Voucher Sheet

B. Haggin
April, 2023

Species: *Chaetozone* sp D SCAMIT, 2023 §
Synonyms: *Chaetozone* sp LA2 Haggin, 2019 §

P-Code—see Discussion
ITI—Group 2

Family: Cirratulidae
Suborder: Cirratuliformia
Order: Terebellida
Infraclass: Canalipalpata
Subclass: Sedentaria
Class: Polychaeta
Phylum: Annelida

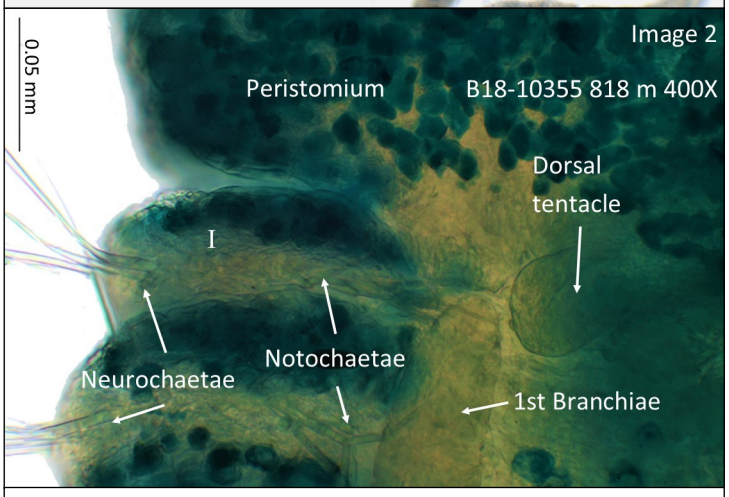
Diagnostic Characters:

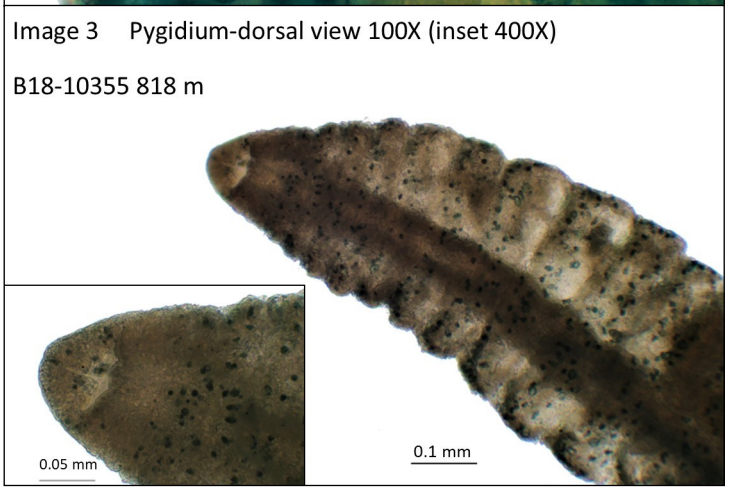
1) Individual is 7.48 mm long (entire) and 0.42 mm across the thorax (excluding chaetae).
2) Prostomium bluntly triangular, eyes present **(Image 1)**.
3) Dorsal tentacle inserted lateral to peristomial pad & just anterior to 1st branchiae on peristomium **(Image 2)**.
4) Thorax dorsoventrally compressed with 13 chaetigers, slightly crowded, with segments wider than long.
5) Abdomen rounded in cross-section with 44 abdominal chaetigers and 2 achaetous pre-pygidial segments.
6) Pygidium with terminal anus and ventral lobe **(Image 3)**.
7) Neuropodial spines present in thorax from chaetiger 8; slightly curved, bluntly pointed **(Images 4, 5, 6)**.
8) Notopodial spines present in abdomen from chaetiger 30; straight, bluntly pointed **(Images 5, 6)**.
9) Forming only partial cinctures posteriorly

Pigmentation/MGS:

1) Prostomium and peristomium staining intensely, with an unstained band in middle of prostomium/ peristomium (head) dorsally, unstained laterally (cheeks) and an unstained ventral patch posterior to the mouth **(Images 7, 8)**.
2) Chaetigerous segments with encircling stain bands, each segment unstained anteriorly, lightly staining around chaetal fascicles and heavily staining posteriorly; 1st 6 chaetigers the stain does not connect across the ventrum **(Images 7, 8)**.

** stain intensity decreasing overall toward pygidium **





All photos by B. Haggin

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SCAMIT, 2023 §

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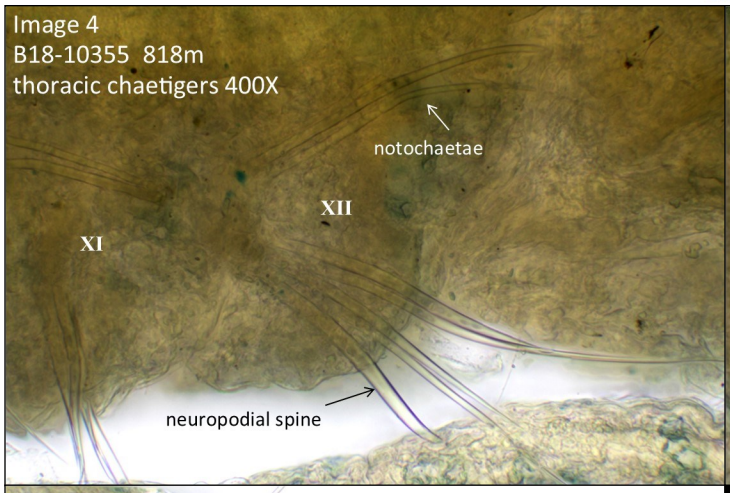

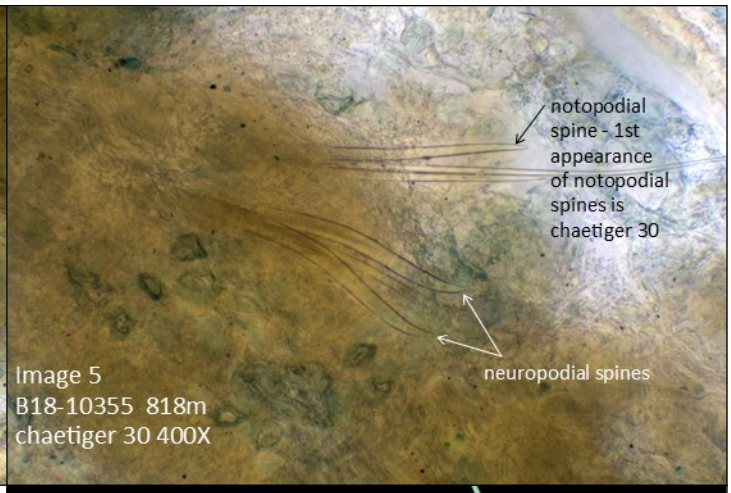

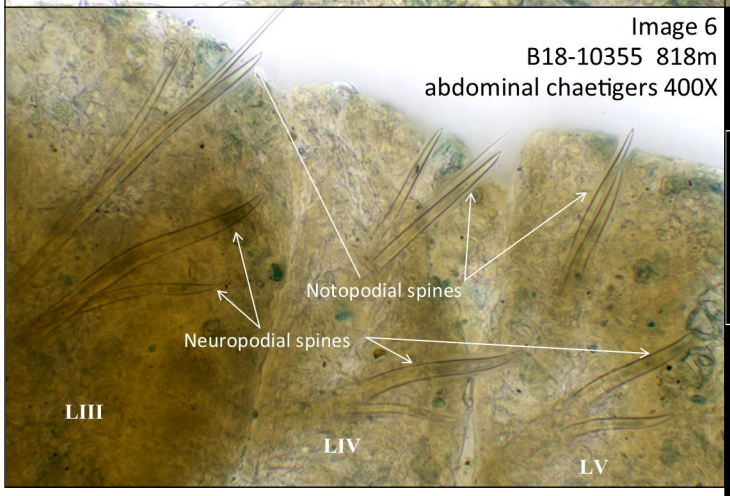

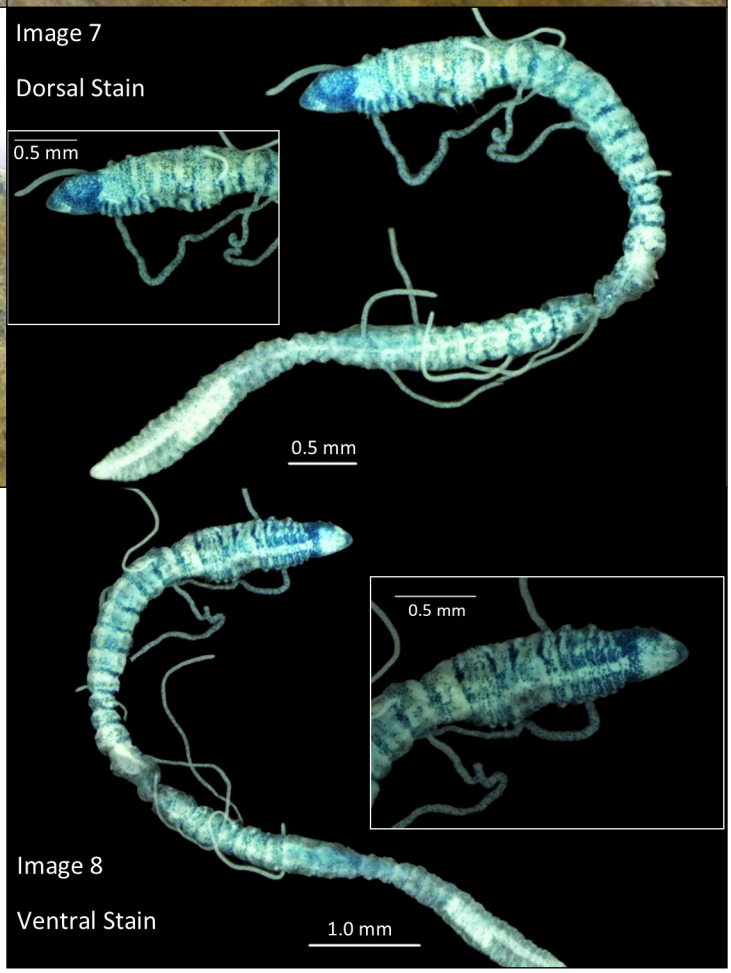

Material Examined:

B'18-10355—South of Pt. Dume, Santa Monica Basin/San Pedro Channel, 818 m (1 ind.) (33.88369N, 118.79006W—17AUG18)

Similar Species:

Chaetozone hartmanae Blake, 1996—*Chaetozone* sp D most closely resembles *Chaetozone hartmanae* in the shapes of the spines, straight in the notopodia and curved in the neuropodia. The two differ in the starting chaetiger of the neuropodial spines, chaetiger 33 in *C. hartmanae* and chaetiger 8 in *C.* sp D. The MGS pattern of the two also differ, with *C. hartmanae* having a near solid stain patch in the posterior thorax, little stain in the anterior thorax and abdominal stain concentrating just posterior to the chaetal fascicles. *Chaetozone* sp D has stain concentrated in the anterior thorax though not staining across the ventrum and near encircling stain bands in the abdomen. The holotype of *Chaetozone hartmanae* was described from 86 m off Santa Barbara, but then its distribution listed as 542-914 m (Blake, 1996). *Chaetozone hartmanae* is routinely collected by LACSD from 30 -60 m, with a few scattered records from 150 m. With the similarity in acicular spine morphology, it is possible that deeper water records of *C. hartmanae* may belong to this provisional species.

Chaetozone sp D

SCAMIT, 2023 §

Voucher Sheet
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Similar Species (cont.):

Chaetozone acuta Banse & Hobson, 1968 (sensu Blake, 1996)—*Chaetozone acuta* resembles *Chaetozone* sp D in the presence of eyes on the prostomium and in having incomplete cinctures of the posterior abdominal segments. The two differ in the start of neuropodial spines, 18-40 in *Chaetozone acuta* and chaetiger 8 in *C.* sp D, *Chaetozone* sp D lacks the obliquely shaped capillary chaetae found in *Chaetozone acuta*, and *C. acuta* lacks a distinctive MGS banding pattern in the thorax that is present in *Chaetozone* sp D.

Chaetozone armata Hartman, 1963 (sensu Blake, 1996)—*Chaetozone armata* is similar to *Chaetozone* sp D in having neuropodial spines present from far anterior chaetigers (chaetiger 1 for *C. armata*, chaetiger 8 for *C.* sp D) and the start of notopodial spines (16-25 for *C. armata*, 30 for *C.* sp D). The two differ in the position of the dorsal tentacle relative to the first branchiae, anterior to and inserted in the middle of the peristomium for *Chaetozone armata* and lateral to and inserted on the posterior of the peristomium in *Chaetozone* sp D. The posterior chaetigers of *Chaetozone armata* contain only a single acicular spine in each rami while *Chaetozone* sp D has 2 spines in each rami in posterior chaetigers. *Chaetozone armata* is known from shallow shelf depths up to 180 m, *C.* sp D is known only from deeper water in 818 m.

Chaetozone truebloodi Blake, 2019—*Chaetozone truebloodi* is similar in having neuropodial spines present from the far anterior (chaetiger 9 for *C. truebloodi*, chaetiger 8 for *C.* sp D) and the start of notopodial spines 22 vs. 30. *Chaetozone truebloodi* also differs in the position of the dorsal tentacle relative to the first branchiae, with it being anterior in *C. truebloodi* and lateral in *C.* sp D. *Chaetozone truebloodi* also differs in its MGS pattern, having only the prostomium staining intensly, the peristomium and few anterior chaetigers speckeled and the rest of the body unstained, while *C.* sp D has a distinctive stain pattern over most of its body. *Chaetozone truebloodi* is known only from the Clarion-Clipperton Fracture Zone in depths of 4880 m.

Habitat:

Chaetozone sp D is known from a single individual. It was collected in 818 m off Pt. Dume, Santa Monica Basin/San Pedro Channel in clayey silt. Also collected in the sample were the polychaetes *Protis pacifica* Moore, 1923; *Amage longibranchiata* Hartman, 1960; *Ampharete cornuta* (Hilbig, 2000); *Phyllochaetopterus* sp A SCAMIT, 2023 § (reported as *Phyllochaetopterus* sp LA1 Haggin, 2019 §); *Kirkegaardia* sp B SCAMIT, 2023 § (reported as *Kirkegaardia* sp LA1 Haggin, 2019 §); *Aricidea* (*Acmira*) sp LA1 Lovell, 2014 §; and an unidentified Hesionid.

Discussion:

Blake (2022) emended the generic diagnosis of *Chaetozone* to the following:

Prostomium conical to pointed, usually lacking eyespots, with a pair of small nuchal slits or depressions at posterior edge, sometimes pigmented. Peristomium with a single pair of grooved dorsal tentacles arising from posterior margin or sometimes more posterior on an achaetous anterior segment, or rarely on an anterior setiger. First pair of branchiae arising near dorsal tentacles, an achaetous segment or first setiger; sometimes with first two pairs of branchiae on a single anterior segment. Body usually expanded anteriorly and narrowed posteriorly, middle or posterior body segments sometimes moniliform; posterior end often expanded. Setae include capillaries on most setigers and acicular spines in neuropodia and notopodia, with spines typically concentrated in posterior segments, usually forming distinct armature with spines carried on cinctured segments with elevated membranes; cinctures with few to many spines sometimes encircling entire posterior end, accompanied with none to many alternating capillaries; bidentate spines sometimes present in juveniles or occasionally in ventral-most position of far posterior setigers of adults, accompanying unidentate spines in cinctures; some species with long, natatory-like capillary notosetae, sometimes limited to gravid individuals. Pygidium a simple lobe, disklike, with long terminal cirrus, or few short lobes.

Chaetozone sp D

SCAMIT, 2023 §

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Discussion (cont.):

Blake (2015) remarked on the importance of details of the peristomium, position of the dorsal tentacle and branchiae, nature of the posterior cinctures and their associated acicular spines, and the pygidium in the description of new species. In 2018, Blake erected a new genus *Chaetocirratulus* to contain bitentaculate cirratulids that have little to no posterior cincture and few acicular spines throughout. He thought that local species *Chaetozone gracilis* (Moore, 1923) might belong in the new genus but did not move it at this time. Blake (2022) commented that the pointed prostomium and elongate body of *C. gracilis* (rather than rounded and fusiform) should keep it within the genus *Chaetozone*. While *Chaetozone* sp D has very few spines in each rami throughout, the species described within *Chaetocirratulus* have no notopodial spines or notopodial spines present in only the last few pre-pygidial segments similar to *Chaetozone gracilis*. Along with an elongate body and triangular prostomium, the placement of the provisional species in the genus *Chaetozone* seems justified.

The P-Value Tool file has a P-Code of "P108" for *Chaetozone hartmanae*. Based on the similarity in spine morphology, *Chaetozone* sp D would most likely have been identified as juvenile *Chaetozone hartmanae* in the past. I am unsure if *Chaetozone* sp D should inherit P-Code "P108" from *Chaetozone hartmanae*.

WoRMS currently lists 73 valid species of *Chaetozone* and SCAMIT Ed. 13 has 12 named species, including *Chaetozone setosa* Cmplx, and 5 provisional species. *Chaetozone* sp D would be the 6th provisional species when added in Edition 14.

References:

Blake, J. A. 1996. Family Cirratulidae Ryckholdt, 1851. Pages 263-384. 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.

Blake, J. A. 2015. New Species of *Chaetozone* and *Tharyx* (Polychaeta: Cirratulidae) from the Alaskan and Canadian Arctic and the Northeastern Pacific, including a description of the lectotype of *Chaetozone setosa* Malmgren from Spitsbergen in the Norwegian Arctic. *Zootaxa* 3919(3): 501-552.

Blake, J. A. 2018. Bitentaculate Cirratulidae (Annelida, Polychaeta) collected chiefly during cruises of the R/V *Anton Bruun*, USNS *Eltanin*, USCG *Glacier*, R/V *Hero*, RVIB *Nathaniel B. Palmer*, and R/V *Polarstern* from the Southern Ocean, Antarctica, and off Western South America. *Zootaxa* 4537(1): 1-130.

Blake, J. A. 2019. New species of Cirratulidae (Annelida, Polychaeta) from abyssal depths of the Clarion-Clipperton Fracture Zone, North Equatorial Pacific Ocean. *Zootaxa* 4629(2): 151-187.

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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.

Chaetozone sp D

SCAMIT, 2023 §

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Other Literature Consulted:

Blake, J. A. 2006. New species and records of deep-water Cirratulidae (Polychaeta) from off Northern California. *Scientia Marina* 70S3: 45-57.

Blake, J. A. & Lavesque, N. 2017. A new species of *Chaetozone* (Polychaeta, Cirratulidae) from the Bay of Biscay offshore France, together with a review of Chaetozone species from the North Atlantic and adjacent waters. *Zootaxa* 4312(3): 565-579.

Hartman, O. 1963. Submarine canyons of Southern California Part III. Systematics: Polychaetes. *Allan Hancock Pacific Expeditions* 27(3): 1-93.

Version History:

Version 1.0—Voucher sheet created (03MAR2020)

Version 1.1—Updated name to *Chaetozone* sp LA2 (*Chaetozone* sp LA1 occupied from B'03) (09MAR2020)

Version 2.0—Updated voucher sheet to new SCAMIT guidelines (04OCT2022)

Version 3.0—Updated name to *Chaetozone* sp D and author to SCAMIT, 2023 §; Updated Discussion section; Updated names of co-occurring provisional species (12APR2023)