



**LOS ANGELES COUNTY
SANITATION DISTRICTS**
Converting Waste Into Resources

Voucher Sheet

B. Haggin

July 2026



Cossura candida Hartman, 1955

Synonyms: none

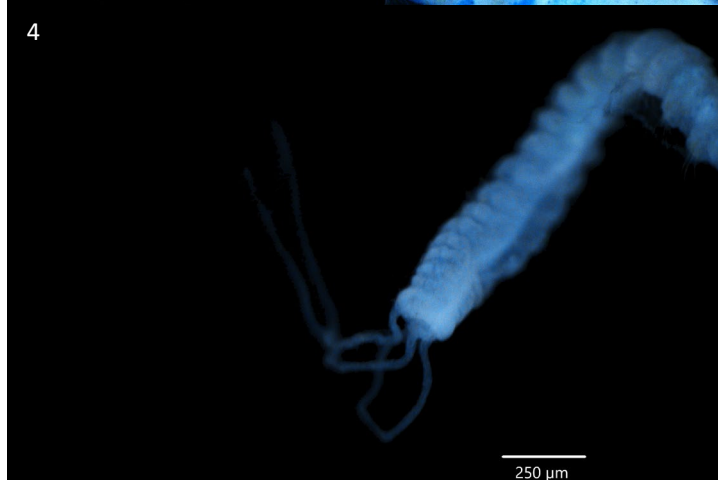
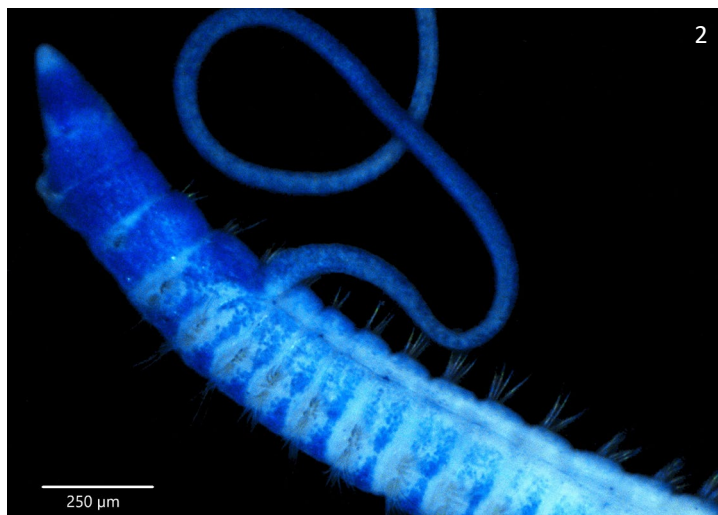
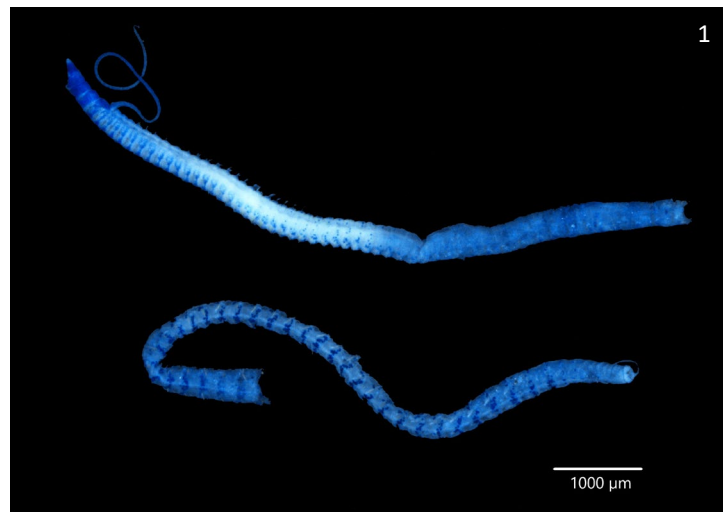
P-Code – P132

ITI – none assigned

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

Diagnostic Characters: (*sensu* Hilbig {1996} or personal observations)

- Prostomium conical (Images 1, 2, 6 & 8)
- Branchial filament arising from chaetiger 3 (Image 2)
- Thorax with 24-35 chaetigers (Images 1 & 6)
- Pygidium small, with 3 slender anal cirri (Images 4 & 5)
 - With 5 achaetigerous pre-pygidial segments





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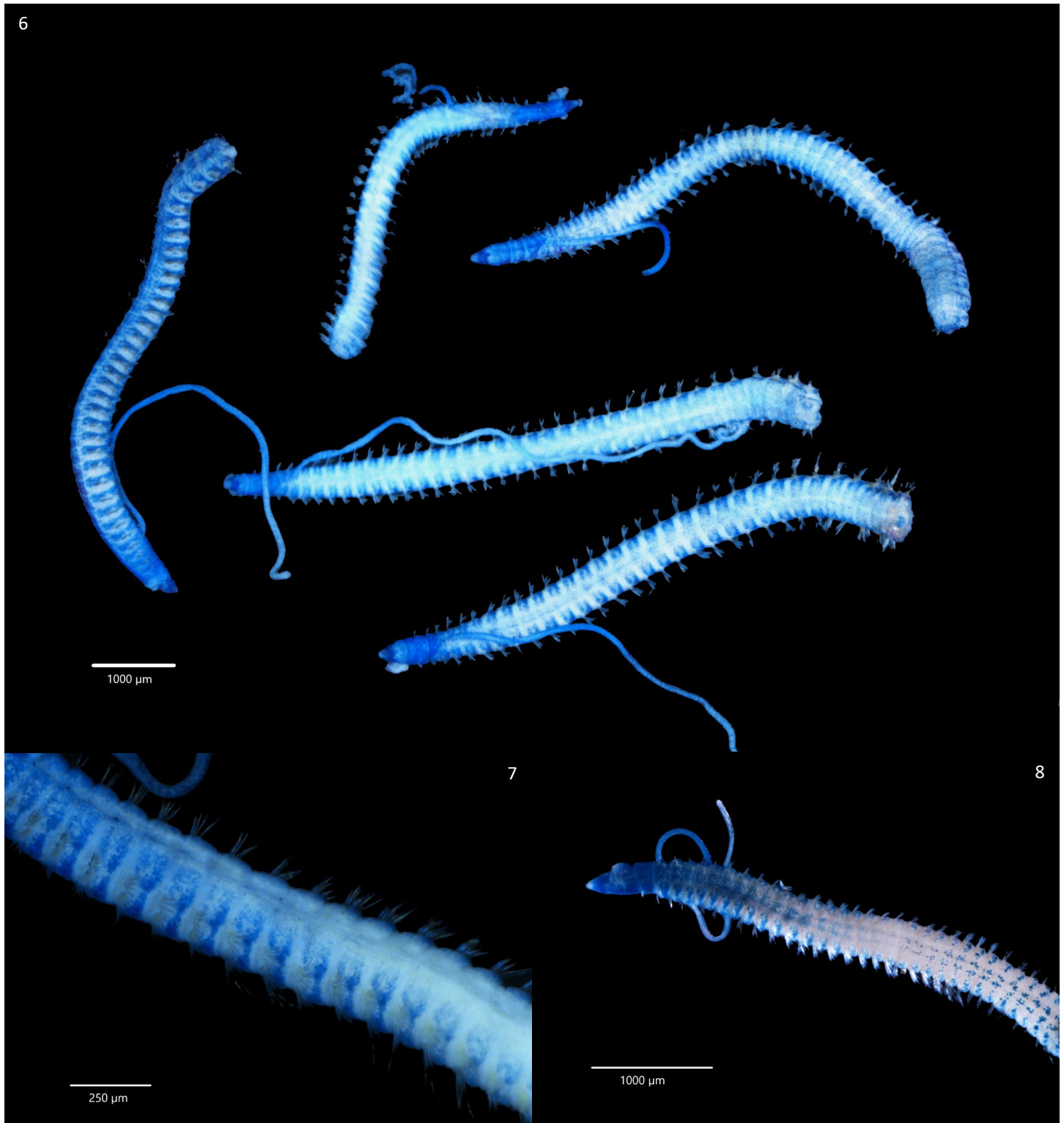


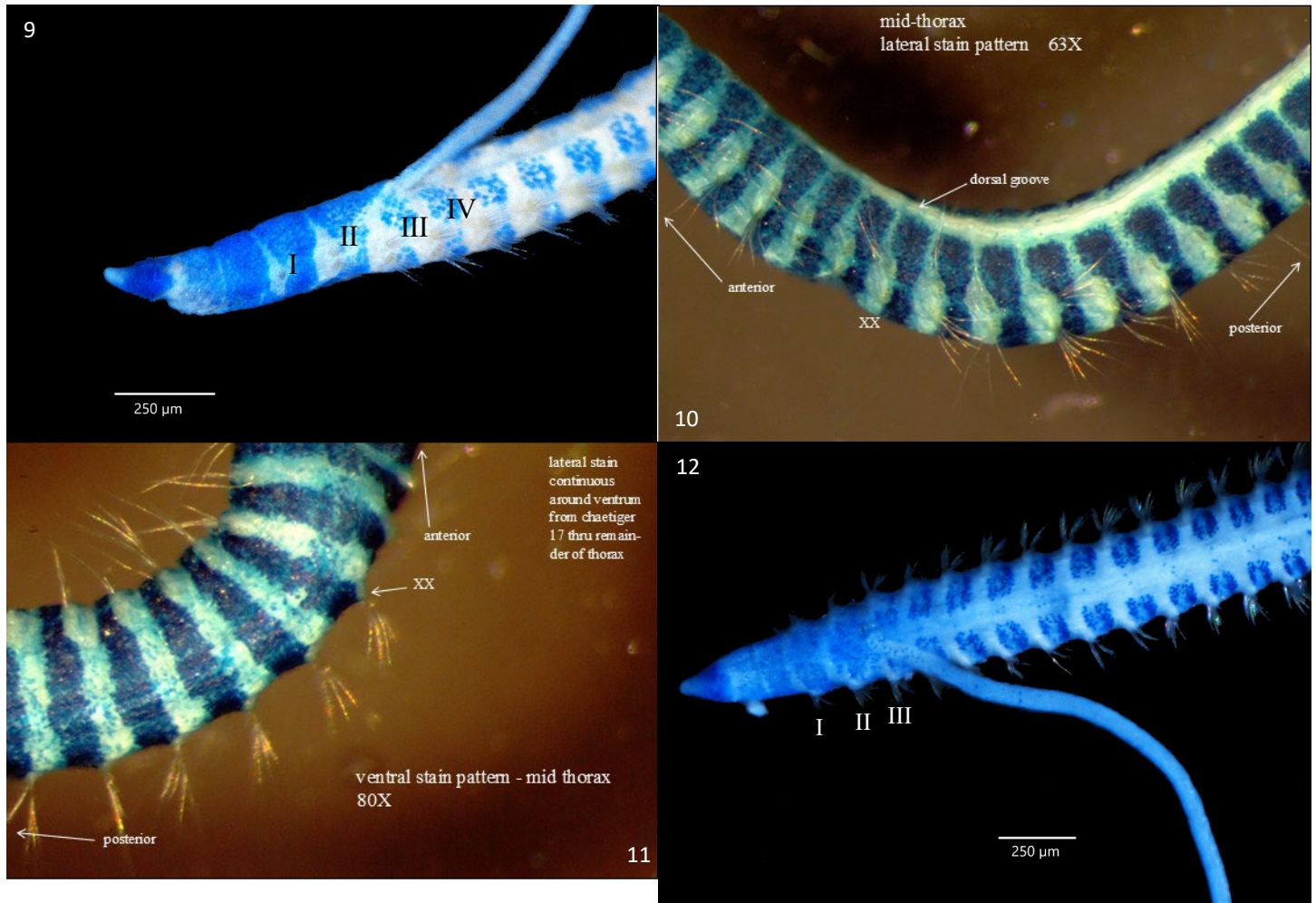
Image 6: Variation in stain intensity of dorso-lateral patches and posterior thorax

Image 7: dorso- & ventrolateral stain connecting laterally behind chaetal fascicle

Image 8: ventral stain of thorax and anterior abdomen



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Pigmentation/Methyl Green Stain Pattern: (*sensu* Hilbig {1996} or personal observations)

- Prostomium staining darkly, but with unstained tip (Images 1, 2, 6 & 8)
- Peristomium & chaetiger 1 staining solidly (Images 1, 2, 6 & 8)
- Chaetiger 2 with dark wedge-shaped dorsal area pointing to branchial filament insertion (Images 2 & 6)
- Thorax with lateral patches among chaetal fascicles, extending dorsolaterally (Images 1, 2 & 7)
 - Stains laterally between chaetal fascicles
 - Diminishing to 2 round patches between neighboring chaetal fascicles
- Abdomen with mid-ventral & ventrolateral patches in posterior ½ of segment (Images 1 & 8), dorsum with narrow transverse bands of stain (Images 3 & 6)

Material Examined:

LACSD NPDES Monitoring Stations: 0719-7C (60m – 33.70507N, 118.24875W – 31JUL2019) - 4 individuals (Image 4); 0721-10B (140m – 33.66238N, 118.29848W – 12JUL2021) - 1 individual (Images 1-3, 5, 7 & 8); 0724-7C (60m – 33.70524N, 118.34878W – 17JUL2024) - 6 individuals (Image 6)

All photos by B. Haggin



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Comparative Material:

Cossura bansei Hilbig, 1996 – LACSD NPDES
Monitoring Station: 0721-7C (60m – 33.70506N,
118.34878W – 14JUL2021) - 2 individuals (Image 9)

Cossura rostrata Fauchald, 1972 – Bight Station: B18-
10362 (745 m – 33.63469N, 118.58346W –
02AUG2018) - 1 individual (incomplete) (Images 10 & 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 candida was originally described from the outer LA Harbor from a depth of 12m with a distribution of San Francisco, CA to Baja California, Mexico. The depth range has since been expanded to a maximum depth of 2478m. *Cossura candida* is routinely collected by LACSD in depths ranging from 28-320m during NPDES monitoring and it has been reported from 4m during Bight '08 and down to a depth of 660m during the LACSD Baseline Survey. *Cossura candida* is most commonly collected in silty sediments but is also found in sediments of sandy silt or clayey silt in deeper stations or silty sand in shallow stations. *Cossura candida* has been found co-occurring with *Cossura bansei*, *Cossura* sp A and *Cossura* sp LA2.

Similar Species:

Cossura bansei Hilbig, 1996—*Cossura bansei* is similar to *Cossura candida* in having an overlapping range of thoracic chaetigers, *C. bansei* with 20-31 and *C. candida* with 24-35, and in the insertion of the branchial filament posterior to the 3rd chaetal fascicle. The two differ in the Methyl Green Stain pattern. *Cossura candida* has dorso- and ventrolateral stain patches that connect laterally behind the chaetal fascicles (Image 7) and in *Cossura bansei* the stain patches do not connect laterally (Image 9). *Cossura bansei* is a shelf and upper slope animal, reported from 23-301m.

Cossura brunnea Fauchald, 1972—*Cossura brunnea* is similar to *Cossura candida* in the insertion of the branchial filament posterior to the 3rd chaetal fascicle, and in having dorso- and ventrolateral stain patches that connect laterally behind the chaetal fascicles. The two differ in the number of thoracic chaetigers, only 16-18 in *C. brunnea* and 24-35 in *C. candida*. *Cossura brunnea* retains narrow dorsal bands in the anterior abdomen but the abdomen of *Cossura candida* does not retain stain. *Cossura brunnea* is a very deep-water animal, reported from 1600-2200m.

Cossura modica Fauchald & Hancock, 1981—*Cossura modica* is the only local cossurid with its branchial filament inserted on the 4th chaetiger. Both species have a lateral thoracic stain that connects laterally behind the chaetal fascicles. It can also be differentiated from *Cossura candida* by its slightly shorter thorax, having only 14-26 thoracic chaetigers compared to 24-35 in *Cossura candida*. *Cossura modica* was described from deep-water off Oregon and has a reported depth range of 985-2955m.



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Similar Species cont.:

Cossura pygodactylata Jones, 1956—*Cossura pygodactylata* differs from *Cossura candida* in most respects. *Cossura pygodactylata* has a shorter thorax with only 13-21 chaetigers compared to 24-35 in *Cossura candida*. The branchial filament is inserted on chaetiger 2 in *C. pygodactylata* and on chaetiger 3 in *C. candida*. While both species have 3 long anal cirri, *Cossura pygodactylata* also has 6-10 short cirri on each side of the pygidium that are lacking in *Cossura candida*. The dorso- and ventrolateral stain patches do not connect laterally behind the chaetal fascicle in *Cossura pygodactylata*, but they do connect in *Cossura candida*. *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 rostrata Fauchald, 1972—*Cossura rostrata* is similar to *Cossura candida* in that both have a strong dorsal groove, more than 30 thoracic chaetigers, *C. rostrata* with 29-36 (including the transitional segments not included in the counts of the original description) and *C. candida* with 24-35, 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 rostrata* is inserted anterior to the chaetal insertion while *Cossura candida* is inserted posterior to the chaetal insertion. Both have lateral stain that is continuous behind the chaetal fascicle but *Cossura rostrata* has a solid dorsal patch, no stain in the dorsal groove (Image 10) or abdominal chaetigers and a continuous stain band across the ventrum in the posterior thorax (Image 11). *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. *Cossura rostrata* has been reported from Oregon to western Mexico from 6-3348m. See additional comments on the *Cossura rostrata* voucher sheet.

Cossura sp A SCAMIT, 2025 §—*Cossura* sp A is similar to *Cossura candida* in having an overlapping range of thoracic chaetigers *C. sp A* with 24-30 and *C. candida* with 24-35. The two differ in the location of branchial filament insertion and the Methyl Green Stain pattern. The branchial filament of *Cossura* sp A arises from the intersegmental furrow of the 2nd and 3rd chaetigers, anterior to the 3rd chaetal fascicle while the branchial filament of *Cossura candida* is inserted posterior to the 3rd chaetal fascicle. *Cossura candida* has dorso- and ventrolateral stain patches that connect laterally behind the chaetal fascicles and in *Cossura* sp A the stain patches do not connect laterally (Image 12). *Cossura* sp A is reported from 8-305 m.

Cossura sp LA2 Haggin, 2025 §—*Cossura* sp LA2 and *Cossura candida* both have more than 30 thoracic chaetigers *C. sp LA2* with 32-33 and *C. candida* with 24-35. *Cossura* sp LA2 arises from the intersegmental furrow between chaetigers 2 & 3, anterior to the chaetal fascicle while *Cossura candida* has its branchial filament inserted posterior to the 3rd chaetal fascicle. *Cossura candida* has dorso- and ventrolateral stain patches that connect laterally behind the chaetal fascicle while the stain patches of *Cossura* sp LA2 does not connect laterally (Image 13). *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.



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Discussion cont.:

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.

Cossura candida was originally described from LA Harbor in 12m with an initial range of San Francisco to Baja California, Mexico from 12-805m. Hartman (1963) identified specimens from Santa Cruz canyon and increased the depth to 1387m. Fauchald (1972) increased this depth to 2478m based on a total of 4 identifications from western Mexico. SCAMIT (2008) expressed concerns and some doubts about the depth range of *Cossura candida*. At the time of Fauchald's publication, the only difference between *Cossura candida* and *Cossura rostrata* was the state of chaetiger 1, uniramous for *C. rostrata* and biramous for *C. candida*. This has been misinterpreted by many authors in the past as all cossurids have a uniramous 1st chaetiger. It is possible that the deep-water records of *Cossura candida* by Hartman (1955 & 1963) and Fauchald (1972) were actually *Cossura rostrata* as methyl green stain was not yet being used regularly for identification.

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 members of the genus.

References:

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Other Literature Consulted:

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Version History:

Version 1.0 – Voucher sheet created (16JUL2026 – BMH)