



Melinna oculata Hartman, 1969

Synonyms: none

Family: Melinnidae

Suborder: Terebelliformia

Order: Terebellida

Infraclass: Canalipalata

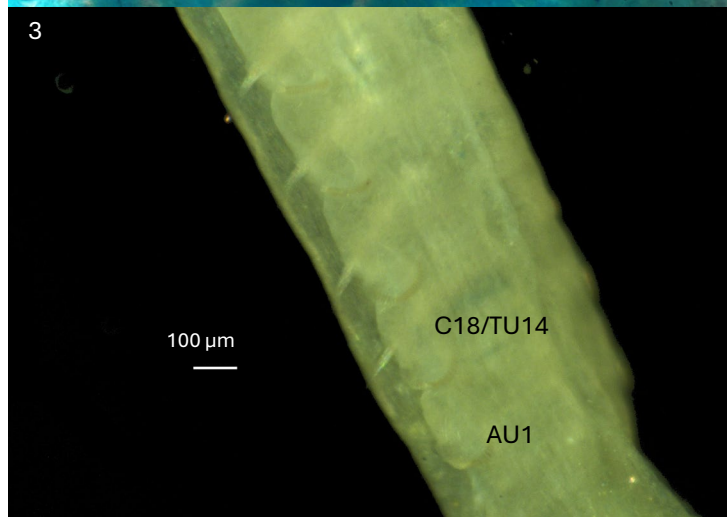
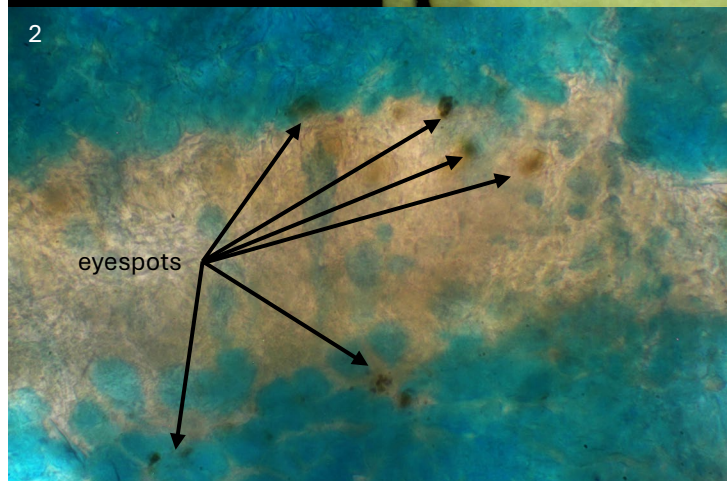
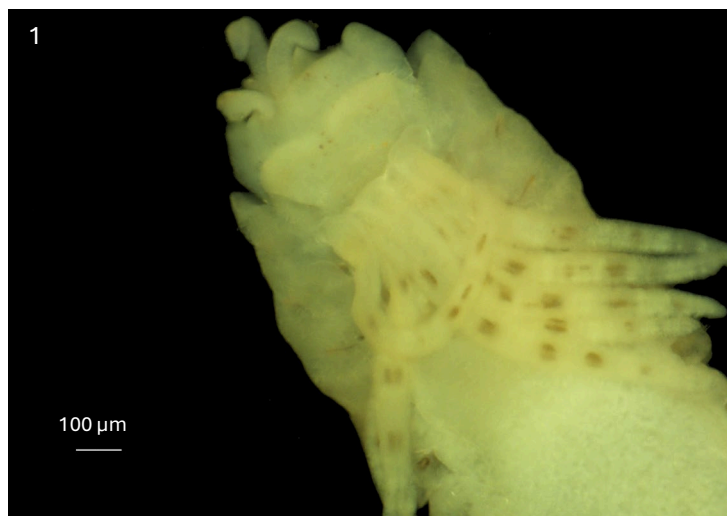
Subclass: Sedentaria

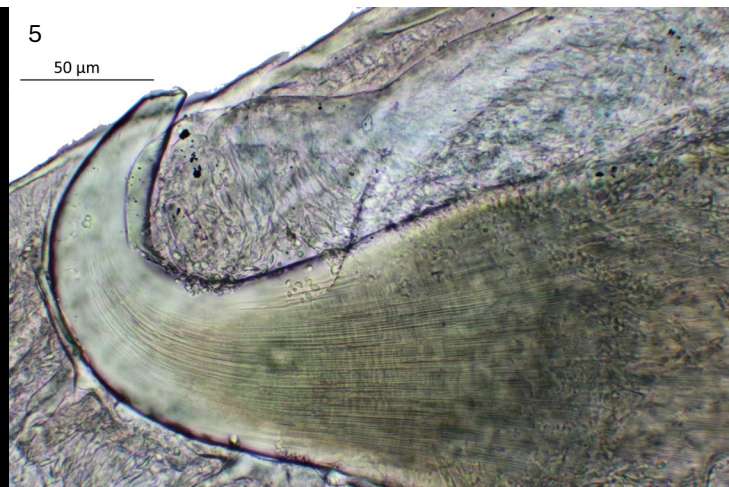
Class: Polychaeta

Phylum: Annelida

Diagnostic Characters: (sensu Hilbig {2000} or [pers. obs.](#); segment #'s *sensu* Gunton *et al.* {2023}) (Smaller species; 10 individuals examined; 11.7-24.0 mm for 74 chaetigers)

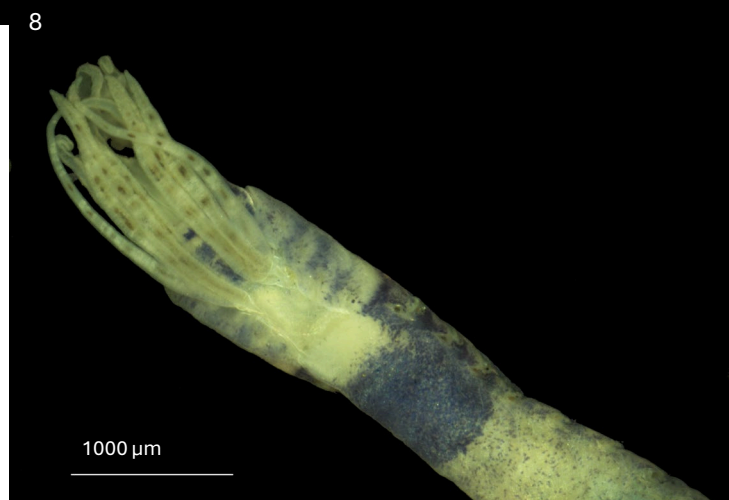
- Prostomium wider than long, with scalloped anterior margin; raised glandular ridge posteriorly; paired nuchal organs just anterior to ridge (**Image 1**)
- 2 parallel rows of eyespots present on glandular ridge; may fade on preserved specimens (**Image 2**)
- **Peristomium without medial glandular pad ventrally** (**Image 10**); lip smooth
- 4 pairs of branchiae; 1:3 arrangement; with transverse brown pigment bands (**Images 1, 8, 9, 11 & 12**)
 - Pigment may fade over time on preserved specimens
- Postbranchial dorsal membrane shorter than dorsal width; with 10 coarse teeth
- Segments 2-5 fused dorsally & laterally, forming lateral wings, bearing 4 rows of needle-like neurochaetae, 4th set very small (**Images 1 & 11**)
 - 0/ne - 0/ne - no/ne - no/ne - no/un
 - 1st and 2nd pair of notochaetae very small, often covered by edge of lateral wings
- **Dorsal hooks slightly recurved, at an angle $\leq 90^\circ$ relative to shaft** (**Image 5**); **larger individuals with blunt rounded tips** (pers. obs.)
- TC 18, TU 14, AU 56 (**Images 6 & 7**)
 - Hartman described *M. oculata* with 55-58AU
 - **Abdominal uncinigers difficult to count, very small and crowded after AU30**
 - **TU13 & TU14 appear to be abdominal type**





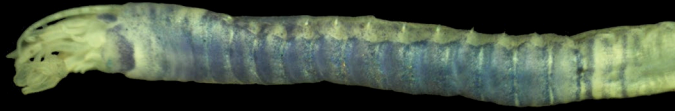
Diagnostic Characters (cont.):

- Thoracic & anterior abdominal uncini – P(R4)(1:1:1:1)
- Middle abdominal uncini – P(R3)(3:3:1)
 - Dentition variable as it forms the crest
- Posterior abdominal uncini – P(R3)(Cr3:3:3)
- Ventral groove present weakly from TU12, strong from TU14, to end of body
- Notopodial rudiments not mentioned in description
 - Present thru AU8 as very small papillae set very close to abdominal uncini (pers. obs.)
- Pygidium very small; with 2 (sometimes pigmented) dorsolateral flanges and ventral crenulations (Image 4)
 - Difficult to distinguish pygidial details



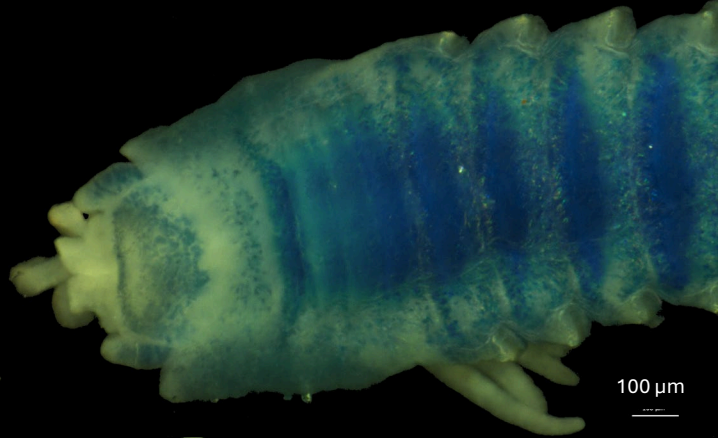


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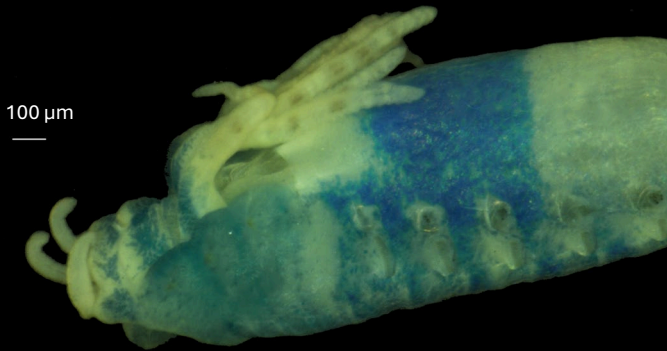
1000 µm

10



100 µm

11



100 µm

12

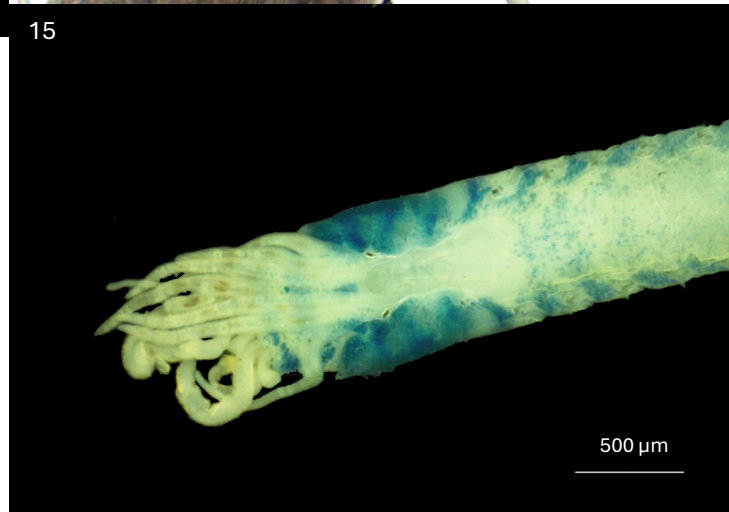
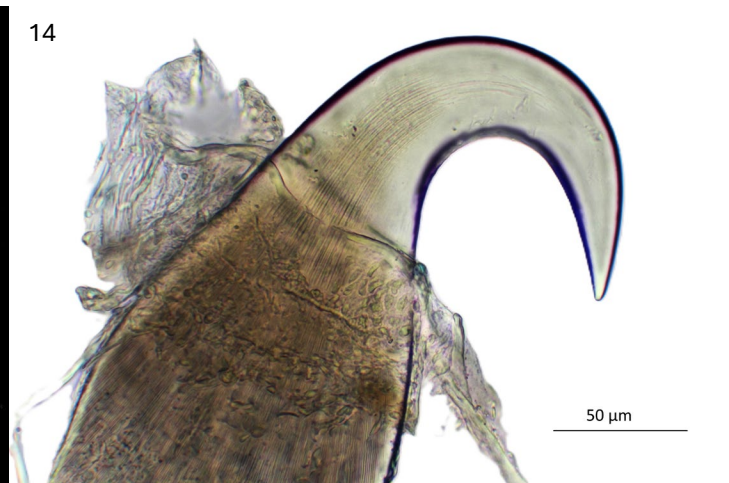
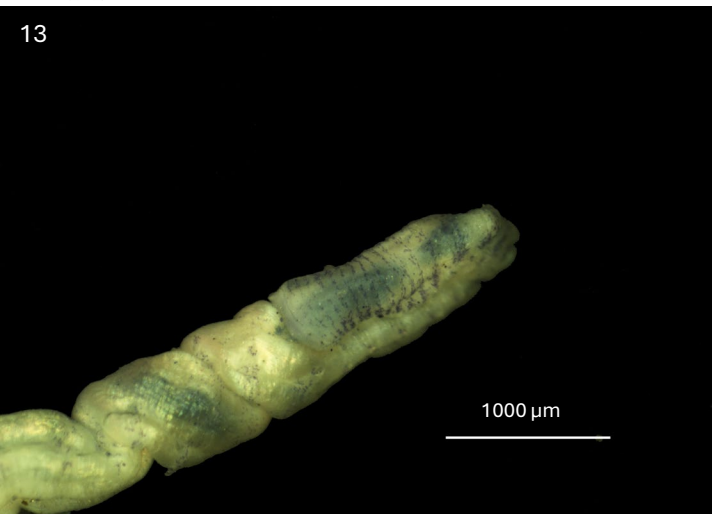


1000 µm

Pigmentation/Methyl Green Stain Pattern: (pers. obs.)

- Prostomium transversely banded; with an unstained anterior edge, a stain band, an unstained band around nuchal organs & glandular ridge, and a darkly staining posterior edge (Image 11)
- Peristomium weakly staining ventrally, without non-staining glandular pad (Image 10)
- Segments 2-5 (lateral wings) staining lightly ventrally & dorso-laterally, not extending to dorsum (Images 11 & 12) (sometimes developing striations) (Images 6 & 8), slightly darker in median region of ventrum
- Segment 4 (C3) without pair of ventral unstained spots (Image 10)
- Postbranchial dorsal membrane not retaining stain (Image 11)
- Dorsum stains darkly C5-C9 (TU1-TU4) (Images 6, 8 & 11)
- Ventral scutes stain darkly thru TU11, lighter on TU12 then fading to speckles on TU13 & TU14 (Images 7 & 9)
- Dark lateral stain patches extending dorsally between TU1-4, attaching to dorsal stain patch posterior to postbranchial dorsal membrane (Images 11 & 12)
- Posterior abdomen sometimes with light stain patches above uncinal tori
- Posterior abdomen with segmental staining rings (Image 13)
- Pygidial ring not retaining stain

** Juvenile individuals will resemble small *Anobothrus* when stained **



Material Examined:

LACSD NPDES Monitoring Stations: 0106-2C (61m – 33.73778N, 118.42321W – 10JAN2006) – 1 individual (complete, damaged) (Images 2 & 5); 0712-2C (61m – 33.73773N, 118.42298W – 10JUL2012) – 1 individual (complete-56AU-24.0mm TL); 0713-1D (31m – 33.76503N, 118.43519W – 09JUL2013) – 4 individuals (complete); 0714-1D (32m – 33.76512N, 118.43526W – 08JUL2014) – 1 individual (complete-11.7mm TL) (Images 1, 3, 4, 10 & 11); 0718-6D (32m – 33.71599N, 118.34857W – 26JUL2018) – 2 individuals (complete-56AU-range 14.0-14.3mm TL); 0725-3C (59m – 33.73026N, 118.40257W – 10JUL2025) – 1 individual (complete-56AU) (Images 6-9, 12 & 13)

Additional Material Examined:

Melinna heterodonta Moore, 1923 – LACSD Station: 0191-0B (149m – 33.81170N, 118.44170W – 16JAN1991) – 1 individual (complete, damaged) (Image 16); 0715-1A (300m – 33.74527N, 118.44973W – 07JUL2015) - 1 individual (complete-50AU: 35.7mm TL) (Image 18); 0723-1B (152m – 33.74944N, 118.44666W – 10JUL2023) - 1 individual (fragment-21AU) (Image 17)

Melinna sp LA1 Haggin, 2026 § – LACSD Stations: 0714-1D (32m – 33.76512N, 118.43526W – 08JUL2014) – 3 individuals (complete-range 7.7-16.7mm TL) (Image 15); 0718-6D (32m – 33.71599N, 118.34857W – 26JUL2018) – 2 individuals (complete-56AU-range 14.7-15.7mm TL) (Image 14)

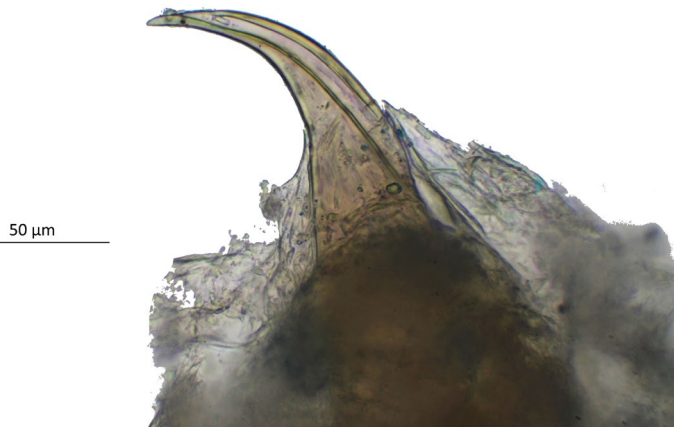
All photos by B. Haggin

Habitat:

Melinna oculata is encountered regularly in LACSD's shallower monitoring stations (>70m) in olive to dark olive colored, sandy to silty-sandy sediments with an average sediment temperature of 11.5° C. LACSD has one confirmed report of *Melinna oculata* from 157m though it is rarely encountered deeper than 100m. In LACSD's 61m and 30m stations, *Melinna oculata* is commonly collected with the Ampharetids *Amage scutata* Moore, 1923; *Amphicteis scaphobranchiata* Moore, 1906; *Amphisamytha bioculata* (Moore, 1906); *Anobothrus* sp A SCAMIT, 2026 § (formerly *Anobothrus gracilis* (Malmgren, 1866) or *Anobothrus bimaculatus* Fauchald, 1972); *Eclysippe trilobata* (Hartman, 1969); *Lysippe* sp A Williams, 1984 §; *Lysippe* sp B Williams, 1985 §; and *Sabellides manriquei* Salazar-Vallejo, 1996. *Melinna oculata* has been found to co-occur with its congener *Melinna* sp LA1.



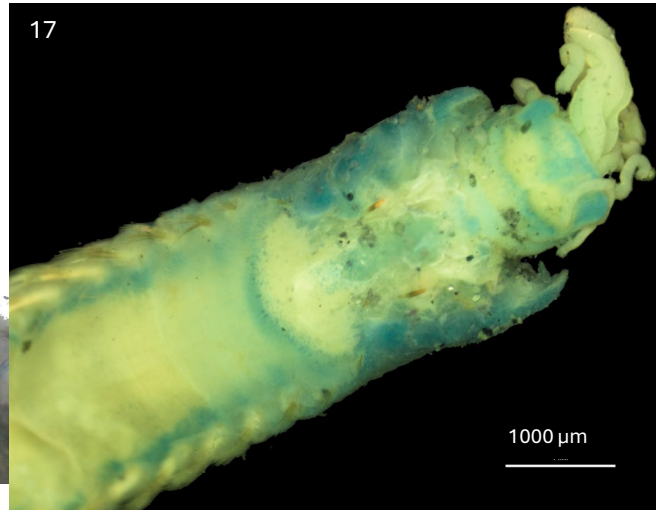
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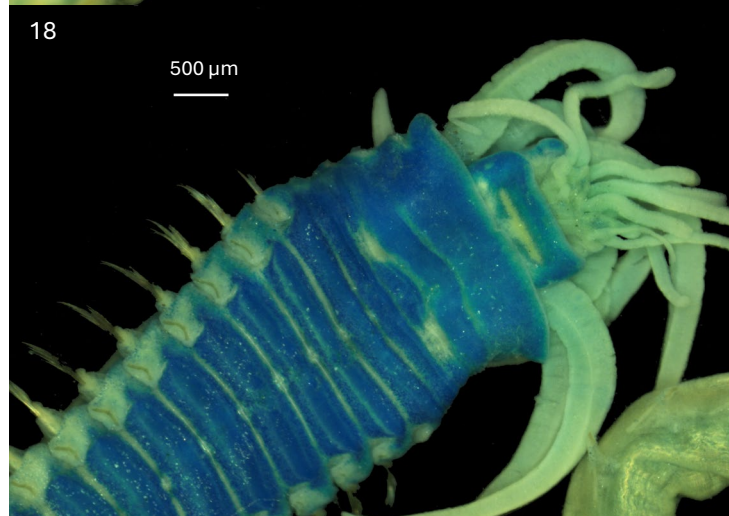
Similar Species:

Melinna sp LA1 Haggin, 2026 – *Melinna* sp LA1 is very similar to *Melinna oculata*. Both species have pigmented branchiae, eyespots present on the prostomium, recurved dorsal hooks and around 56 abdominal chaetigers. The two species differ in their MGS pattern and in the degree to which the dorsal hooks are recurved. The dorsal hooks of *Melinna* sp LA1 are more recurved (much $<90^\circ$) (Image 14) than in *Melinna oculata* ($\leq 90^\circ$) (Image 5) relative to the shaft. *Melinna* sp LA1 lacks a dark stain patch dorsally posterior to the dorsal membrane (Image 15) while *Melinna oculata* has a dark dorsal stain patch on C5-8 (TU1-4) (Images 6, 8 & 11).

17



18



Melinna heterodonta Moore, 1923 – *Melinna heterodonta* is similar to *Melinna oculata* in having 4 pairs of branchiae, 18 thoracic chaetigers, 14 thoracic uncinigers, the presence of dorsal hooks and the presence of a postbranchial dorsal membrane. The two species differ in the pigmentation of the branchiae, with the branchiae of *Melinna heterodonta* being unpigmented (Image 18) while the branchiae of *Melinna oculata* have brown pigment cross-bars (Images 1 & 8). The postbranchial dorsal membrane of *Melinna heterodonta* has 11-16 teeth but only 10 coarse teeth in *Melinna oculata*. The number of abdominal uncinigers differ between the two species, with *Melinna heterodonta* having fewer than 54 and *Melinna oculata* having 56. *Melinna heterodonta* also lacks eyes anterior to the glandular ridge that are present in *Melinna oculata*. The dorsal hooks of *Melinna heterodonta* are slightly curved ($>90^\circ$) and have a canal on the convex surface (Image 16). The dorsal hooks of *Melinna oculata* are slightly recurved ($\leq 90^\circ$) and lack a canal (Image 5). *Melinna heterodonta* has a dorsal stain band just posterior of the dorsal membrane (Image 17), a non-staining glandular pad on the ventral peristomium and a pair of unstained spots ventrally on C3 (Image 18) while *Melinna oculata* has a broad dorsal stain patch posterior to the dorsal membrane (Images 6, 8 & 11), lacks a non-staining glandular pad on the peristomium and lacks the paired unstained spots on C3 (Image 10).

Amphisamytha sp. – With 14 thoracic uncinigers, 4 pairs of branchiae and no paleae, the local species of *Amphisamytha* could be confused with *Melinna oculata* if the dorsal hooks are concealed by the lateral wings. Besides the presence of the dorsal hooks, the local *Amphisamytha* species have fewer abdominal uncinigers (13-14 in *Amphisamytha bioculata* or 9 in *Amphisamytha* sp A SCAMIT, 2026 § compared to 56 in *Melinna oculata*) and contain glandular pads in the abdominal segments that are lacking in *Melinna oculata*.

Similar Species cont.:

Anobothrus sp A SCAMIT, 2026 § – The stain pattern of *Anobothrus* sp A is similar enough to that of *Melinna oculata* that juveniles of the two species can be confused. Both species have 4 pairs of branchiae and a dorsal stain patch that occurs behind the branchiae. *Anobothrus* sp A has paleae present on segment 2 while *Melinna oculata* has dorsal hooks present postbranchially. *Anobothrus* sp A has 12 rather than 14 thoracic uncinigers, and 14 rather than 56 abdominal uncinigers. *Anobothrus* sp A has an elevated notopodia connected by a glandular ridge on TU8 that is lacking in *Melinna oculata*. Adults of these two species can be easily differentiated, and these issues only arise when juveniles are present in the sample.

Discussion:

The family Melinnidae was formerly the subfamily Melinninae within the Ampharetidae. Recent molecular work by Stiller *et al.* (2020) shows that the group has a closer affinity to the Terebellidae than the Ampharetidae, thus necessitating the elevation to family status. The most recent diagnoses of the Family Melinnidae and the genus *Melinna* can be found in Gunton *et al.* (2023) and are given below.

Diagnosis (Melinnidae): Tubicolous. Hood like prostomium lying over the buccal region, with eye spots present or absent and nuchal organs present. Retractable buccal tentacles. Peristomium clearly demarcated from an achaetous segment. Typically, with 4 pairs of tapering conical branchiae (2-3 pairs in some species) on segments 2-5, although may appear to arise from segments 2 and 3. Neuropodia on segments 2-5 with acicular chaetae, from segment 6 neuropodia with pectinate uncini. Notopodia with capillary notochoetae from segment 4 or 5 and continuing with a variable number of thoracic segments (10-16). Variable number of abdominal segments (20-90) with only neuropodia. Often with a more or less distinct membrane across dorsum at level of segments 2-3. Postbranchial dorsal recurved hooks present or absent.

Diagnosis (*Melinna*): Melinnidae with 4 pairs of apinnate branchiae on segments 2-5. Single pair of postbranchial dorsal hooks on segment 3. Segments 4 to 7 forming dorsal depression, posteriorly delimited by transverse membranous fold. Eighteen pairs of thoracic chaetigers, segments 2-5 with neuropodia with slender acicular chaetae, subsequent neuropodia with uncini. Notopodia from segment 4 or 5, with capillary notochoetae. Four pairs of nephridia on segments 4-7. Abdomen with variable number of neuropodia with uncini. Pygidium lobulate, anal cirri absent.

Melinna oculata was originally described from off Palos Verdes, California in shelf depths. It has a reported distribution of central to southern California. It has been reported from 22 to 450 m in the literature, though LACSD rarely encounters this species in our 150 m stations. Records from deeper than 100 m should be re-evaluated for the possibility of *Melinna heterodonta*. *Melinna oculata* is assigned to ITI Group 1 as they were formally members of the family Ampharetidae when the infaunal trophic feed groups were established.

Uncini Dentition Formula : A/P(R#)(X/Cr#:X:...)

- A – avicular
- P – pectinate
- (R#) – # of rows of teeth when viewed laterally
- (X:X:...) – # of teeth in each row when viewed head-on
- Cr# - crown of small teeth & # of teeth in crown



References:

Gunton, L. M., Zhang, W., Kupriyanova, E. K. & Hutchings, P. A. 2023. New Species of *Melinna* (Melinnidae, Annelida) from the Australian Abyss with Comments on *M. albicincta*, *M. cristata* and *M. elisabethae*. *Records of the Australian Museum* 75(3): 125-154.

Hartman, O. 1969. *Atlas of the sedentariate polychaetous annelids from California*. 1-812. Allan Hancock Foundation, University of Southern California, Los Angeles.

Hilbig, B. 2000. Family Ampharetidae Malmgren, 1867. pages 169-230. IN: Blake, J. A., Hilbig, B. & Valentich-Scott, P. *Taxonomic Atlas of the Benthic Fauna of the Santa Maria Basin and Western Santa Barbara Channel. 7 - The Annelida Part 4 - Polychaeta: Flabelligeridae to Sternaspidae*. Santa Barbara Museum of Natural History.

Moore, J. P. 1923. The polychaetous annelids dredged by the U.S.S. "Albatross" off the coast of southern California in 1904. IV. Spionidae to Sabellariidae. *Proceedings of the Academy of Natural Sciences of Philadelphia* 75: 179-259, plates XVII-XVIII.

Stiller, J., Tilic, E., Rousset, V., Pleijel, F. & Rouse, G. W. 2020. Spaghetti to a tree: A robust phylogeny for Terebelliformia (Annelida) based on transcriptomes, molecular and morphological data. *Biology* 9(4): 73 [29 pp. + supplementary material].

Other Literature Consulted:

Chamberlin, R. V. 1919. The Annelida Polychaeta [Albatross Expeditions]. *Memoirs of the Museum of Comparative Zoology at Harvard College* 48: 1-514.

Version History:

Version 1.0 – Voucher sheet created (10SEP2026– BMH)