



**LOS ANGELES COUNTY
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Voucher Sheet

B. Haggin
August 2026



Cossura rostrata Fauchald, 1972

Synonyms: *Cossura* sp LA1 Haggin, 2019 §

P-Code – P132

ITI – none assigned

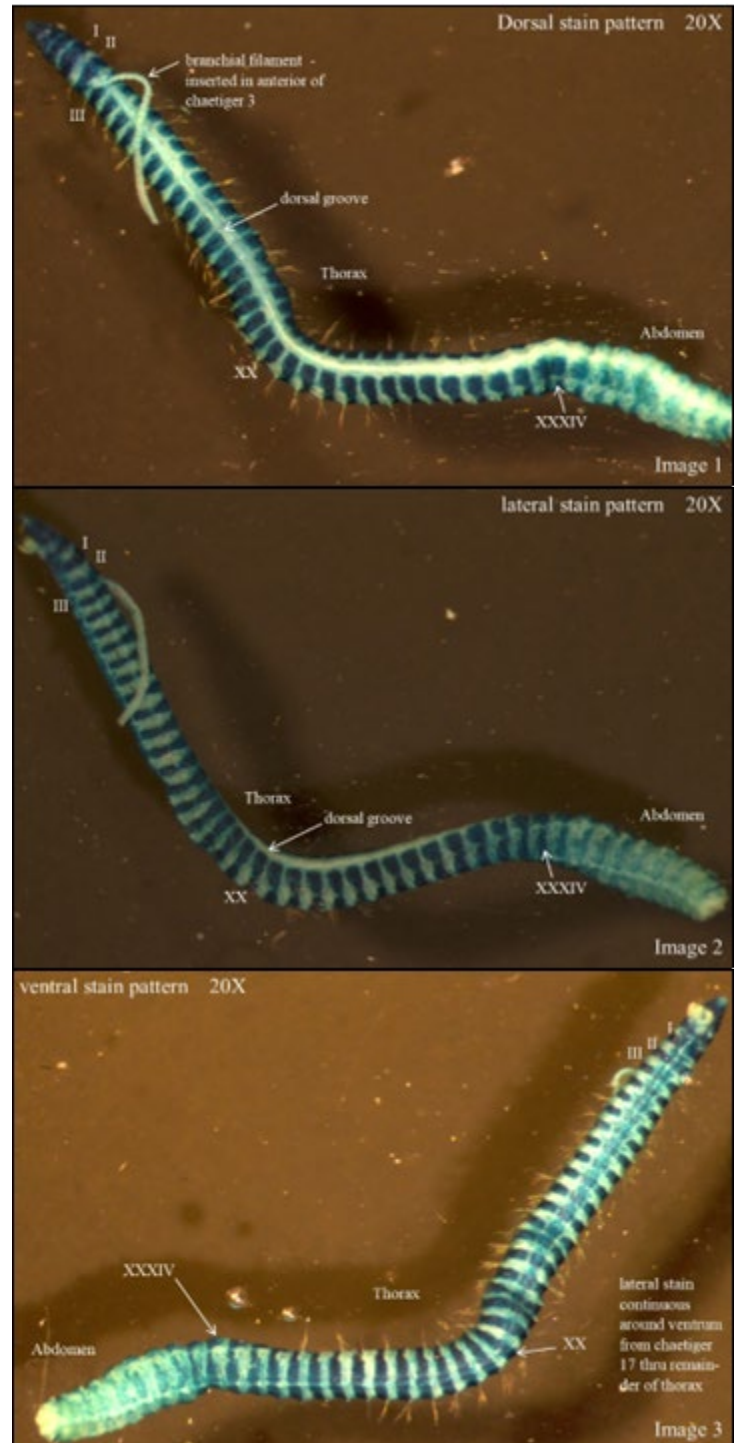
Family: Cossuridae
Infraclass: Scolecida
Subclass: Sedentaria
Class: Polychaeta
Phylum: Annelida

Diagnostic Characters: Animal incomplete, ~43 chaetigers

- Branchial filament inserted on anterior of chaetiger 3 (appears as posterior of chaetiger 2 or anterior of chaetiger 3), reaching to at least chaetiger 11 (Images 1, 4 & 6)
- Thoracic notochaetae and neurochaetae capillaries w/ frayed edge appearing as finely serrated
- 29-36 thoracic chaetigers (including transitional chaetigers); chaetiger 1 uniramous (Image 6)
- Pygidium with 3 long anal cirri; no additional lobes or papillae present (Image 1)

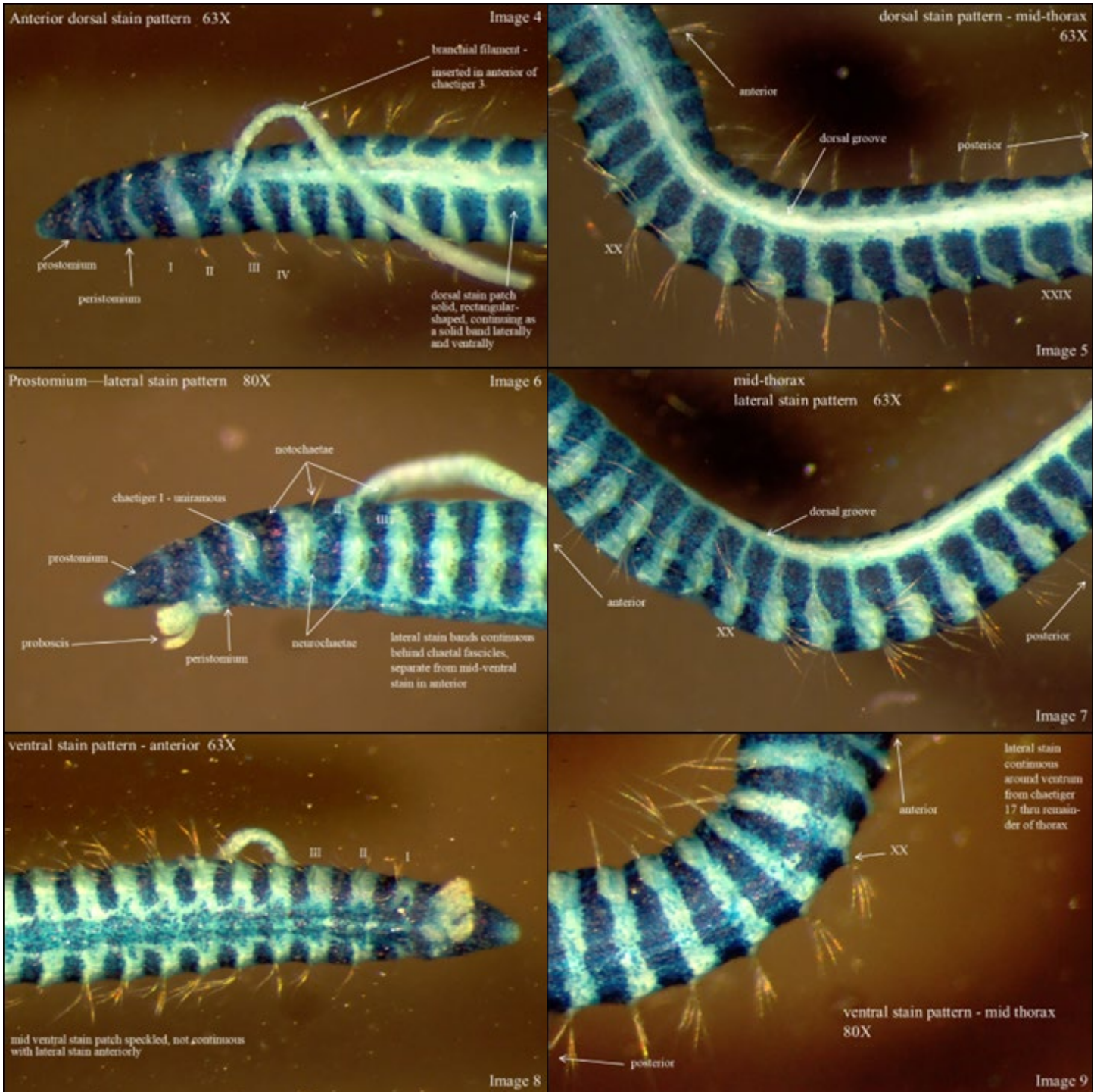
Pigmentation/Methyl Green Stain Pattern:

- Tip of prostomium unstained, then thick stain band encircling prostomium, then very thin unstained band, then thick stain band encircling prostomium (Images 4 & 6)
- Peristomium w/ unstained band at oral opening then stained band encircling the peristomium (Images 4 & 6)
- Chaetiger 1 w/ unstained band anterior to chaetal fascicle then stain band encircle chaetiger 1 and connecting w/ mid-ventral stain patch. Mid-ventral patch unstained in middle but projecting anteriorly into unstained band w/ lateral “wing” extensions (Images 4, 6 & 8)
- Chaetiger 2 w/ unstained band anterior to chaetal fascicle then stain band encircling chaetiger 2 and connecting w/ mid-ventral patch. Mid-ventral patch unstained in the middle but projecting anteriorly into unstained band w/out “wings” (Images 4, 6 & 8)
- Chaetigers 3 - 16 dorsum unstained in dorsal groove. Dorso-lateral patches solid, rectangular, extending laterally behind chaetal fascicles onto ventrum, disconnected from now speckled, but solid, mid-ventral patch, sometimes w/ “wings” extending laterally into unstained band (Images 1 - 9)





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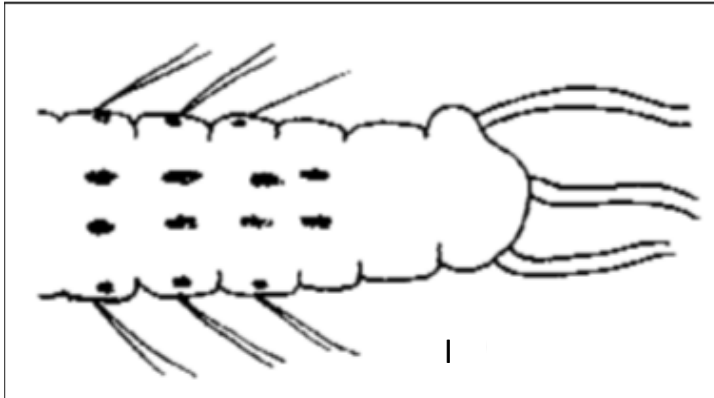


Pigmentation/Methyl Green Stain Pattern cont.:

- Chaetiger 17 - remaining thorax dorsum unstained in dorsal groove. Dorso-lateral stain solid, rectangular extending laterally behind fascicles and connecting across ventrum. Mid-ventral patch no longer projecting into unstained band (**Images 1, 2 & 3**)



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Material Examined:

Bight Stations: B18-10362 (745 m – 33.63469N, 118.58346W – 02AUG2018) - 1 individual (incomplete) (all images); B23-12331 (465m – 33.54366N, 118.66433W – 13JUL2023) – 1 individual

Image I modified from Hilbig (1996)

All photos by B. Haggin

Comparative Material:

Cossura bansei Hilbig, 1996 – LACSD NPDES Monitoring Station: 0721-7C (60m – 33.70506N, 118.34878W – 14JUL2021) - 2 individuals (Image 10)

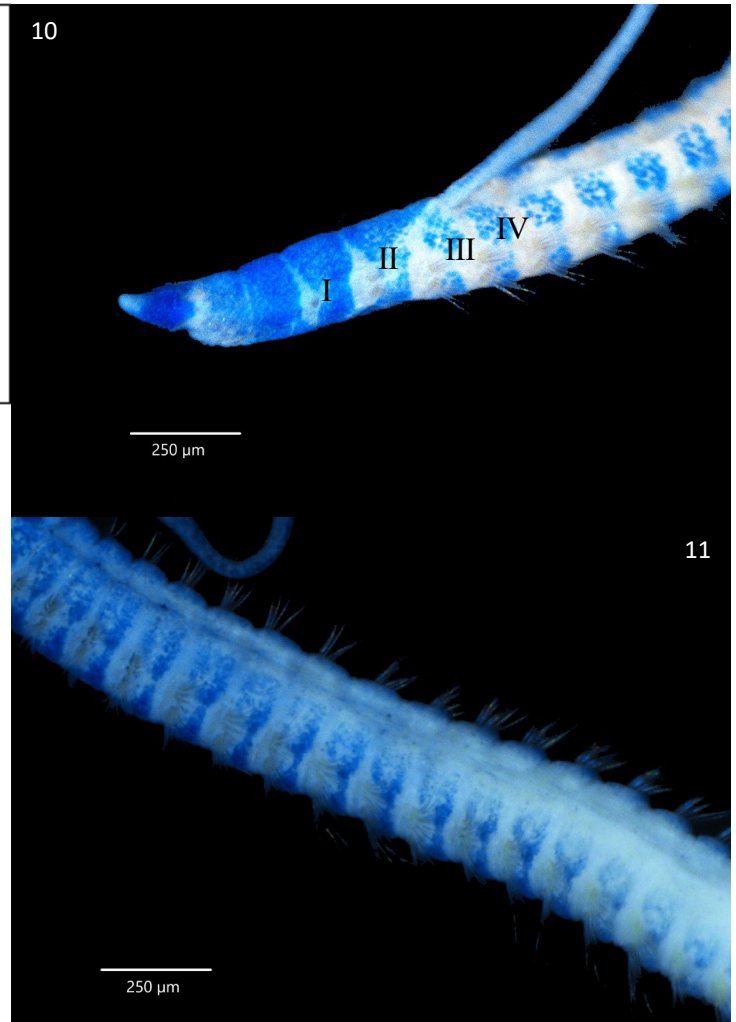
Cossura candida Hartman, 1955 - LACSD NPDES Monitoring Station: 0721-10B (140m – 33.66238N, 118.29848W – 12JUL2021) - 1 individual (Image 11)

Cossura sp A SCAMIT, 2025 § - LACSD NPDES Monitoring Station: 0724-3B (157m—33.72382N, 118.40719W—18JUL2024) - 1 individual (Image 12)

Cossura sp LA2 Haggin, 2025 § – Bight Station: B23-12043 LA/LB Harbor (8m—33.75184N, 118.17969W—13SEP2023) - 14 individuals (Image 13)

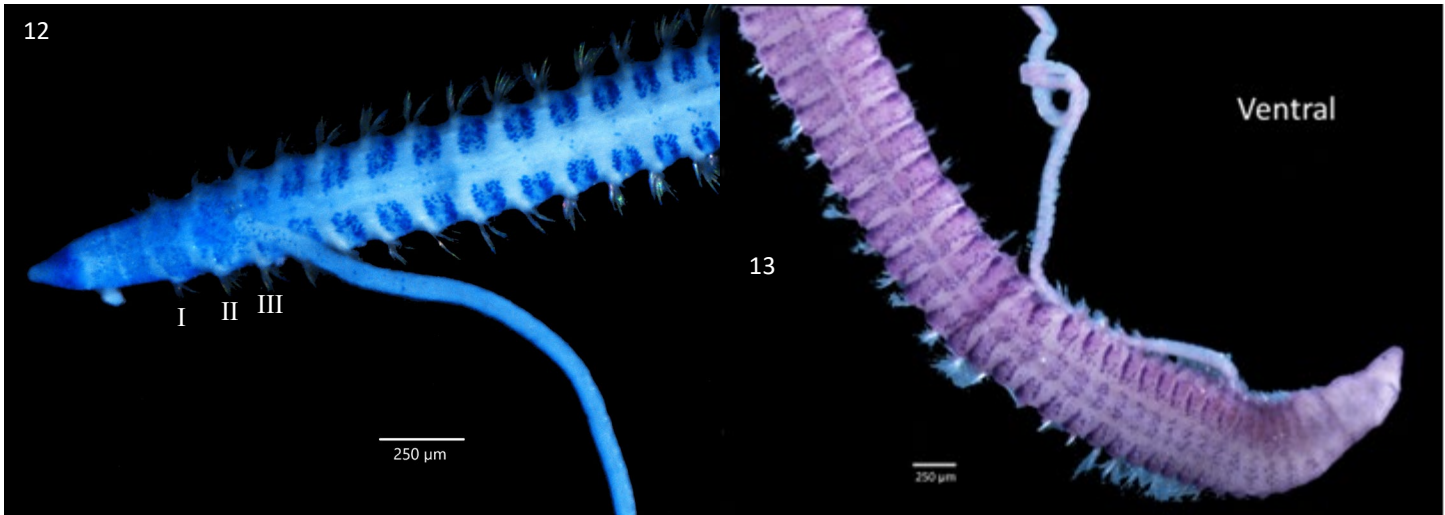
Habitat:

Cossura rostrata was originally described from deep-water off western Mexico. It currently has a reported distribution of Oregon to western Mexico, from 6-3348m. *Cossura rostrata* has been reported by LACSD during Bight surveys in depths of 465-745m in the San Pedro Channel and off the west end of Santa Catalina Island. *Cossura rostrata* was encountered in clayey silt. Also found in the sample from Bight '18 were the following polychaetes: *Myriochele gracilis* Hartman, 1955; *Maldane californiensis* Green, 1991; *Protis pacifica* Moore, 1923; *Aricidea (Acмира) rubra* Hartman, 1963; *Levinsonia oculata* (Hartman, 1957); *Phyllochaetopterus* sp A SCAMIT, 2023 §; *Syllis* sp A SCAMIT, 2023 §; *Harmothoe* sp LA1 Furlong, 2014 §; *Kirkegaardia* sp B SCAMIT, 2023 §; & *Lepidonotus* sp A SCAMIT, 2023 §.





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Similar Species:

Cossura bansei Hilbig, 1996—*Cossura bansei* is similar to *Cossura rostrata* in both species can have more than 30 thoracic chaetigers, *C. bansei* with 20-31 and *C. rostrata* with 29-36, and a branchial filament inserted on the 3rd chaetiger. They differ in the point of insertion of the branchial filament on the 3rd chaetiger, posterior to the chaetal insertion (Image 10) in *Cossura bansei* and anterior to the chaetal insertion in *Cossura rostrata*. The two species also differ in Methyl Green Stain pattern. The peristomium and pre-branchial chaetigers do not stain as intensely as the prostomium in *Cossura bansei*, lateral stain patches that do not connect behind the chaetal fascicles, and ventral stain bands in the posterior thorax are lacking in *Cossura bansei*. *Cossura rostrata* has a peristomium and pre-branchial chaetigers staining as intensely as the prostomium, a lateral stain that connects behind the chaetal fascicles and a continuous ventral stain band in the posterior thorax. *Cossura bansei* is reported from 18-160 m.

Cossura brunnea Fauchald, 1972—*Cossura brunnea* is most similar to *Cossura rostrata* in having the branchial filament inserted on chaetiger 3, however it is inserted in the middle of the segment, posterior to the chaetal fascicle, rather than anterior to it as in *Cossura rostrata*. The anterior thoracic stain is also similar in both species, having an intense, alternating banded appearance, and lateral stain that connects laterally behind the chaetal fascicle. The two begin to differ in the posterior thorax where the ventrum has mid-ventral patches and the dorsum has thin continuous bands in *Cossura brunnea* rather than a continuous ventral band and a mid-dorsal gap as in *Cossura rostrata*. The two species also differ in the number of thoracic chaetigers, with *Cossura brunnea* having only 16-18 thoracic chaetigers compared to 29-36 in *Cossura rostrata*. *Cossura brunnea* is reported from 1600-2200m.

Cossura candida Hartman, 1955—*Cossura candida* is similar to *Cossura rostrata* in that both have a strong dorsal groove, more than 30 thoracic chaetigers, *C. candida* with 24-35 and *C. rostrata* with 29-36 (including the transitional segments not included in the counts of the original description), and a branchial filament inserted on the 3rd chaetiger. These two differ in the location of branchial filament insertion and the Methyl Green Stain pattern. Both have a branchial filament insertion on the 3rd chaetiger, but *Cossura candida* is inserted posterior to the chaetal insertion while *Cossura rostrata* is inserted anterior to the chaetal insertion. Both have lateral stain that is continuous behind the chaetal fascicle, but *Cossura candida* has a “U” shaped dorsal patch, speckled staining in the dorsal groove, paired ventral stain patches in the posterior thorax and stain spots are present in the abdomen behind the chaetal fascicle, creating an almost complete band (Image 11). *Cossura rostrata* has a solid dorsal patch, no stain in the dorsal groove or abdominal chaetigers and a continuous stain band across the ventrum in the posterior thorax. The type of *Cossura candida* is from 14 m inside Los Angeles Harbor but has been reported down to 2478 m.



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Similar Species cont.:

Cossura modica Fauchald & Hancock, 1981—*Cossura modica* and *Cossura rostrata* both have intensely staining pre-branchial regions and lateral stain that connects behind the thoracic chaetal fascicles. *Cossura modica* is the only local cossurid with its branchial filament inserted on the 4th chaetiger. It can also be differentiated from *Cossura rostrata* by its shorter thorax, having only 14-26 thoracic chaetigers compared to 29-36 in *Cossura rostrata*. *Cossura modica* was described from deep-water off Oregon and has a reported depth range of 985-2955m.

Cossura pygodactylata Jones, 1956—*Cossura pygodactylata* is differentiated from *Cossura rostrata* by the insertion of the branchial filament on chaetiger 2 rather than on chaetiger 3, and by the shorter thorax, 13-21 thoracic chaetigers in *Cossura pygodactylata* and 29-36 in *Cossura rostrata*. *Cossura pygodactylata* has weak dorso- and ventrolateral thoracic stain patches that do not connect laterally behind the chaetal fascicle while *Cossura rostrata* has an intense thoracic stain that connects laterally behind the chaetal fascicle. If specimens are complete, *Cossura pygodactylata* has 3 long anal cirri and 6-10 short pairs of short cirri on the pygidium. *Cossura rostrata* lacks the additional short cirri. *Cossura pygodactylata* was originally described from San Francisco Bay and has a reported range of 1-2720m and spans the North Pacific from Japan to central California and the North Atlantic from South Carolina to western France. See additional comments on the *Cossura pygodactylata* voucher sheet.

Cossura sp A Phillips, 1987 §—*Cossura* sp A and *Cossura rostrata* both have a branchial filament inserted anterior to the chaetal insertion on the 3rd chaetiger. *Cossura* sp A differs in having a peristomium and pre-branchial chaetigers that stain less intensely than the prostomium, lacking a continuous lateral stain behind the chaetal fascicle and lacking a continuous ventral stain in the posterior thorax (Image 12). *Cossura rostrata* has a peristomium and pre-branchial chaetigers that stain as intensely as the prostomium, a lateral stain that connects behind the chaetal fascicle and a continuous ventral stain band in the posterior thorax. *Cossura* sp A has 24-30 thoracic chaetigers (including transitional chaetigers) while *Cossura rostrata* has 29-36 (including transitional chaetigers). *Cossura* sp A has been reported from 30-152 m from LACSD routine monitoring stations.

Cossura sp LA2 Haggin, 2025 §—*Cossura* sp LA2 is similar to *Cossura rostrata* in having over 30 thoracic chaetigers, *C. sp LA2* with 32-33 and *C. rostrata* with 29-36. *Cossura* sp LA2 has dorso- & ventrolateral stain patches in the anterior thorax but they do not connect laterally behind the chaetal fascicle (Image 13) as in *Cossura rostrata*. The posterior thoracic stain of *Cossura* sp LA2 form a near continuous, though faint, band around the body, both dorsally and ventrally, leaving only the lateral gap behind the chaetal fascicle. *Cossura rostrata* forms an intense stain band around the body that connects laterally but leaves a gap mid-dorsally. The stain of the prostomium is the most striking difference, where only the anterior half of the prostomium stains in *Cossura* sp LA2, the whole prostomium and peristomium stain intensely in alternating bands in *Cossura rostrata*. Anterior fragments, or even whole animals, without the use of methyl green stain would be difficult to differentiate. *Cossura* sp LA2 is currently known only from bays and harbors, being report from 8m in LA/LB Harbor and 7m from Newport Bay.

Discussion:

The most recent diagnosis of the genus *Cossura* was given by Liñero-Arana & Díaz-Díaz (2010) and is provided below.

Diagnosis: Prostomium pointed or rounded anteriorly or with well developed anterior lateral horns. Peristomium subdivided by a dorsal transverse furrow. Single branchial filament arising middorsally between segments 2 and 5. Simple capillary bilimbate or hirsute and heavy sickle-shape setae.

Fauchald (1972) did not list the number of thoracic chaetigers in the original description and Hilbig (1996) described *Cossura rostrata* as having 19-21 thoracic chaetiger and 10-15 transitional chaetigers. This would give a final count of 29-36 thoracic chaetigers. These counts correspond with the transition of MGS pattern, which fades



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Discussion cont.:

quickly in the abdominal chaetigers. Many species of the genus *Cossura* were described before the widespread use of methyl green stain and lack their descriptions, likely adding to confusion in a group with few external taxonomic characters. Fauchald (1972) described the species as being 57 chaetigers long and incomplete. Hilbig (1996) described the pygidium of a 57 chaetiger animal as having 3 long anal cirri and no additional lobes or papillae present. It is not clear if this was based off the specimens from the Gulf of the Farallones in 2710m or from Bodega Bay, so the true maximum length and detail of the pygidium is uncertain for *Cossura rostrata*.

Cossura rostrata was originally described from deep-water (2475m) off western Mexico in the Mazatlán Basin. The depth was expanded to 6m based on specimens from Bodega Bay originally identified by J. Blake (unpublished data) Hilbig (1996) in the MMS Atlas, but the extreme depth range make this unlikely. It is possible that this species could be *Cossura* sp LA2 based on the similarities in the stain patterns and insertion of the dorsal tentacle, which is difficult to determine when it is inserted near the segmental boundaries, but material from Bodega Bay would need to be examined. For now, *Cossura* sp LA2 is known only from 8m in LA/LB Harbor and 7m in Newport Bay.

It is possible that the deep-water records of *Cossura candida* of Hartman (1955 & 1963) and Fauchald (1972) were actually *Cossura rostrata* as the only difference between the two species at the time of publication was the state of chaetiger 1, either biramous for *Cossura candida* or uniramous for *Cossura rostrata*. The state of chaetiger 1 was often misinterpreted in the early literature as all cossurids have a uniramous first chaetigers, and as mentioned above, Methyl Green stain patterns were not reported for either species nor yet in widespread use.

Anterior fragments of less than 35 chaetigers, or even whole animals with inconclusive stain patterns should be identified as *Cossura* sp. The P-code assigned is a generic code assigned to all taxa within the genus.

References:

- Fauchald, K.** 1972. Benthic Polychaetous Annelids from Deep Water Off Western Mexico and Adjacent Areas in the Eastern Pacific Ocean. *Allan Hancock Monographs in Marine Biology* 7: 1-575.
- Fauchald, K. & Hancock, D. R.** 1981. Deep-Water Polychaetes from a Transect off Central Oregon. *Allan Hancock Foundation Monograph* 11: 1-73.
- Hartman, O.** 1955. Endemism in the North Pacific Ocean, with emphasis on the distribution of marine annelids, and descriptions of new or little known species. pp. 39-60. IN: Allan Hancock Foundation (Ed.) *Essays in the Natural Sciences in Honor of Captain Allan Hancock on the occasion of his birthday July 26, 1955*. Los Angeles, University of Southern California Press.
- Hartman, O.** 1963. Submarine canyons of Southern California – Part III – Systematics: Polychaetes. *Allan Hancock Pacific Expeditions* 27(3): 1-80.
- Hilbig, B.** 1996. Family Cossuridae Day, 1963. Pages 385-404. 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.
- Jones, M. L.** 1956. *Cossura pygodactylata*, a new annelid from San Francisco Bay (Polychaeta: Cirratulidae). *Journal of the Washington Academy of Sciences* 46(4): 127-130.
- Liñero-Arana, I. & Díaz-Díaz, O.** 2010. A new species of Cossuridae (Annelida: Polychaeta) from Venezuela. *Interciencia* 35(10): 789-792.
- Rowe, R. C.** 1995. *Cossura* species of Pt. Loma. *SCAMIT Handout*.

Other Literature Consulted:

- Fournier, J. A. & Petersen, M. E.** 1991. *Cossura longocirrata*: Redescription and Distribution, with Notes on Reproductive Biology and a Comparison of Described Species of *Cossura* (Polychaeta: Cossuridae). *Ophelia* Supplement 5: 63-80.
- Read, G. B.** 2000. Taxonomy and distribution of a new *Cossura* species (Annelida: Polychaeta: Cossuridae) from New Zealand. *Proceedings of the Biological Society of Washington* 113(4): 1096-1110.



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Other Literature Consulted cont.:

Zhadan, A. E., Vortsepneva, E. V. & Tzetlin, A. B. 2012. Redescription and biology of *Cossura pygodactylata* Jones, 1956 (Polychaeta: Cossuridae) in the White Sea. *Invertebrate Zoology* 9(2): 115-125.

Version History:

Version 1.0—Voucher sheet created (18APR2019-BMH)

Version 2.0—Updated to conform to new voucher sheet guidelines; Updated Similar Species & References section; Updated image labels; Updated LACSD logo; Added ITI- & P-codes; Added Habitat & Version History section (08SEP2022-BMH)

Version 3.0—Updated name to *Cossura rostrata* after SCAMIT meeting review; Added synonymy of *Cossura* sp LA1; Added P-code; Updated similar species section to reflect updated species name (02JUN2025-BMH)

Version 4.0—Moved “Habitat” section; Added Image I; Added “Discussion” section; Added “Other Literature Consulted” section; Updated “Similar Species” section (16OCT2025-BMH)

Version 5.0 – Updated “Material Examined” section; Added “Comparative Material” section; Updated “Similar Species” section; Added new photos; Updated “Discussion” section; Updated “References” section (16JUL2026-BMH)

Version 5.1 – Updated “References” section (04AUG2026 – BMH)