae. Median antennae slender with medial swelling and tapering to filiform tip **(Image 3)**.
4) Lateral antennae (LA) attached terminally, without distinct ceratophores. Slight medial swelling (not as pronounced as in MA) and tapering to filiform tips **(Images 3 & 4)**.
5) Palps longer than MA, tapering to filiform tips **(Images 3 & 4)**.
6) Tentaculophores long, with 1 spinous chaetae. Two pairs of tentacular cirri (similar in shape to MA & LA), longer than LA but shorter than MA **(Image 3)**.
7) Ventral cirri of chaetiger 1 very long, remainder are shorter and of equal length throughout (similar to those picture on chaetiger 11) **(Images 1, 2a, & 15)**.
8) 12 pair of elytra (~1.5 mm X 3 mm, overlapping slightly in mid-dorsum). Elytra with fringe of long papillae and macrotubercles of two types: 1) tall, bluntly conical; 2) short, broad, rounded. Both types of macrotubercles and fringe papillae present throughout **(Images 4-14)**.
9) Parapodia biramous. Notopodial lobe rounded, inserted anterodorsal to neuropodial lobe. Neuropodial lobe broadly rounded, with medial projection containing the acicula **(Image 15)**.



Images 8-12, 16-20 by B. Haggin
Images 1-7, 13-15 by N. Lee

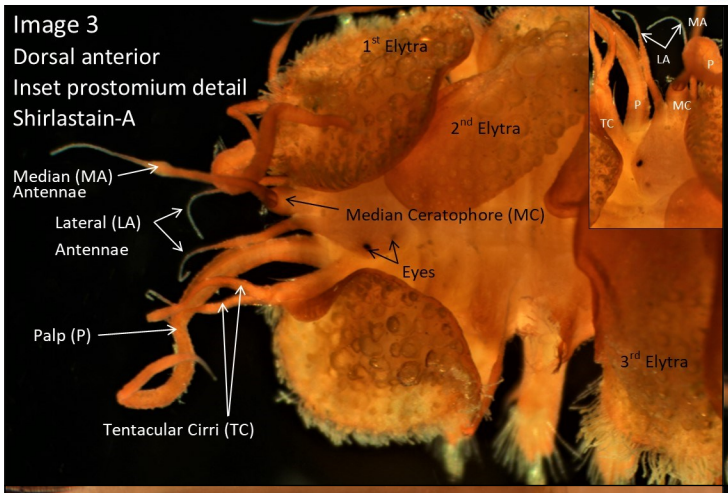
Lepidonotus sp A

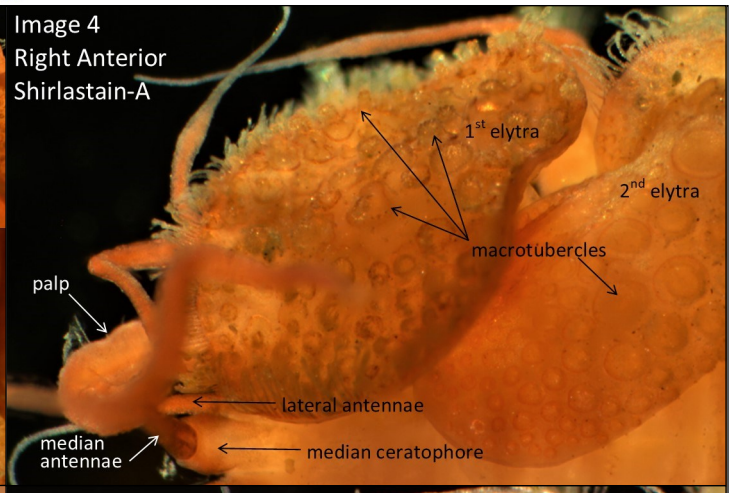
SCAMIT, 2023 §

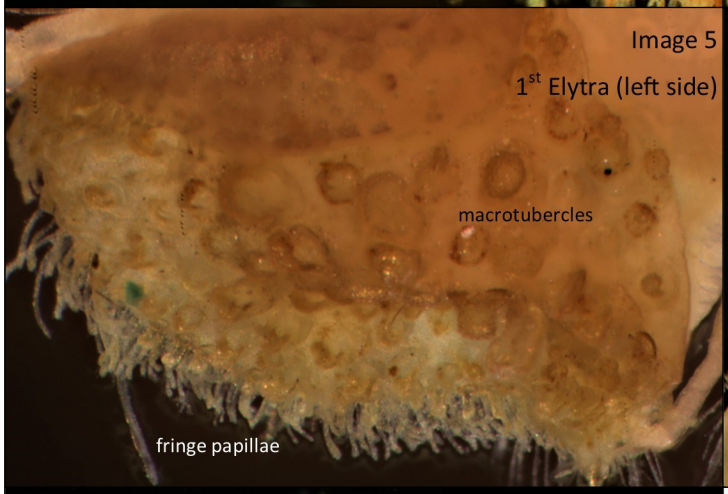
Voucher Sheet

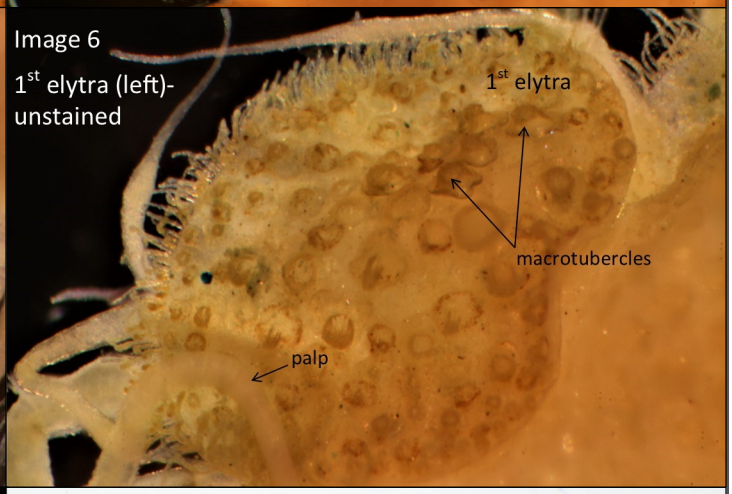
B. Haggin

April, 2023









Diagnostic Characters (cont.):

10) Notochaetae of 2 types: 1) few short, with broad, pointed tips, with transverse rows of serrations on shaft; 2) numerous long, capillary-like, tapering to fine tips, with rows of paired bracts along shaft **(Images 16-18).**

11) Neurochaetae stout, with unidentate, falcate tips and a cluster of small teeth subdistally **(Images 16, 19 & 20).**

12) Pygidium with 1 long anal cirri **(Images 2a, 2b & 14).**

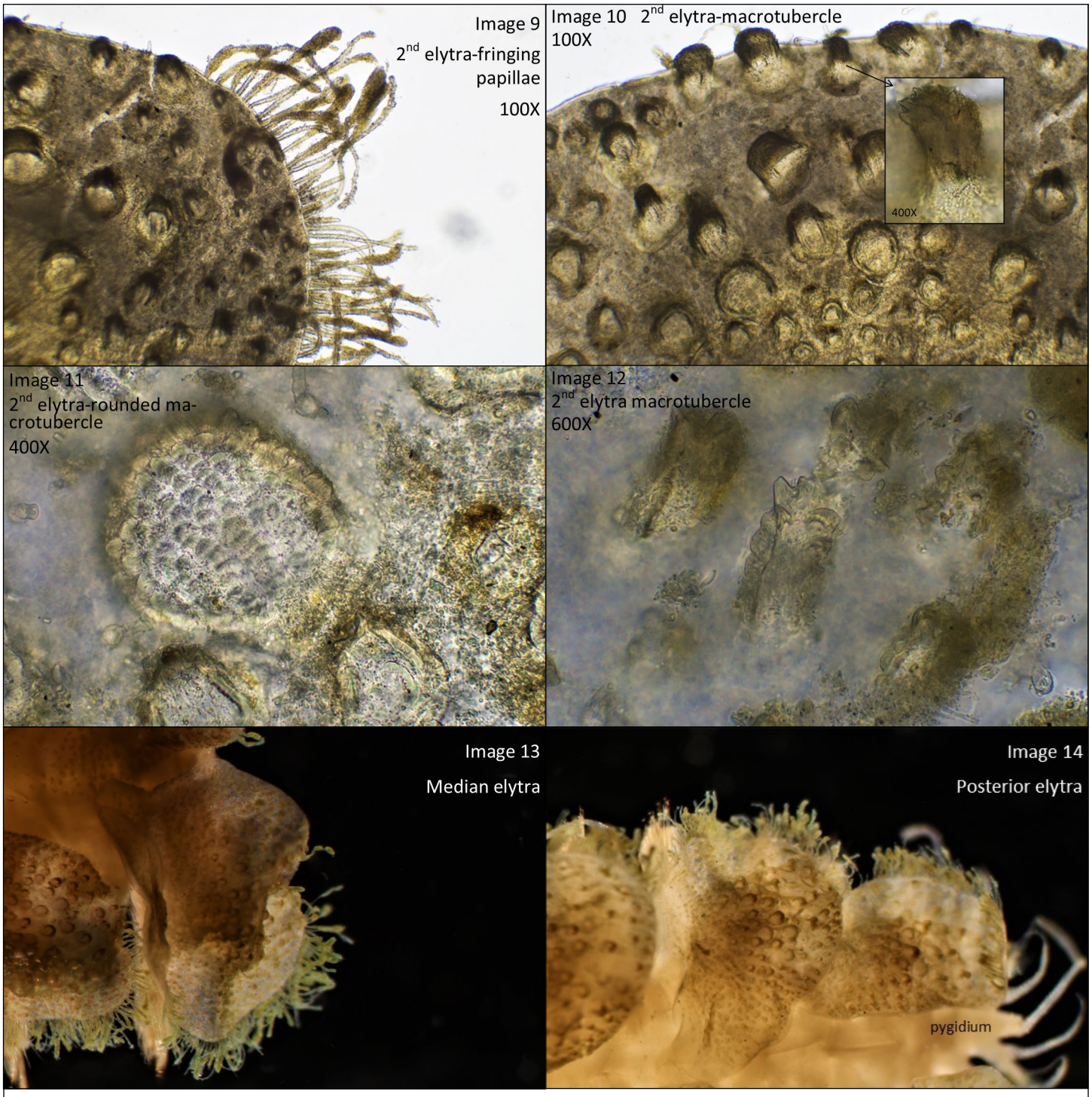
Lepidonotus sp A

SCAMIT, 2023 §

Voucher Sheet

B. Haggin

April, 2023



Pigmentation/MGS:

Preserved material unpigmented

Material Examined:

B'18-10362—San Pedro Channel, 745 m (33.63467N, 118.58360W—02AUG18) (1 ind.)

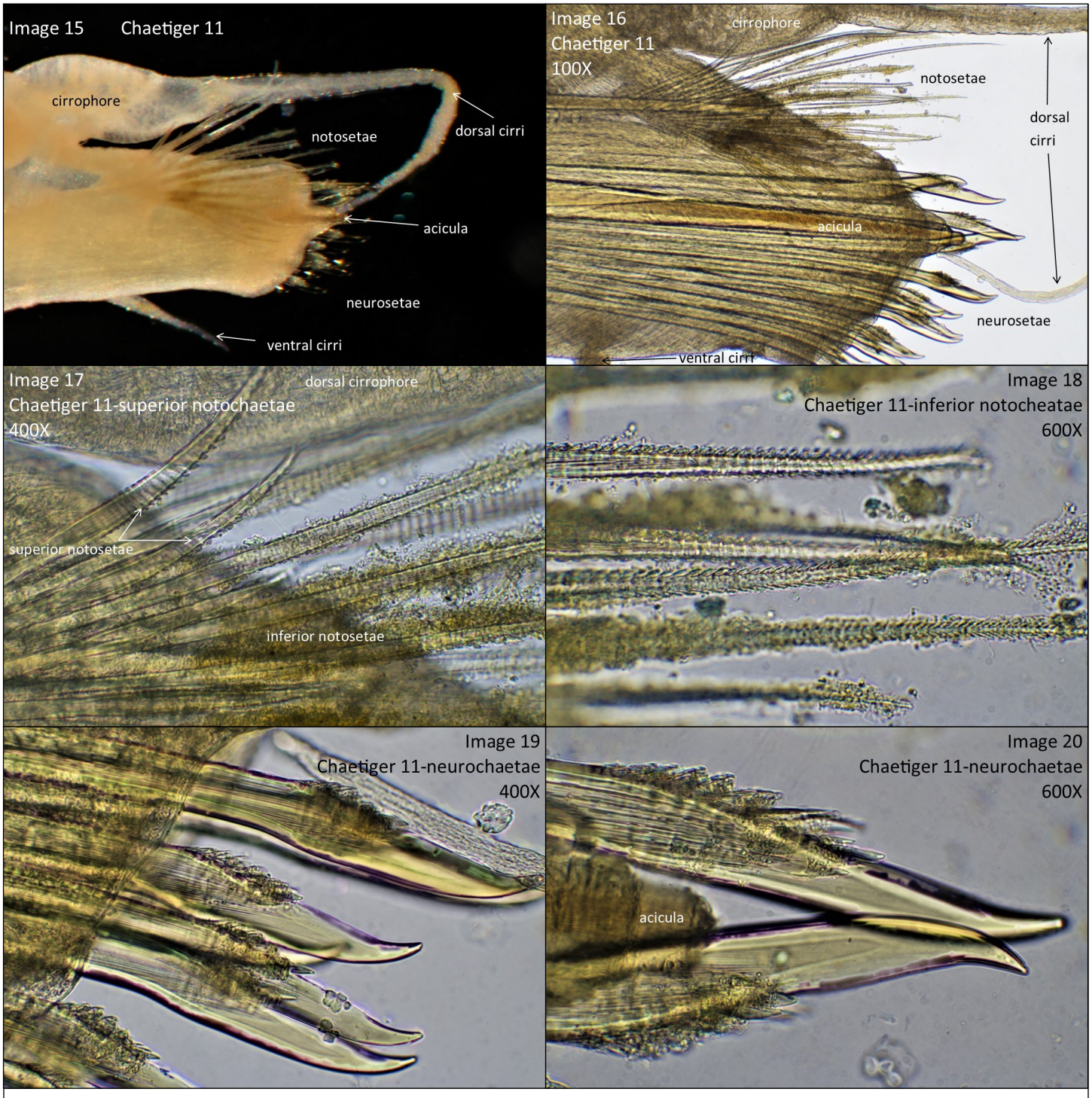
Lepidonotus sp A

SCAMIT, 2023 §

Voucher Sheet

B. Haggin

April, 2023



Similar Species:

Lepidonotus spiculus (Treadwell, 1906) (sensu Ruff, 1995)—*Lepidonotus spiculus* is similar to *Lepidonotus* sp A in having 12 pairs of elytra with macrotubercles and fringing papillae, the characteristics of the short notochaetae and the neurochaetae. The two differ in the details of the macrotubercles. *Lepidonotus spiculus* has three types of macrotubercles (bluntly conical, short rounded and sharply conical) rather than two in *L.* sp A (bluntly conical and short rounded). The macrotubercles of *L. spiculus* are also on polygonal basal plates. The basal plates of *L.* sp A are not evident and

Lepidonotus sp A

SCAMIT, 2023 §

Voucher Sheet

B. Haggin

April, 2023

Similar Species (cont.):

Lepidonotus spiculus (cont.): do not appear polygonal if present. The two also differ in the dentition of the capillary notochaetae, though there is a little confusion here. Ruff (1995) describes the capillary notochaetae of *Lepidonotus spiculus* as having a transverse row of serrations on the shaft of the notochaetae **(Image G below)** while Treadwell (1906) describe it as having a series of paired bracts along the shaft and Imajima (1997) illustrates it this way as well **(Image C below).** *Lepidonotus* sp A has only paired bracts along the shaft. *Lepidonotus spiculus* was originally described from Monterey Bay, California and its range has since been expanded to occur from the west coast of North America to Japan from 84-126 m (Ruff, 1995 & Imajima, 1997). Leslie Harris (pers. comm.) has stated that *Lepidonotus spiculus* is typically found in shallow water on hard substrates.

Image G from Ruff, 1995

Image C from Imajima, 1997

Lepidonotus squamatus (Linnaeus, 1758)—The historical descriptions of *Lepidonotus squamatus* have been of poor quality, the best and most recent being that of Jirkov (2001) but the description either lacked good details or translated poorly from Russian. *Lepidonotus squamatus* is similar to *Lepidonotus* sp A in most characters, including both having 2 types of macrotubercles, bluntly conical and short, rounded and details of the neurochaetae. The illustration provided in Jirkov (2001) **(below)** appears to be of paired bracts along the shaft but the description provided was not conclusive. *Lepidonotus squamatus* is consistently described as having dark-brown or reddish elytra (Pettibone, 1963; Imajima & Hartman, 1964 & Jirkov, 2001), while *Lepidonotus* sp A has relatively unpigmented elytra. *Lepidonotus squamatus* was originally described from shallow water in western Europe and its range has since expanded to encompass southern and western Europe; California; Japan; Arctic (Imajima & Hartman, 1964) and off Korea (Jirkov, 2001). Pettibone (1963) lists *L. squamatus* as from low water to 1,400 fathoms (2560 m) but Jirkov (2001) list it as mainly from depths of less than 20 m. Based on the distribution and depth range *Lepidonotus squamatus* is likely a species complex and true *L. squamatus* likely does not occur locally.

Image from Jirkov, 2001

Habitat:

Lepidonotus sp A is known from a single individual from deeper water in the San Pedro Channel. It was found in sediments of clayey silt from 745 m. Also collected in the sample were the polychaetes *Myriochele gracilis* Hartman, 1955; *Maldane californiensis* Green, 1991; *Protis pacifica* Moore, 1923; *Cossura rostrata* Fauchald, 1972; *Aricidea* (*Acmira*) *rubra* Hartman, 1963; *Levinsenia oculata* (Hartman, 1957); *Phyllochaetopterus* sp A SCAMIT, 2023 § (reported as *Phyllochaetopterus* sp LA1 Haggin, 2019 §); *Syllis* sp A SCAMIT, 2023 § (reported as *Syllis* sp LA4 Haggin, 2019 §);

Lepidonotus sp A

SCAMIT, 2023 §

Voucher Sheet

B. Haggin

April, 2023

Habitat (cont.):

Kirkegaardia sp B SCAMIT, 2023 § (reported as *Kirkegaardia* sp LA1 Haggin, 2019 §); *Harmothoe* sp LA1 Furlong, 2014 §; and an unidentified syllid, an unidentified polynoid and an unidentified *Cossura*.

Discussion:

De Assis *et al*. (2015) gave the generic diagnosis of *Lepidonotus* as follows:

Body short, arched, with 26 segments. Bilobed prostomium extending anteriorly into ceratophores of terminally-attached lateral antennae. Antennae and cirri smooth. Facial tubercle present; buccal segment with or without nuchal fold. Twelve pairs of elytra on segments 2, 4, 5, 7.... 21 and 23. Notopodia small or vestigial; unidentate notochaetae short, slender, spinose, or notochaetae capillaries sometimes present. Neuropodia large, with or without acicular lobe; neurochaetae stout, long, with subdistal spines and unidentate or occasionally bidentate tips.

Currently there are 78 valid species of *Lepidonotus* listed on WoRMS with 3 of those reported from southern California and 1 described from California. Besides *Lepidonotus spiculus* and *L. squamatus*, *Lepidonotus caeruleus* Kinberg, 1856 is listed by De Assis *et al*. (2015) has having a distribution of Japan to California and Brazil. The species was described from Brazil and reports of this species from the NEP are doubtful. *Lepidonotus spiculus* is the only species of *Lepidonotus* currently listed in SCAMIT Ed. 13.

References:

De Assis, J. E., de Brito, R. J., Christoffersen, M. L. & de Souze, J. R. B. 2015. A catalogue of the scale-worm genus *Lepidonotus* (Polynoidae, Polychaeta) from South America, with two new records for Brazilian waters. *ZooKeys* 533: 63-98.

Imajima, M. 1997. Polychaetous Annelids from Sagami Bay and Sagami Sea Collected by the Emporer Showa of Japan and Deposited at the Showa Memorial Institute, National Science Museum, Tokyo. Families Polynoidae and Acoetidae. *National Science Museum Monographs* 13: 1-131.

Imajima, M. & Hartman, O. 1964. The Polychaetous Annelids of Japan. Part I. *Occasional Papers of the Allan Hancock Foundation* 26(1): 1-237.

Jirkov, I. A. 2001. [*Polychaeta of the Arctic Ocean*] (In Russian) *Polikhety severnogo Ledovitogo Okeana*. Yanus-K Press, Moscow, 632 pp.

Pettibone, M. H. 1963. Marine Polychaete Worms of the New England Region. 1. Families Aphroditidae Through Trochochaetidae. *Bulletin of the United States National Museum* 227(1): 1-356.

Read, G. & Fauchald, K. (Ed.) 2023. World Polychaeta Database. *Lepidonotus* Leach, 1816. Accessed through: World Register of Marine Species at: https://www.marinespecies.org/aphia.php?p=taxdetails&id=129496 on 2023-04-12

Ruff, R. E. 1995. Family Polynoidae Malmgren, 1867. 105-166. IN: Blake, James A., Hilbig, Brigitte, and Scott, Paul H. (Ed.). *Taxonomic Atlas of the Benthic Fauna of the Santa Maria Basin and Western Santa Barbara Channel. Volume 5 - The Annelida Part 2. Polychaeta: Phyllodocida (Syllidae and scale-bearing families), Amphinomida, and Eunicida*. Santa Barbara Museum of Natural History. Santa Barbara.

Lepidonotus sp A

SCAMIT, 2023 §

Voucher Sheet

B. Haggin

April, 2023

References (cont.):

SCAMIT. 2021. *A Taxonomic Listing of Benthic Marco- and Megainvertebrates from Infaunal & Epifaunal Monitoring and Research Programs in the Southern California Bight, Edition 13*. Cadien, D. B., Lovell, L. L., Barwick, K. L., Haggin, B. M., eds. 203pp.

Treadwell, A. L. 1906. Polychaetous annelids of the Hawaiian Islands collected by the steamer Albatross in 1902. *Bulletin of the United States Fish Commission* 23(3): 1145-1181.

Other Literature Consulted:

Hartman, O. 1938. The Types of the Polychaete Worms of the Families Polynoidae and Polyodontidae in the United States National Museum and the Description of a New Genus. *Proceedings of the United States National Museum* 86(3046): 107-134.

Linnaeus, C. 1758. Systema Naturae per regna tria naturae, secundum classes, ordines, genera, species, cum characteribus, differentiis, synonymis, locis. *Editio decima, reformata [10th revised edition],* vol. 1: 824 pp.

Version History:

Version 1.0—Draft voucher sheet created (09MAR2020)

Version 2.0—Voucher sheet completed, images updated and updated format to conform with new SCAMIT guidelines (06OCT2022)

Version 3.0—Updated name to *Lepidonotus* sp A and author to SCAMIT, 2023 §; Updated Similar Species section; Updated Discussion section; Updated names of co-occurring species; Updated References (12APR2023)

Voucher Sheet

B. Haggin
April, 2023

Species: *Onuphis* sp B SCAMIT, 2023 §
Synonyms: *Onuphis* sp LA1 Haggin, 2019 §

P-Code—none assigned
ITI—Group 1

Subfamily: Onuphinae
Family: Onuphidae
Order: Eunicida
Subclass: Errantia
Class: Polychaeta
Phylum: Annelida

Diagnostic Characters:

147 chaetigers (incomplete) 61 mm X 2 mm (including parapodia)

1) Prostomium sub-triangular, with clavate frontal antennae (FA), tapering distally.
2) Eyes present, 1 pair, far lateral on prostomium, obscured by the Inner Lateral Antennae from above. Eyes a collection of many small spots.
3) Peristomium about = in size to chaetiger 1, slightly smaller than prostomium **(Images 1 & 2)**. Peristomial cirri long, extending beyond anterior margin of prostomium, to about midpoint of Frontal Antennae.
4) Outer Lateral Antennae (OLA) with ~25 annulations, reaching to chaetiger 2 **(Images 1—3)**. **Ceratophores with brown pigment on annulations 2-5 and 14-16. Subdermal pigment spot in annulations 3 & 4, 10 & 11 and 17 & 18. Styles short, ~½ length of ceratophore, with brown pigment at base of styles.**
5) Inner Lateral Antennae (ILA) with 29 to 30 annulations, reaching to around chaetiger 10 **(Images 1—3)**. **Ceratophores with brown pigment on annulations 3-6 and 18-24. Subdermal pigment spot in annulations 3-7, 12-14 and 18 & 19. Styles long, ~1.3X ceratophores, with brown pigment at base of styles.**
6) Median Antennae (MA) with ~20 annulations, reaching to chaetiger 6 or 7 **(Images 1—3)**. **Ceratophores with brown pigment on annulations 2-5 and 10-13. Subdermal pigment spot in annulations 4 & 5 and 10 & 11. Styles slightly longer than ceratophores, with light brown pigment at base of style (not as noticeable as in ILA & OLA).**
7) Branchiae from chaetiger 1 **(Images 1, 2 & 4)**. Pectinate with 5 (maybe a small 6) filaments at maximum development **(Image 7)**. 1st branching from chaetiger 17; 2nd branch from chaetiger 26.
8) Dorsal cirri digitate, slender, ≤ length of branchiae in most chaetigers (longer in 1st 2 or 3 chaetigers only) **(Images 4—7)**.
9) Ventral cirri digitate in chaetigers 1-6 **(Image 3)**, papilliform in chaetiger 7, globose in chaetiger 8 and pad-like from chaetiger 9 (globose VC in chaetiger 8 may be small pad).
10) Postchaetal lobe (PL) digitate for 23 chaetigers (reducing rapidly in size from chaetiger 13) then small, conical to chaetiger 35 **(Images 4—6)**. PL reduced to papillae after.
11) Interramal papillae present on chaetigers 5-10 **(Images 5 & 6)**.

Onuphis sp B

SCAMIT, 2023 §

Voucher Sheet

B. Haggin

April, 2023

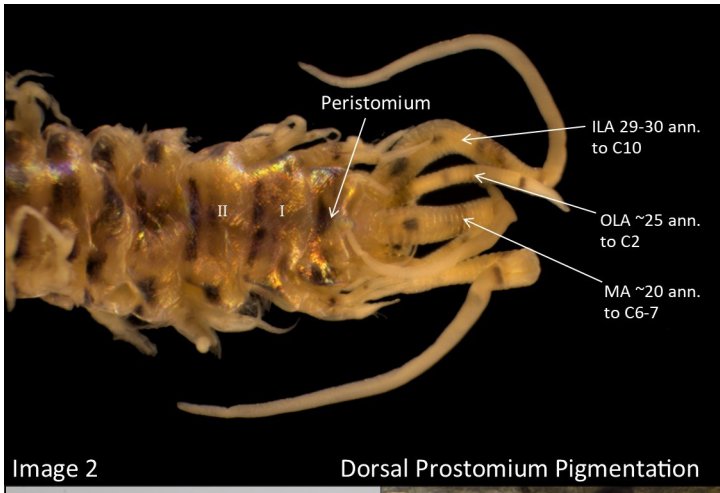


Image 2 Dorsal Prostomium Pigmentation

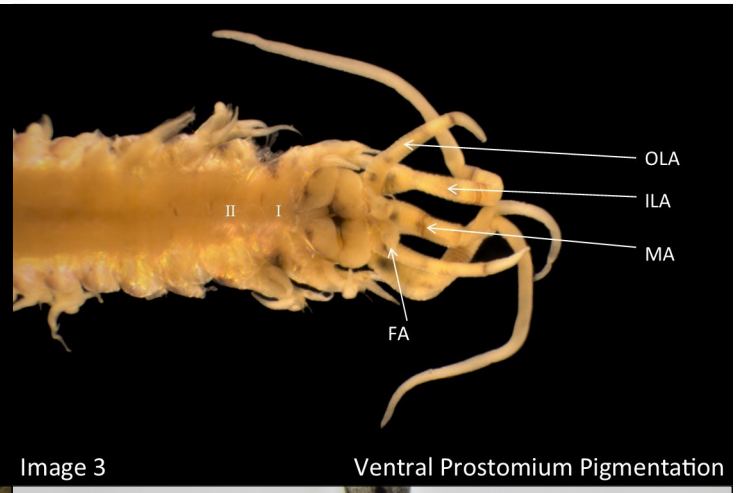
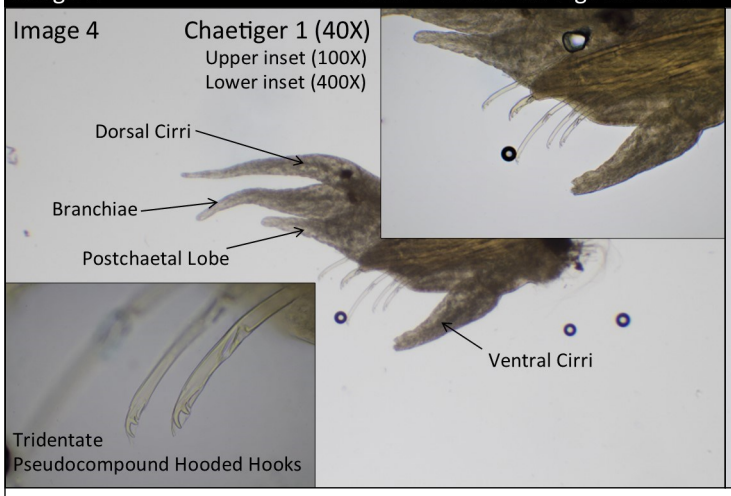
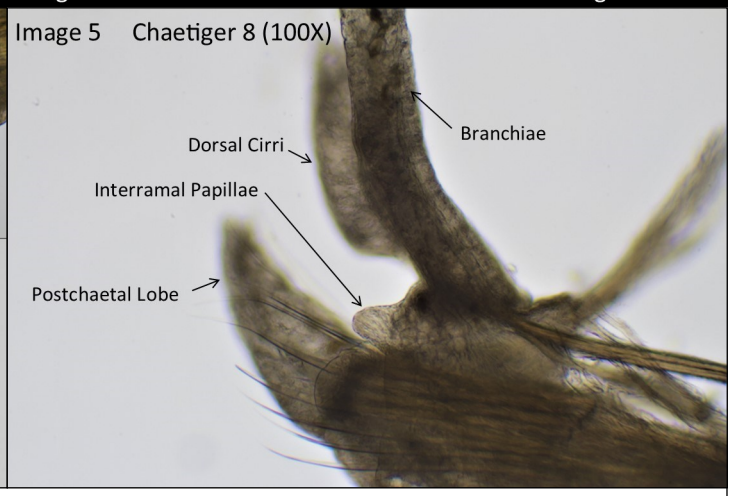


Image 3 Ventral Prostomium Pigmentation





Diagnostic Characters (cont.):

12) Pseudocompound Hooded Hooks (PCHH) present on chaetigers 1-5. Tridentate, with proximal tooth very thin and set close to median tooth (may appear bidentate) **(Image 4)**.

13) Subacicular Hooded Hooks present from chaetiger 10; bidentate, hooded **(Image 6)**.

14) Pectinate chaetae present from chaetiger 6, distally slightly oblique, with 9-10 very long teeth.

15) Limbate chaetae with very fine wings present on all chaetigers **(Image 5)**.

16) Compound spinigers absent.

17) Maxillary Formula: MI 1+1 (falcate); MII 9+9; MIII 8+0; MIV 6+8(9); MV 1+1 (oval plates, rounded at one end and pointed at the other, giving appearance of a tooth) **(Images 8 - 11)**.

18) Pygidium unknown.

19) Cuticle iridescent.

Pigmentation:

1) Prostomium with transverse brown band anterior to MA, stretching between the bases of OLA & ILA **(Images 1 & 2)**.

2) Peristomium with transverse brown band dorsally and scattered pigment around the edge of lips ventrally **(Images 1—3)**.

3) Anterior chaetigers with transverse brown bands dorsally and 2 brown pigment patches (1 dorso-lateral & 1 ventro-lateral) on posterior of parapodia base (dorso-lateral patch connects to dorsal bands, ventro-lateral patch separate) **(Images 1—3)**.

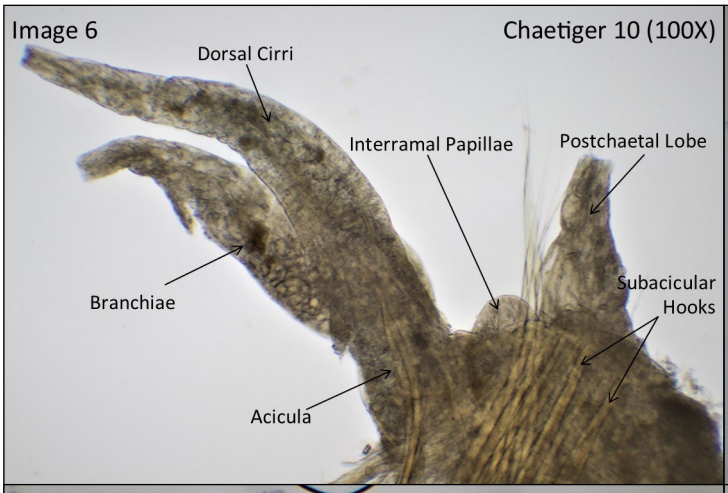
Onuphis sp B

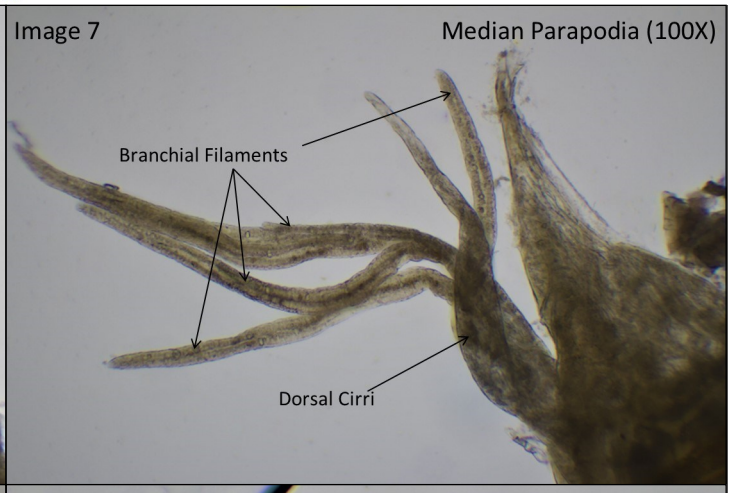
SCAMIT, 2023 §

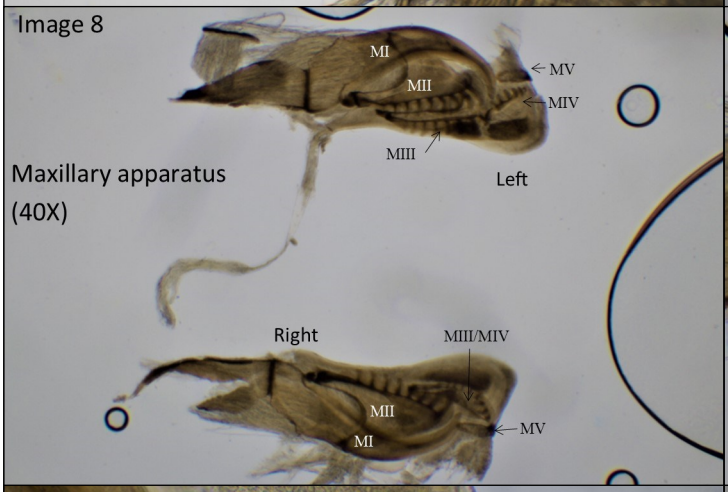
Voucher Sheet

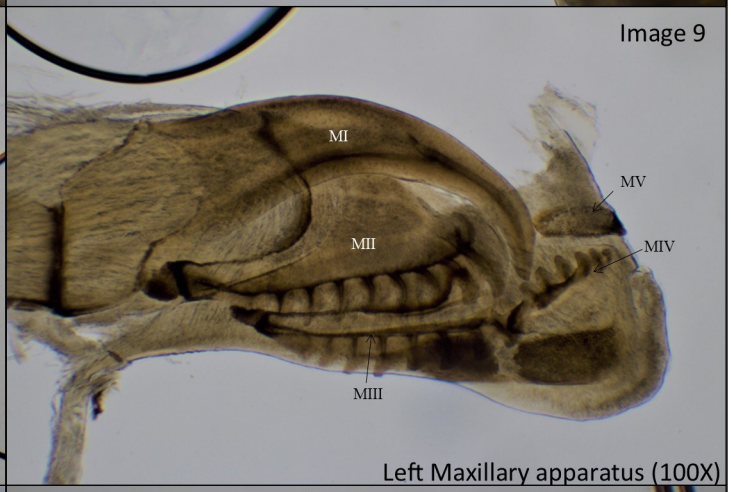
B. Haggin

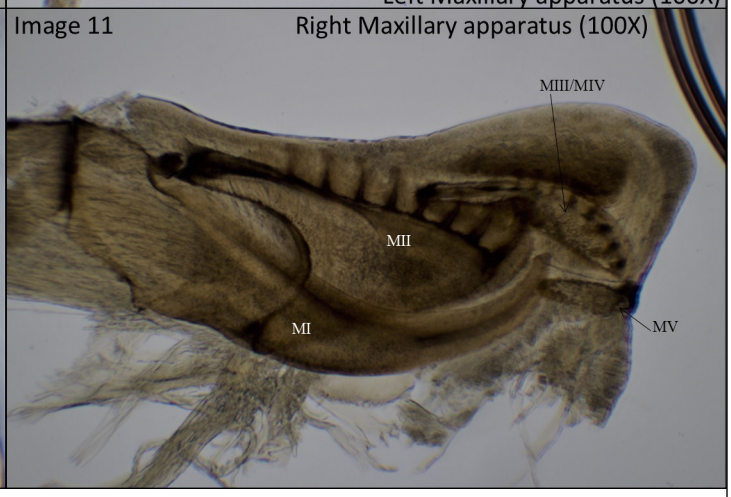
April, 2023











Pigmentation (cont.):

4) Slight brown pigment in posterior interramal region of parapodia.
5) Dorsal pigment decreasing in intensity thru chaetiger 40 **(Image 1)**.
6) ** See also description of ceratophore pigmentation on page 1 **

Images 1-7 by N. Lee
Images 8-11 by B. Haggin

Onuphis sp B

SCAMIT, 2023 §

Voucher Sheet

B. Haggin

April, 2023

Material Examined:

0888-1D—off Rocky Point, Palos Verdes, 31m (1 ind., incomplete—147 chaetigers) (33.76500N, 118.43530W—05AUG88) **(all images)**

Similar Species:

Onuphis eremita parva Berkeley & Berkeley, 1941 — *Onuphis eremita parva* & *Onuphis* sp B are similar by the presence of interramal papillae in anterior chaetigers and branchiae present from chaetiger 1 and becoming pectinate. However, the branchiae in *O. e. parva* first branch in chaetigers 23 - 30 and in *O.* sp B they first branch in chaetiger 17 and a second branch in chaetiger 26. The two species differ in the number of chaetigers with pseudocompound hooded hooks (1-4 in *O. e. parva* & 1-5 in *O.* sp B), the start of subacicular hooded hooks (chaetiger 8 in *O. e. parva* & chaetiger 10 in *O.* sp B), the maximum number of annulations on the occipital ceratorphores (21 annulations in *O. e. parva* & 30 annulations in *O.* sp LA1) and the start of pad-like ventral cirri (chaetiger 7 in *O. e. parva* & chaetiger 8 or 9 in *O.* sp B).

Onuphis multiannulata Shisko, 1981 — *Onuphis multiannulata* and *Onuphis* sp B are similar in the first appearance of subacicular hooded hooks at chaetiger 10 and the branchiae present from chaetiger 1 and becoming pectinate, but differ in the maximum number of branchial filaments (3 filaments in *O. multiannulata* & 5(maybe 6) filaments in *O.* sp B) and both have pseudocompound hooded hooks in the first 5 chaetigers but differ in their dentition (bi- & tridentate in *O. multiannulata* & tridentate in *O.* sp B). The two species differ in their maxillary formula (*O. multiannulata*—MII 8/9+10; MIII 10+0; MIV 7+10/11 and *O.* sp B—MII 9+9; MIII 8+0; MIV 6+8(or 9, difficult to count)), *O. multiannulata* lacks the interramal papillae in anterior chaetigers that are present in *O.* sp B and *Onuphis multiannulata* lacks pigment while *Onuphis* sp B is heavily pigmented in anterior chaetigers.

Habitat:

Onuphis sp B is known from a single specimen from off Rocky Point, Palos Verdes, CA in shallow water (31m) in sediments of silty sand. Also collected in the sample were the polychaetes *Platynereis bicanaliculata* (Baird, 1863); *Nereis* sp A SCAMIT, 2007 §; *Glycinde armigera* Moore, 1911; *Glycera nana* Johnson, 1901; *Glycera oxycephala* Ehlers, 1887; *Diopatra tridentata* Hartman, 1944; *Onuphis* sp A SCAMIT, 1992 §; *Mooreonuphis nebulosa* (Moore, 1911); *Podarkeopsis glabrus* (Hartman, 1961); *Micropodarke dubia* (Hessle, 1925); *Lumbrineris latreilli* Audouin & H. Milne Edwards, 1834; *Phyllodoce hartmanae* Blake & Walton, 1977; *Nephtys californiensis* Hartman, 1938; *Nephtys caecoides* Hartman, 1938; *Tenonia priops* (Hartman, 1961); *Sthenelanella uniformis* Moore, 1910; *Sthenelais tertiaglabra* Moore, 1910; *Dipolydora caulleryi* (Mesnil, 1897); *Dipolydora socialis* (Schmarda, 1861); *Laonice cirrata* (M. Sars, 1851); *Paraprionospio alata* (Moore, 1923); *Prionospio lighti* Maciolek, 1985; *Prionospio jubata* Blake, 1996; *Spiophanes duplex* (Chamberlin, 1919); *Spiophanes norrisi* Meißner & Blank, 2009; *Ampharete labrops* Hartman, 1961; *Melinna oculata* Hartman, 1969; *Lanice conchilega* (Pallas, 1776); *Streblosoma crassibranchia* Treadwell, 1914; *Pista wui* Saphronova, 1988; *Spiochaetopterus costarum* Cmplx; *Chaetozone corona* Berkeley & Berkeley, 1941; *Chaetozone setosa* Cmplx; *Aphelochaeta-Monticellina* Cmplx; *Scalibregma californicum* Blake, 2000; *Aricidea* (*Aricidea*) *wassi* Pettibone, 1965; *Leitoscoloplos pugettensis* (Pettibone, 1957); Euclymeninae sp A SCAMIT, 1987 §; *Dialychone veleronis* (Banse, 1972); an unidentified *Chone*, an unidentified *Lumbrineris*, an unidentified *Mediomastus*, and an unidentified *Nereiphylla.*

Discussion:

Arias (2016) gave the generic diagnosis of *Onuphis* as follows:

Prostomium often anteriorly extended; with frontal lips. Antennae and palps with ceratophores usually with 10-25 rings and short to moderately long styles, palpostyles shorter than palpophores. Nuchal grooves straight. Peristomial cirri present. Anterior three to four (rarely two to five) pairs of parapodia modified but not enlarged. Ventral cirri subulate on anterior four to six chaetigers; dorsal cirri moderately long. Branchiae rarely absent, usually present from chaetiger 1, rarely 3-6; single or pectinate filaments (maximum 12). Hooks of modified parapodia usually tridentate (rarely only bidentate, sometimes bi– to multidentate) Pseudocompound with relatively short hoods; median hook slightly larger but not becoming simple and changing to large median hook. Hooks varying specifically, from all having appendages of almost equal thickness and length to being clearly differentiated into slender long-appendaged and robust short-appendaged hooks. Dorsal limbate chaetae from chaetiger 1, ventral limbate chaetae replacing Pseudocompound hooks from chaetiger 4 or later until replaced by bidentate hooded Subacicular hooks usually from chaetiger 9-14. Tubes round in section, ranging from thin mucous to tough parchment-like inner layer covered with extraneous particles.

Onuphis sp B

SCAMIT, 2023 §

Voucher Sheet

B. Haggin

April, 2023

Discussion (cont.):

Onuphis sp B may be *Onuphis eremita parva* but the description of *O. e. parva* was vague and the variability of characters within the species is unknown. Recent work (Arias & Paxton 2014) suggest that *Onuphis eremita* is a species complex and due to differences in the insertions of some characters a provisional species, *Onuphis* sp B, has been erected. WoRMS currently lists 47 accepted species of *Onuphis* and SCAMIT Ed. 13 has 7 named species and 3 provisional species of *Onuphis*. *Onuphis* sp B would be the 4th provisional species when added in Edition 14.

References:

Arias, A. 2016. *Onuphis* and *Mooreonuphis* (Annelida: Onuphidae) from West Africa with the description of three new species and the reinstatement of O. landanaensis Augener, 1918. *Zootaxa* 4168(3): 481-511.

Arias, A. & Paxton, H. 2014. Hidden diversity within the polychaete *Onuphis eremita sensu lato* (Annelida: Onuphidae)—redescription of *O. eremita* Audouin & Milne-Edwards, 1833 and reinstatement of *Onuphis pancerii* Claparède, 1868. *Zootaxa* 3861(2): 145-169.

Berkeley, E. & Berkeley, C. 1941. On a collection of Polychaeta from Southern California. *Bulletin of the Southern California Academy of Sciences* 40(1): 16-60.

Read, G. & Fauchald, K. (Ed.) 2023. World Polychaeta Database. *Onuphis* Audouin & Milne Edwards, 1833. Accessed through: World Register of Marine Species at: https://www.marinespecies.org/aphia.php?p=taxdetails&id=129404 on 2023-04-12

SCAMIT. 2021. *A Taxonomic Listing of Benthic Marco- and Megainvertebrates from Infaunal & Epifaunal Monitoring and Research Programs in the Southern California Bight, Edition 13*. Cadien, D. B., Lovell, L. L., Barwick, K. L., Haggin, B. M., eds. 203pp.

Shisko, J. F. 1981. Five new polychaetes of the families Euncidae and Onuphidae, collected in 1975 and 1976 during the Southern California Baseline Project. *Proceedings of the Biological Society of Washington* 94(4): 968-983.

Other Literature Consulted:

Fauchald, K. 1982. Revision of *Onuphis*, *Nothria*, and *Paradiopatra* (Polychaeta: Onuphidae) based upon type material. *Smithsonian Contributions to Zoology* 356: 1-109.

Gil, J. & Machado, M. 2014. A new species of *Onuphis* (Polychaeta: Onuphidae) from Southern Portugal, with comments on the validity of *O. pancerii* Claparède, 1868. *Zootaxa* 3860(4): 343-360.

Hartman, O. 1968. *Atlas of the Errantiate Polychaetous Annelids from California*. Los Angeles, Ca, University of California, Allan Hancock Foundation.

Hilbig, B. 1995. Family Onuphidae Kinberg, 1865. pages 229-262. IN: Blake, James A., Hilbig, Brigitte, and Scott, Paul H. (Ed.). *Taxonomic Atlas of the Benthic Fauna of the Santa Maria Basin and Western Santa Barbara Channel. Volume 5—The Annelida Part 2. Polychaeta: Phyllodocida (Syllidae and scale-bearing families), Amphinomida, and Eunicida*. Santa Barbara Museum of Natural History. Santa Barbara.

León-González, J. A. de 1994. Soft bottom polychaetes from the western coast of Baja California Sur, Mexico. 4. Onuphidae. *Cahiers Biologie Marine* 35: 57-67.

Version History:

Version 1.0—Voucher sheet created (01AUG2019)

Version 2.0—Updated voucher sheet to new SCAMIT guidelines; Updated photo labelling to reduce image clutter; Updated name to *Onuphis* sp B and author to SCAMIT, 2023 §; Updated material examined section; Updated References section; Added ITI-Code; Added Habitat, Discussion and Other Literature Consulted sections (12APR2023)

Voucher Sheet

B. Haggin
April, 2023

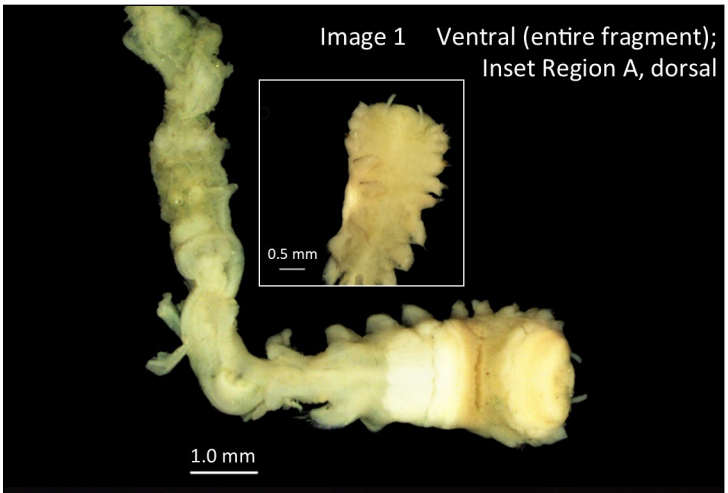
Species: *Phyllochaetopterus* sp A SCAMIT, 2023 §
Synonyms: *Phyllochaetopterus* sp LA1 Haggin, 2019 §

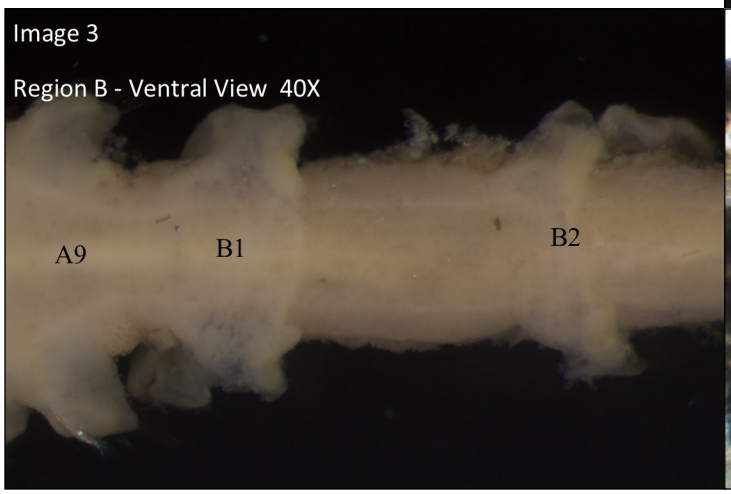
P-code—see Discussion
ITI-code—none assigned

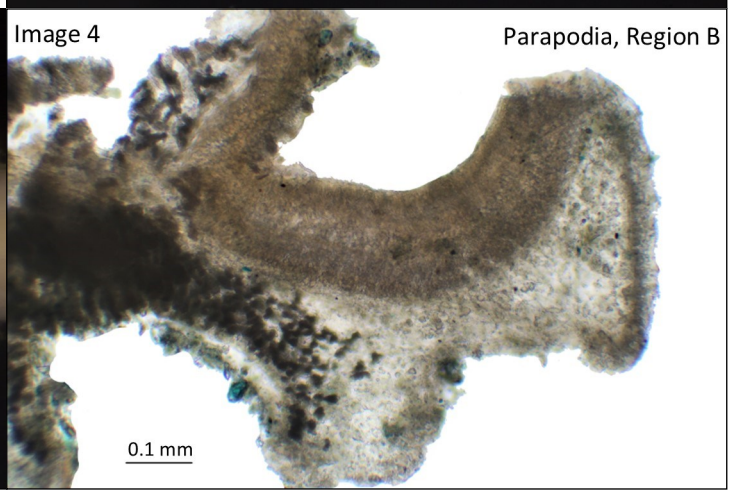
Family: Chaetopteridae
Suborder: Terebellimorpha
Order: Terebellida
Infraclass: Canalipalpata
Subclass: Sedentaria
Class: Polychaeta
Phylum: Annelida

Diagnostic Characters:

1) Largest fragment 17.4 mm for 17 chaetigers; 3.3 mm long and 1.6 mm wide across Region A.
2) Prostomium rounded, eyes absent; tentacular cirri present on chaetiger 1 **(Image 1)**.
3) Region A with 9 chaetigers **(Image 2)**.
4) Region B with 2 chaetigers, notopodia appear bilobed **(Images 3, 4)**.
5) Region C incomplete, # of segments unknown; parapodia bottle-shaped **(Image 5)**.
6) Chaetiger 4 with 1 cutting chaetae, 3-sided and asymmetrical apically, with etchings in concavities and on shaft **(Images 6, 7)**; notochaetae long, lanceolate, slightly asymmetrical **(Images 6, 8)**; neurochaetae short, lanceolate, highly asymmetrical **(Images 6, 9)**.
7) Tube thin, clear, parchment-like.







All photos by B. Haggin

Pigmentation/MGS:

Prostomium, peristomium and A1 unpigmented; A2 yellow-brown; A3-A4 speckeled brown; A5 brown; A6 glandular, white; A7 non-glandular, white; A8-A9 brown, fading to unpigmented **(Image 2)**.

Phyllochaetopterus sp A

SCAMIT, 2023 §

Voucher Sheet

B. Haggin

April, 2023

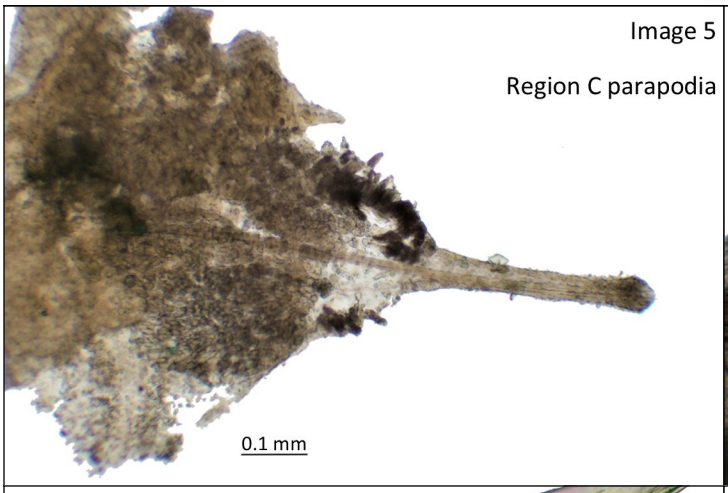


Image 5

Region C parapodia

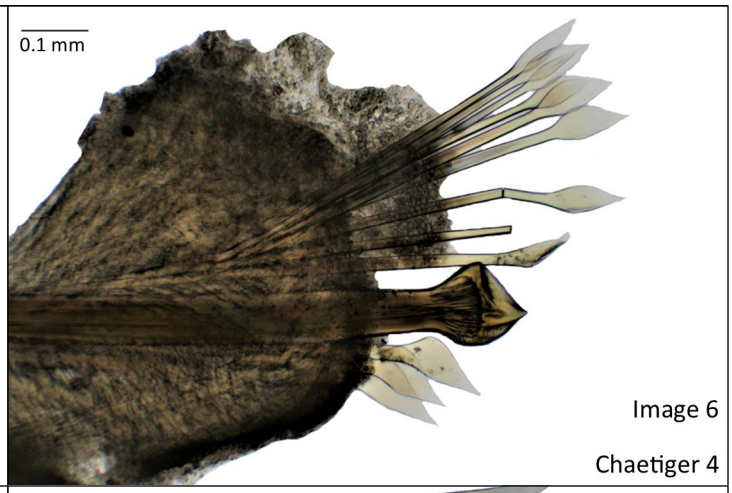


Image 6

Chaetiger 4

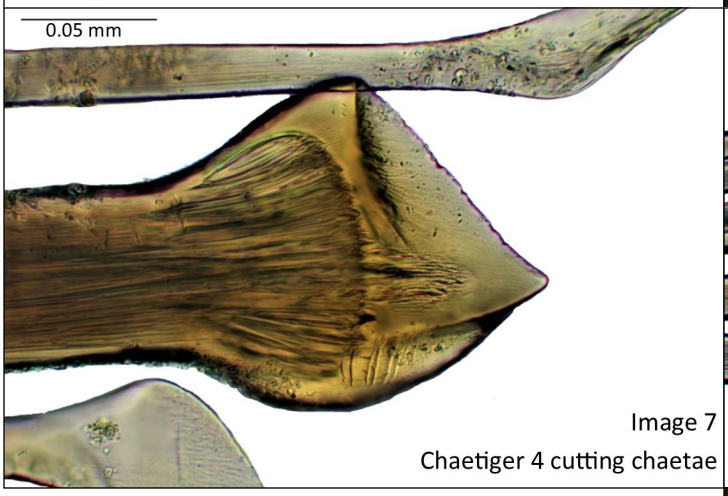


Image 7

Chaetiger 4 cutting chaetae

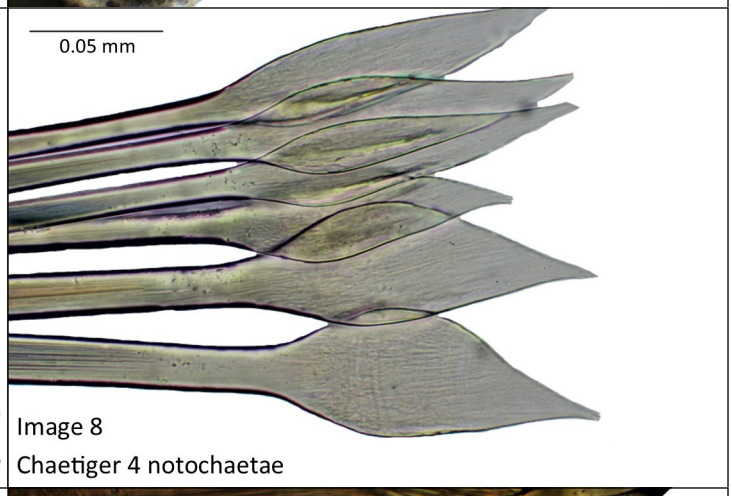


Image 8

Chaetiger 4 notochaetae

Material Examined:

B'18-10355—South of Pt. Dume, Santa Monica Basin/San Pedro Channel, 818 m (5 inds.) (33.88369N, 118.79006W—17AUG18) **(Images 2-9)**

B'18-10366—Off Two Harbors, Santa Catalina Island, San Pedro Channel, 883 m (2 inds.) (33.48691N, 118.42353W—02AUG18) **(Image 1)**

Also from B'18-10362—San Pedro Channel, 745 m (33.63467N, 118.58360W—02AUG18)

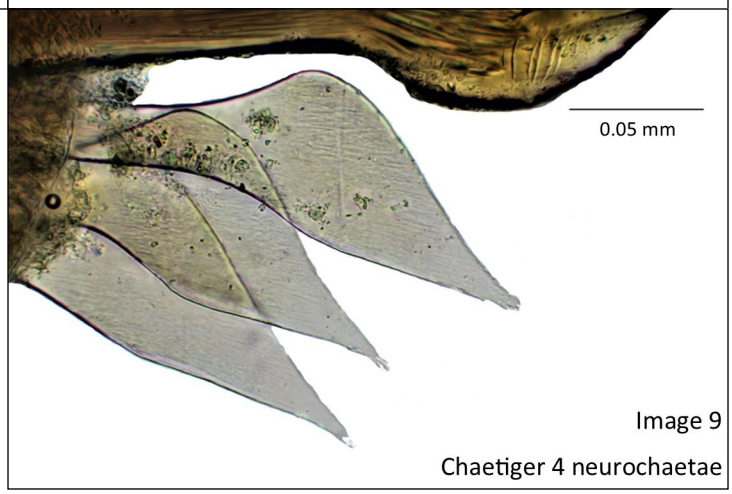


Image 9

Chaetiger 4 neurochaetae

Similar Species:

Phyllochaetopterus limicolus Hartman, 1960—*Phyllochaetopterus limicolus* is similar to *Phyllochaetopterus* sp A in having 9 chaetigers in Region A, 2 chaetigers in Region B, a single cutting chaetae in chaetiger 4 and lacking eyes. The two differ in the ventral pigment pattern of Region A. *Phyllochaetopterus limicolus* has been described with some variability in this pigmentation. Hartman (1960) described it as chalky white thru chaetiger 2, dark tawny or brown from 3-5, chalky white from 6-8 then grayish green. Blake (1996) describes it as pale on chaetiger 1, covered in small pigment spots becoming a reddish-brown band between 5/6 or 6/7, then a large glandular shield on 6-8. SCAMIT (1992)

Phyllochaetopterus sp A

SCAMIT, 2023 §

Voucher Sheet
B. Haggin
April, 2023

Similar Species (cont.):

Phyllochaetopterus limicolus (cont.): discussed the variation in pigment and described *P. limicolus* as having brown coloration on chaetigers 5 & 6, and chalky white on chaetigers 6-8. All of these description differ from the alternating narrow pigment bands found in *Phyllochaetopterus* sp A.

Phyllochaetopterus prolifica Potts, 1914 (sensu Blake, 1996)—*Phyllochaetopterus prolifica* is similar to *P.* sp A in having a single cutting chaetae in chaetiger 4 but differs in a number of ways. *Phyllochaetopterus prolifica* has eyes that are lacking in *P.* sp A and can have up to 12 chaetigers in both Regions A & B. The ventral pigment pattern of Region A is also different between the two species.

Phyllochaetopterus sp LH1 Harris, 2017 §—*Phyllochaetopterus* sp LH1 is similar to *P.* sp A in having a single cutting chaetae in A4 but differs in having up to 10 chaetigers in Region A and over 30 in Region B. The ventral pigment of Region A is a solid brown in *P.* sp LH1, rather than alternating as in *Phyllochaetopterus* sp A.

Phyllochaetopterus gigas Nishi & Rouse, 2014—*Phyllochaetopterus gigas* is similar to *Phyllochaetopterus* sp A in having 9 chaetigers in Region A, 2 chaetigers in Region B, and lacking eyespots. *Phyllochaetopterus gigas* differs in the number of cutting chaetae in chaetiger 4, with up to 6, compared to 1 in *Phyllochaetopterus* sp A. The ventral pigment pattern of Region A also differs, consisting of a broad light patch followed by a broad dark patch and a large white, glandular region on chaetigers 7 and 8 in *Phyllochaetopterus gigas*, where it is a series of alternating thin bands and a narrow white, glandular region on chaetiger 6 in *P.* sp A. *Phyllochaetopterus gigas* has short, inconspicuous tentacular cirri, while *P.* sp A has relatively large tentacular cirri. *Phyllochaetopterus gigas* is known only from the vicinity of whale falls in Monterey Canyon in 2892 m.

Habitat:

Phyllochaetopterus sp A is known from deeper water in the San Pedro Channel. It is found in sediments of clayey silt from 745-883 m. Also collected in the samples were the polychaetes *Amage longibranchiata* Hartman, 1960 (10355, 10366); *Ampharete cornuta* (Hilbig, 2000) (10355); *Myriochele gracilis* Hartman, 1955 (10362); *Maldane californiensis* Green, 1991 (10362); *Syllis* sp A SCAMIT, 2023 § (reported as *Syllis* sp LA4 Haggin, 2019 §) (10362); *Protis pacifica* Moore, 1923 (10355, 10362, 10366); *Aricidea* (*Acmira*) *rubra* Hartman, 1963 (10362); *Aricidea* (*Acmira*) sp LA1 Lovell, 2014 § (10355, 10366) *Levinsenia oculata* (Hartman, 1957) (10362); *Cossura rostrata* Fauchald, 1972 (10362); *Kirkegaardia* sp B SCAMIT, 2023 § (reported as *Kirkegaardia* sp LA1 Haggin, 2019 §) (10355, 10362, 10366); *Chaetozone* sp D SCAMIT, 2023 § (reported as *Chaetozone* sp LA2 Haggin, 2019 §) (10355); *Harmothoe* sp LA1 Furlong, 2014 § (10362); *Lepidonotus* sp A SCAMIT, 2023 § (reported as *Lepidonotus* sp LA1 Haggin, 2019 §) (10362); and an unidentified polynoid (10362), an unidentified *Aricidea* (10355), an unidentified *Cossura* (10362).

Discussion:

Nishi & Rouse (2007) separated the genus *Phyllochaetopterus* into 4 groups based on the combination of number of cutting chaetae in A4 and the number of chaetigers in Region B. The groupings are as follows:

Group A—1-2 cutting chaetae in A4 & 2 chaetigers in Region B

Group B—1-2 cutting chaetae in A4 & 3 or more chaetigers in Region B

Group C—more than 6 cutting chaetae in A4 & 2 chaetigers in Region B

Group D—more than 6 cutting chaetae in A4 & 3 or more chaetigers in Region B

Phyllochaetopterus sp A would be placed into Group A with *Phyllochaetopterus limicolus*.

Phyllochaetopterus sp A

SCAMIT, 2023 §

Voucher Sheet
B. Haggin
April, 2023

Discussion (cont.):

The P-Value Tool file has a P-Code of "P389" for *Phyllochaetopterus limicolus*. *Phyllochaetopterus limicolus* is the most likely species for *Phyllochaetopterus* sp A to have been identified as in the past, but I am not sure if it should inherit P-Code "P389" from *Phyllochaetopterus limicolus*. Leslie Harris (SCAMIT, 2022) has expressed that true *Phyllochaetopterus limicolus* is found in deep water, it has a broad thorax and a thinner, tapering abdomen. It is possible that *P*. sp A is *P. limicolus* and the difference in ventral pigment is just variation.

WoRMS currently lists 22 valid species of *Phyllochaetopterus* and SCAMIT Ed. 13 has 2 named species and 1 provisional species listed. *Phyllochaetopterus* sp A would be the 2nd provisional species when added in Edition 14.

References:

Blake, J. A. 1996. Family Chaetopteridae Malmgren, 1867. Pages 233-252. IN: Blake, James A.; Hilbig, Brigitte; and Scott, Paul H. *Taxonomic Atlas of the Benthic Fauna of the Santa Maria Basin and Western Santa Barbara Channel. Volume 6- The Annelida Part 3. Polychaeta: Orbiniidae to Cossuridae*. Santa Barbara Museum of Natural History. Santa Barbara.

Harris, L. 2017. NEP *Phyllochaetopterus* Character Table. *SCAMIT Handout*.

Hartman, O. 1960. Systematic Account of some Marine Invertebrate Animals from the Deep Basins off Southern California. *Allan Hancock Pacific Expeditions* 22(2): 69-215.

Nishi, E. & Rouse, G. W. 2007. A new species of *Phyllochaetopterus* (Chaetopteridae: Annelida) from near hydrothermal vents in the Lau Basin, western Pacific Ocean. *Zootaxa* 1621: 55-64.

Nishi, E. & Rouse, G. W. 2014. First whale fall chaetopterid; a gigantic new species of *Phyllochaetopterus* (Chaetopteridae: Annelida) from the deep sea off California. *Proceedings of the Biological Society of Washington* 126 (4): 287-298.

Read, G. & Fauchald, K. (Ed.) 2023. World Polychaeta Database. *Phyllochaetopterus* Grube, 1863. Accessed through: World Register of Marine Species at: https://www.marinespecies.org/aphia.php?p=taxdetails&id=129232 on 2023-04-12

SCAMIT. 1992. Notes from SCAMIT Workshop, 6/8/92, on the Chaetopteridae and Onuphidae Common Along the Southern California Shelf. *SCAMIT Newsletter* 11(2): 8.

SCAMIT. 2021. *A Taxonomic Listing of Benthic Marco- and Megainvertebrates from Infaunal & Epifaunal Monitoring and Research Programs in the Southern California Bight, Edition 13*. Cadien, D. B., Lovell, L. L., Barwick, K. L., Haggin, B. M., eds. 203pp.

SCAMIT. 2022. B'18 Problematic Polychaetes (12 April 2021). *SCAMIT Newsletter* 39(6): 5.

Other Literature Consulted:

Pasko, D. & Velarde, R. 1993. Key to the Chaetopteridae of Point Loma. *SCAMIT Handout*.

Version History:

Version 1.0—Draft voucher sheet created (09MAR2020)

Version 2.0—Voucher sheet completed, new images added and updated to new SCAMIT guidelines (04OCT2022)

Version 3.0—Updated name to *Phyllochaetopterus* sp A and author to SCAMIT, 2023 §; Added information on tube characteristics to Diagnostic Characters section; Updated References section; Updated names of co-occurring provisional species (12APR2023)

SCAMIT Newsletter
Vol 41 no. 1-2

Voucher Sheet

B. Haggin
April, 2023

Species: *Syllis sp A* SCAMIT, 2023 §
Synonyms: *Syllis* sp LA4 Haggin, 2019 §

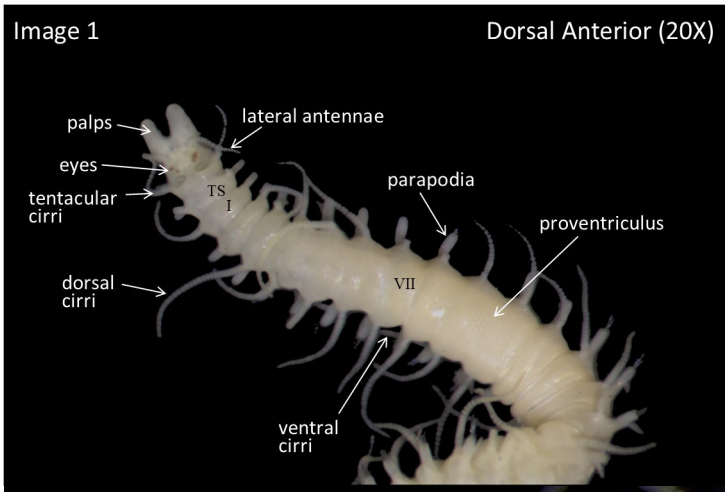
P-code—see Discussion
ITI-code—none assigned

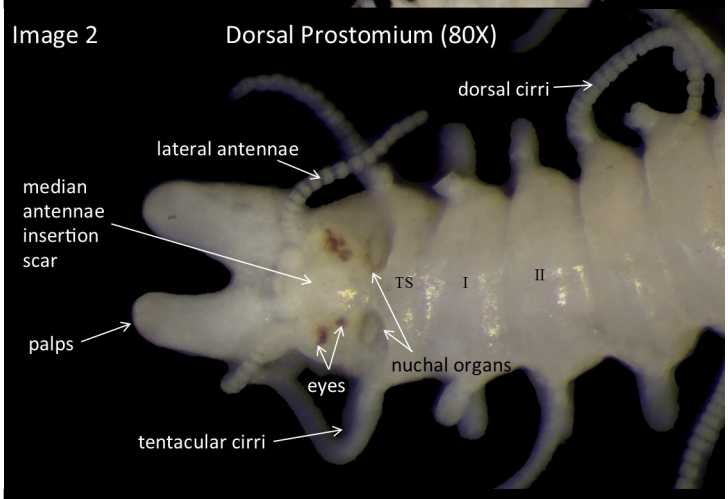
Subfamily: Syllinae
Family: Syllidae
Suborder: Nereidiformia
Order: Phyllodocida
Subclass: Errantia
Class: Polychaeta
Phylum: Annelida

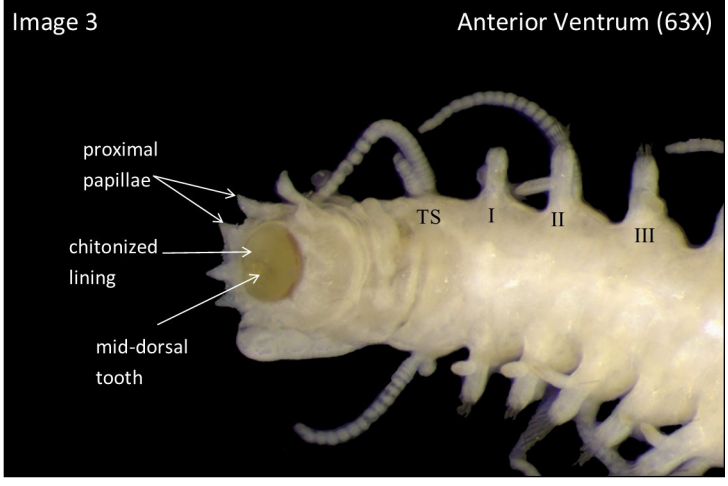
Diagnostic Characters:

~121 chaetigers long (complete); 26.4mm X 0.6mm (across proventriculus, without parapodia)

1) Prostomium ovoid, wider than long.
2) 2 pairs of eyes, anterior pair crescent-shaped, posterior pair round **(Images 1 & 2)**.
3) Median antennae inserted in middle of prostomium (broken, # or articles unknown).
4) Lateral antennae inserted anterior to 1st pair of eyes, near edge of prostomium (w/ 16-17 articles) **(Image 2)**.
5) Palps large, rounded apically, slightly fused basally (~25% longer than prostomium) **(Images 1 & 2)**.
6) Nuchal organs present on posterior of prostomium, lateral to anterior projection of peristomium **(Images 1 & 2)**.
7) Tentacular segment w/ medial anterior projection over posterior of prostomium **(Image 2)**.
8) Proboscis w/ mid-dorsal tooth anteriorly, 10 proximal papillae & a chitonized lining (not a trepan) **(Images 3 & 5)**.
9) Proventriculus from chaetiger 8, thru 6-7 chaetigers.
10) 2 pair of tentacular cirri—Dorsal pair w/ ~25 articles, ventral pair w/ ~16 articles **(Images 1 & 2)**.
11) Parapodia uniramous, elongate, w/ ventral cirrus inserted medially **(Images 4 & 7)**.
12) Dorsal cirri longest in first 15 chaetigers (w/ 29-37 articles), becoming uniform in length to posterior (w/ 14-16 articles).
13) Ventral cirri long, digiform. Extending beyond tip of parapodia but not beyond chaetae **(Images 4 & 7)**.
14) Anterior parapodia w/ 3-4 acicula (1-3 large & 1 small) & ~ 10 compound falcigers (both reducing in # posteriorly) **(Image 6)**.







Images 1-13 by B. Haggin
Images 14 & 15 by V. Rodriquez
(from *Syllis* (*Typosyllis*) sp SD1 voucher sheet)

Syllis sp A

SCAMIT, 2023 §

Voucher Sheet
B. Haggin
April, 2023

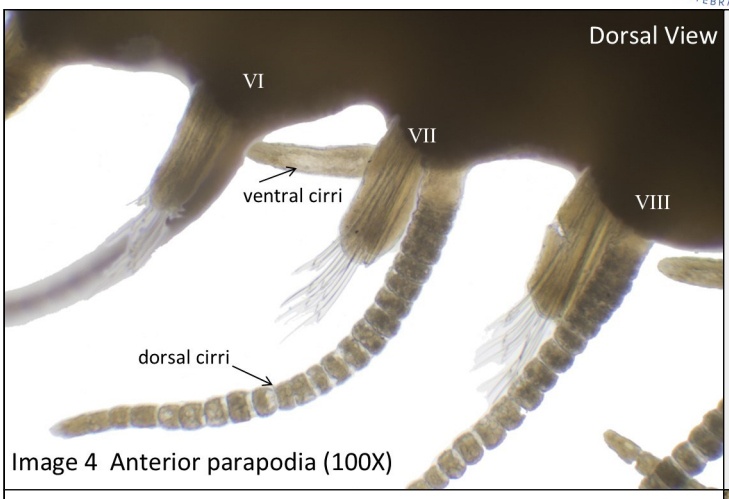


Image 4 Anterior parapodia (100X)

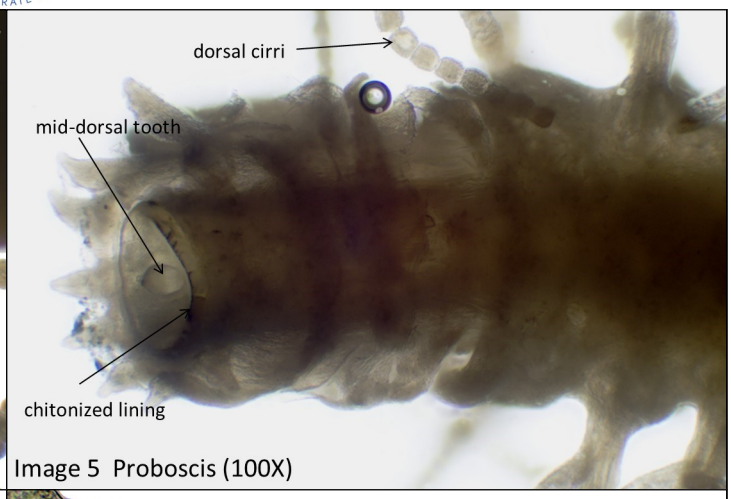


Image 5 Proboscis (100X)

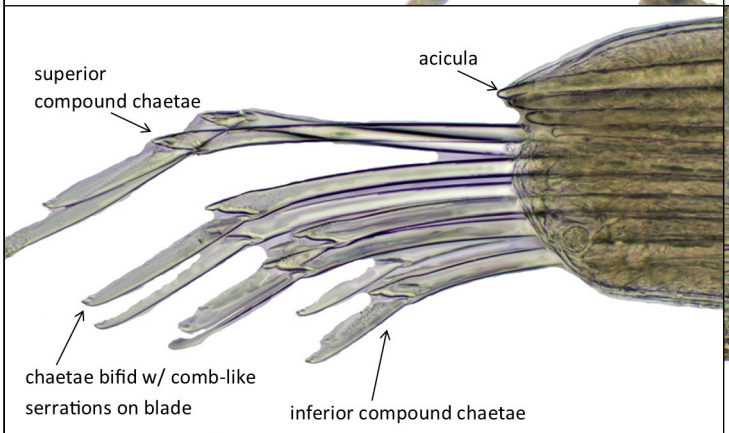


Image 6 Chaetiger 10 (400X)

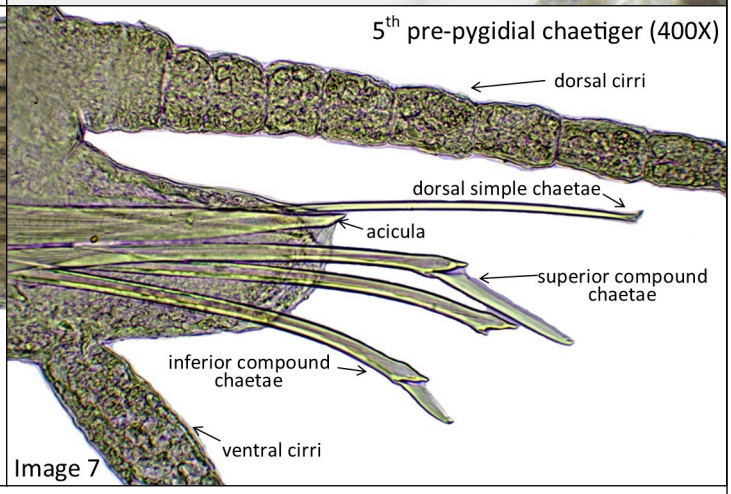


Image 7

Diagnostic Characters (cont.):

15) Acicula stout, unidentate (large) or distally expanded, knob-like (small) **(Image 6)**.

16) Compound falcigers distally bidentate, w/ comb-like serrations on blade; shafts w/ oblique, expanded joint w/ small spines on joint (superior blades ~3X longer than inferior blades w/in same fascicle) **(Images 6, 9 & 12)**.

17) Dorsal simple chaetae present only in last 5 chaetigers. Simple chaetae long, slender w/ unidentate tip (Tip may be frayed, appearing pilose) **(Images 7 & 8)**.

18) Ventral simple chaetae present only in last 4 chaetigers. Simple chaetae slender, slightly curved w/ bidentate tip and two small subterminal teeth, also with a larger, stouter chaetae just superior to ventral simple chaetae (similar in shape to shafts of compound falcigers, but ~3X's greater shaft diameter) **(Images 10, 11 & 12)**.

19) Pygidium a terminal ring, without papillae or cirri **(Image 13)**.

Pigmentation/MGS:

Preserved material white/ivory in color, without pigment or pigment pattern not evident. Tips of posterior ventral cirri (~last 25 chaetigers) retaining MGS. No other stain pattern evident.

Syllis sp A

SCAMIT, 2023 §

Voucher Sheet
B. Haggin
April, 2023

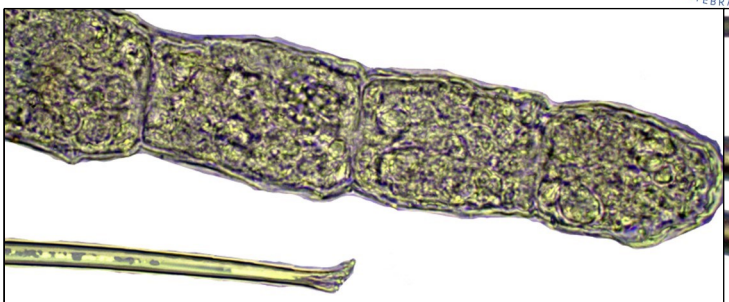
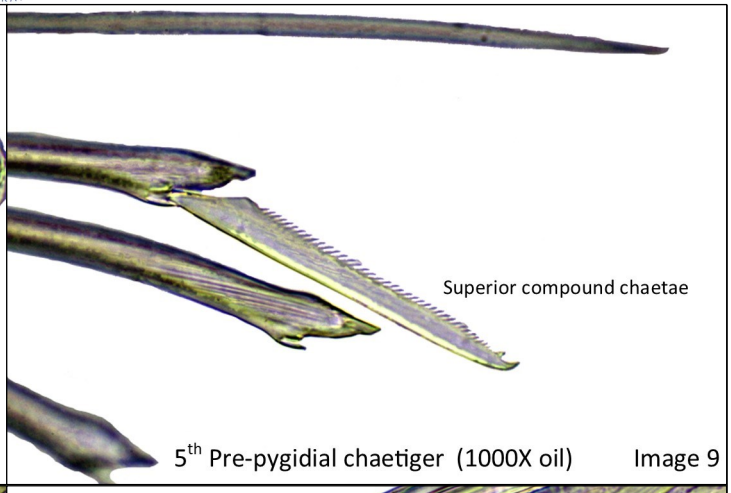


Image 8 — 5th Pre-pygidial chaetiger (1000X oil)



5th Pre-pygidial chaetiger (1000X oil) — Image 9

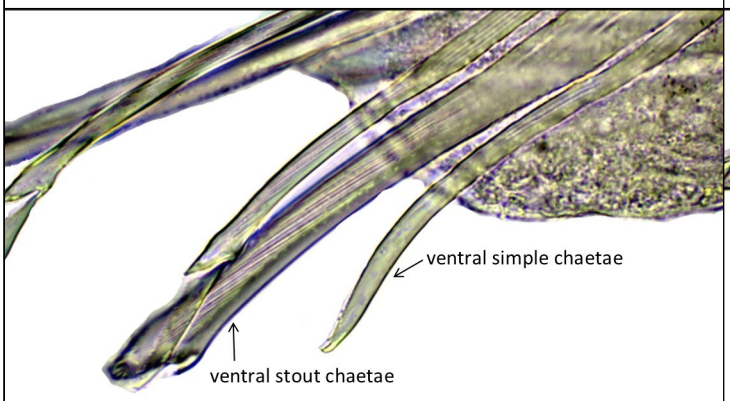


Image 10 — 4th Pre-pygidial Chaetiger (1000X oil)

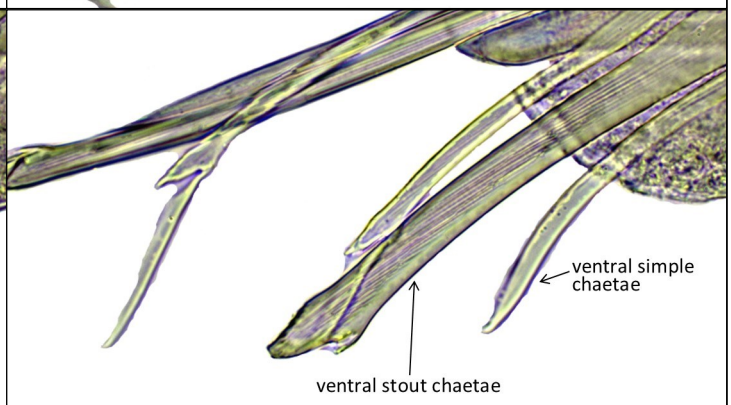


Image 11 — 4th Pre-pygidial Chaetiger (1000X oil)

Material Examined:

B'18-10362—San Pedro Channel, 745 m (33.63467N, 118.58360W—02AUG18) (1 ind.)

Similar Species:

Syllis alternata Moore, 1908 - *Syllis alternata* has dorsal cirri that alternate in length (# of articles 25 for long & 18 for short) throughout the body, *Syllis* sp A has dorsal cirri with a similar # or articles (14-16) throughout the body. The proventriculus of *Syllis alternata* starts in chaetiger 11 and is present thru 12 - 16 chaetigers, in *Syllis* sp A the proventriculus begins in chaetiger 8 and is present thru 7 chaetigers.

Syllis heterochaeta Moore, 1909 - *Syllis heterochaeta* has up to 7 acicula and 28 compound falcigers in anterior parapodia while *Syllis* sp A has up to 4 acicula and around 10 compound falcigers in anterior parapodia. The blades of the superior compound falcigers in *Syllis heterochaeta* are ~4X longer and more slender than the inferior blades, while the superior blades of *Syllis* sp A are ~3X longer and of equal width as the inferior blades. The inferior blades of *Syllis heterochaeta* often appear unidentate while *Syllis* sp A are definitely bidentate. The dorsal simple setae of *Syllis heterochaeta* begins in mid-body and the ventral simple setae are bidentate. The dorsal simple setae of *Syllis* sp A are present only in the last 5 setigers and the ventral simple setae are multidentate, with two apical teeth and two small subterminal teeth.

Syllis sp A

SCAMIT, 2023 §

Voucher Sheet

B. Haggin

April, 2023

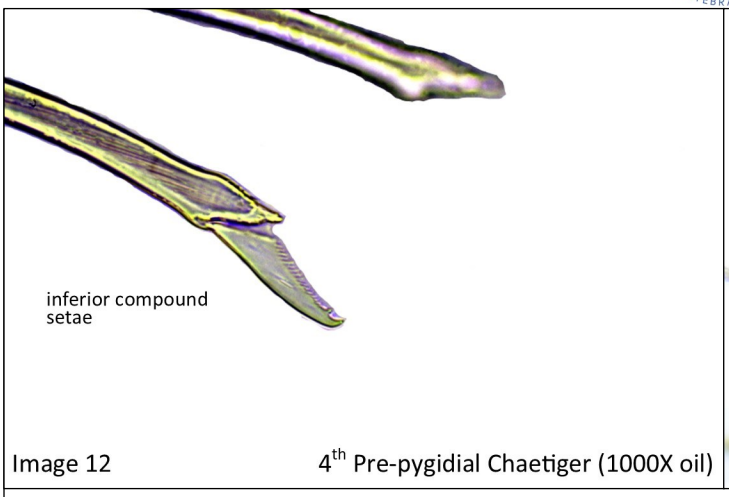


Image 12 — 4th Pre-pygidial Chaetiger (1000X oil)

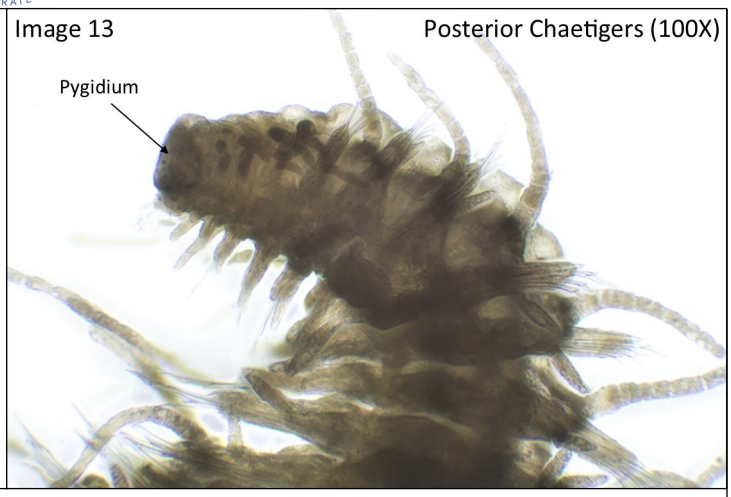


Image 13 — Posterior Chaetigers (100X)

Similar Species (cont.):

Syllis adamantea (Treadwell, 1914) - *Syllis adamantea* has compound falcigers that are unidentate, while *Syllis* sp A has bidentate compound falcigers. *Syllis adamantea* has a diamond-shaped pigment patch dorsally on each anterior chaetiger with a medial extension running to the parapodia. *Syllis* sp A lacks dorsal pigment. Syllis adamantea inhabits shallow water and can be found in soft-bottoms, rip-rap and pier pilings (L. Harris & T. Phillips pers. comm.).

Syllis hyperioni Dorsey & Phillips, 1987 - *Syllis hyperioni* lacks eyes while they are present in *Syllis* sp A. The superior blades of the compound falcigers in *Syllis hyperioni* are ~10X longer and more slender than the inferior blades. The superior blades of *Syllis* sp A are ~3X longer and of equal width as the inferior blades. The articulations of the tentacular cirri of *Syllis hyperioni* # 15(D) & 9(V) whereas the articulations of the tentacular cirri of *Syllis* sp A # 25(D) & 16(V).

Syllis gracilis Cmplx - The *Syllis gracilis* Cmplx is in need of revision but it does have ypsiloid (pseudocomposite) chaetae that are absent in *Syllis* sp A.

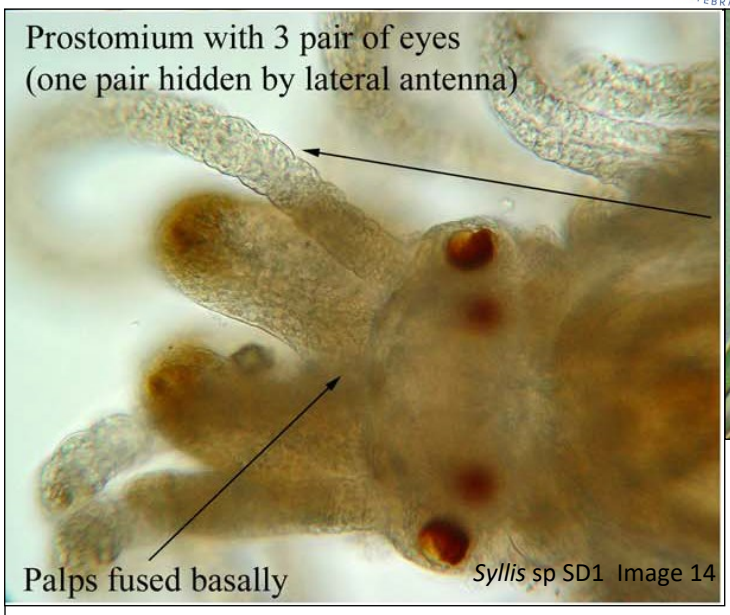
Syllis farallonensis (Blake & Walton, 1977) - *Syllis farallonensis* has short dorsal cirri (6-7 articles or less) throughout and indistinctly bidentate to unidentate compound chaetae while *Syllis* sp A has much longer dorsal cirri (at least 14 articles) and distinctly bidentate compound falcigers.

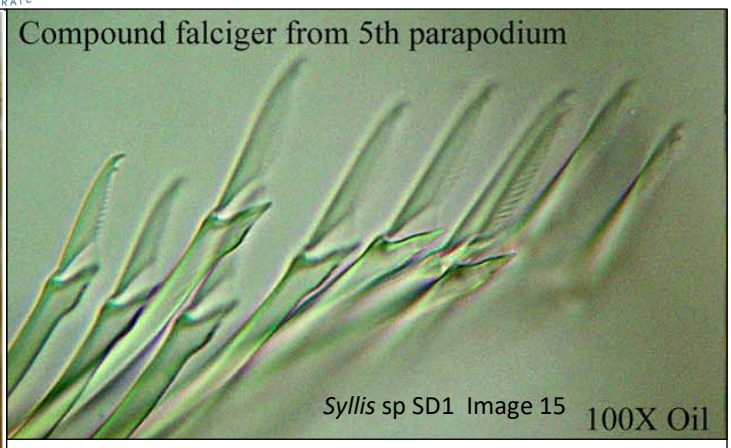
Syllis sp SD1 Rodriquez, 2008 § - *Syllis* sp SD1 is similar to *Syllis* sp A in having numerous articles in the dorsal cirri, 13-29 in *S.* sp SD1 and 14-37 in *S.* sp A, though it appears that *Syllis* sp SD1 irregularly alternates from short to long dorsal cirri throughout the body while *Syllis* sp A has consistently long dorsal cirri in the anterior chaetigers and consistently shorter dorsal cirri posteriorly. Both species have two pairs of large eyes visible, but *Syllis* sp SD1 actually has three pair (one pair hidden by the lateral antennae) in a lateral arrangement **(Image 14)** while *Syllis* sp A has only two pair in an anterior-posterior arrangement **(Images 1 & 2)**. Both *Syllis* sp SD1 and *Syllis* sp A have bidentate compound falcigers but *Syllis* sp SD1 have compound falcigers that are of near equal length within the same fascicle **(Image 15)** and *Syllis* sp A have compound falcigers ~3X longer than the shortest in the same fascicle **(Images 6 & 7)**. *Syllis* sp SD1 was originally described from 21 m near the US-Mexico border while *Syllis* sp A was found in 745 m in the San Pedro Channel.

Syllis sp A

SCAMIT, 2023 §

Voucher Sheet
B. Haggin
April, 2023





Habitat:

Syllis sp A is known from a single individual from deeper water in the San Pedro Channel. It was found in sediments of clayey silt from 745 m. Also collected in the sample were the polychaetes *Myriochele gracilis* Hartman, 1955; *Maldane californiensis* Green, 1991; *Protis pacifica* Moore, 1923; *Cossura rostrata* Fauchald, 1972; *Aricidea* (*Acmira*) *rubra* Hartman, 1963; *Levinsenia oculata* (Hartman, 1957); *Phyllochaetopterus* sp A SCAMIT, 2023 § (reported as *Phyllochaetopterus* sp LA1 Haggin, 2019 §); *Lepidonotus* sp A SCAMIT, 2023 § (reported as *Lepidonotus sp LA1* Haggin, 2019 §); *Harmothoe* sp LA1 Furlong, 2014 §; *Kirkegaardia* sp B SCAMIT, 2023 § (reported as *Kirkegaardia* sp LA1 Haggin, 2019 §); an unidentified syllid, an unidentified polynoid, and an unidentified *Cossura*.

Discussion:

Álvarez-Campos *et al*. (2015) defined the genus *Syllis* as: "Body sub-cylindrical. Palps basally fused. Distinctly annulate antennae and tentacular, anal, and dorsal cirri. Pharynx with a single tooth, located on anterior rim or slightly posteriorly, margin of pharynx with crown of soft papillae. Compound falcigerous chaetae, sometimes with pseudospinigers in some parts of body, thick pseudo-simple chaetae produced by blade-loss and shaft-enlargement or by shaft and blade fusion, only partial fusion in some species. Dorsal and ventral simple chaetae present. Reproduction by scissiparous schizogamy (one single stolon at a time)."

Currently, the P-Value Tool file states that all members of *Typosyllis* (except *T. farallonensis*, *T. heterochaeta*, and *T. hyperioni*) should be assigned P-Code "P494". Since the tool was created, *Typosyllis* has been shown to lack systematic validity since the species belonging to the group do not form a monophyletic clade (Álvarez-Campos *et al*., 2015; San Martín *et al*., 2017) and has been synonymized with *Syllis*. Only *Syllis gracilis* Cmplx has a P-Code listed explicitly for *Syllis* species and only applied to bays. I am not sure if this species should inherit P-Code "P494" from the *Typosyllis* group or if it should remain without a P-Code.

WoRMS currently lists 168 valid species of *Syllis*, though this number may not be accurate as they still have *Syllis farallonensis* accepted as *Typosyllis farallonensis* even though *Typosyllis* is accepted as a synonym of *Syllis*. SCAMIT Ed. 13 has 6 named species, including *Syllis gracilis* Cmplx. SCAMIT also recognizes at least 2 additional in-house provisional species of *Syllis* from City of San Diego that are not currently on the SCAMIT species list.

Syllis sp A

SCAMIT, 2023 §

Voucher Sheet
B. Haggin
April, 2023

References:

Álvarez-Campos, P., Riesgo, A., Hutchings, P. & San Martín, G. 2015. The genus *Syllis* Savigny *in* Lamarck, 1818 (Annelida, Syllidae) from Australia. Molecular analysis and re-description of some poorly-known species. *Zootaxa* 4052(2): 297-331.

Blake, J. A. & Walton, C. P. 1977. New Species and Records of Polychaeta from the Gulf of the Farallones, California. Pages 307-321. IN: Reish, D. J. & Fauchald, K. *Essays on Polychaetous Annelids in Memory of Dr. Olga Hartman*. The Allan Hancock Foundation, University of Southern California, Los Angeles.

Dorsey, J. H. & Phillips, C. A. 1987. A New Species of *Syllis* (*Ehlersia*) (Polychaeta: Syllidae) from Southern California, and Description of the Epitoke and Atoke Variation in *S.* (*Ehlersia*) *heterochaeta* Moore, 1909. *Bulletin of the Biological Society of Washington* 7:152-161.

Kudenov, J. D. and Harris, L. H. 1995. Family Syllidae Grube, 1850. pages 1-97. IN: Blake, James A.; Hilbig, Brigitte; and Scott, Paul H. *Taxonomic Atlas of the Benthic Fauna of the Santa Maria Basin and Western Santa Barbara Channel. 5 - The Annelida Part 2. Polychaeta: Phyllodocida (Syllidae and scale-bearing families), Amphinomida, and Eunicida*. Santa Barbara Museum of Natural History. Santa Barbara.

Moore, J. P. 1908. Some polychaetous annelids of the northern Pacific coast of North America. *Proceedings of the Academy of Natural Sciences of Philadelphia* 60:321-364.

Moore, J. P. 1909. The polychaetous annelids dredged by the U.S.S. "Albatross" off the coast of southern California in 1904. I. Syllidae, Sphaerodoridae, Hesionidae and Phyllodocidae. *Proceedings of the Academy of Natural Sciences of Philadelphia* 61:321-351, plates XV-XVI.

Read, G. & Fauchald, K. (Ed.) 2023. World Polychaeta Database. *Syllis* Lamarck, 1818. Accessed through: World Register of Marine Species at: https://www.marinespecies.org/aphia.php?p=taxdetails&id=129680 on 2023-04-12

Rodriquez, V. 2008. *Syllis* (*Typosyllis*) sp SD1 Voucher Sheet. *SCAMIT Handout*.

San Martín, G., Álvarez-Campos, P. & Hutchings, P. 2017. The genus *Syllis* Savigny *in* Lamarck, 1818 (Annelida: Syllidae: Syllinae) from Australia (second part): four new species and re-descriptions of twelve previously described species. *Zootaxa* 4237(2): 201-243.

SCAMIT. 2021. *A Taxonomic Listing of Benthic Marco- and Megainvertebrates from Infaunal & Epifaunal Monitoring and Research Programs in the Southern California Bight, Edition 13*. Cadien, D. B., Lovell, L. L., Barwick, K. L., Haggin, B. M., eds. 203pp.

Treadwell, A. L. 1914. New Syllidae from San Francisco Bay, collected by the U.S.S. "Albatross". *University of California Publications in Zoology* 13(9):235-238.

Other Literature Consulted:

Álvarez-Campos, P., Giribet, G. & Riesgo, A. 2017. The *Syllis gracilis* species complex: A molecular approach to a difficult taxonomic problem (Annelida, Syllidae). *Molecular Phylogenetics and Evolution* 109: 138-150.

Barwick, K. 2014. *Typosyllis* sp OC1 Voucher Sheet. *SCAMIT Handout*.

San Martín, G. 1992. *Syllis* Savigny *in* Lamarck, 1818 (Polychaeta: Syllidae: Syllinae) from Cuba, the Gulf of Mexico, Florida and North Carolina, with a revision of several species described by Verrill. *Bulletin of Marine Science* 51(2): 167-196.

San Martín, G. & Worsfold, T. M. 2015. Guide and keys for the identification of Syllidae (Annelida, Phyllodocida) from the British Isles (reported and expected species). *ZooKeys* 488:1-29.

Version History:

Version 1.0—Voucher sheet created (01MAY2019)

Version 2.0—Updated format to conform to new SCAMIT guidelines; Updated name to *Syllis* sp A and author to SCAMIT, 2023 §; Updated Diagnostic Characters section; Updated Similar Species section; Updated images to remove image clutter and added Images 13-15; Updated References section; Added Habitat, Discussion and Other Literature Consulted sections; Added ITI-Code (12APR2023)