



LOS ANGELES COUNTY
SANITATION DISTRICTS

A Century of Service

Capitellidae Grube, 1862

A Southern California Review

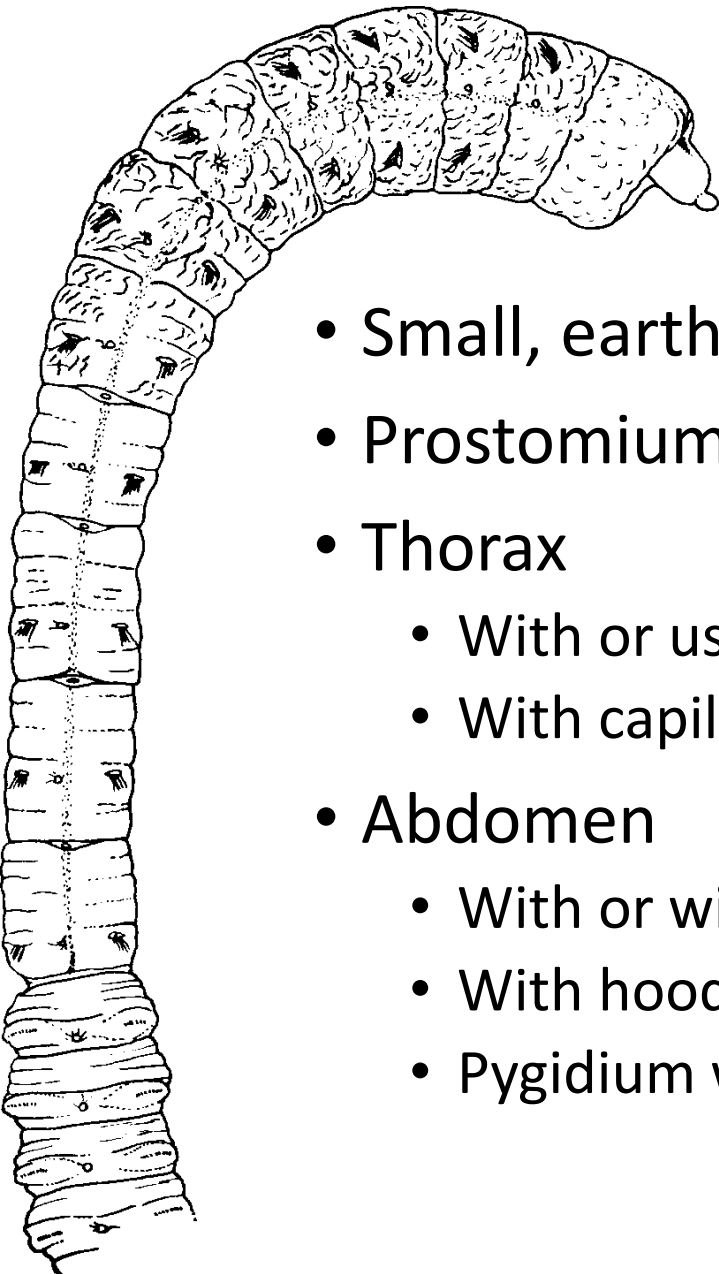
Brent Haggin

September, 2023



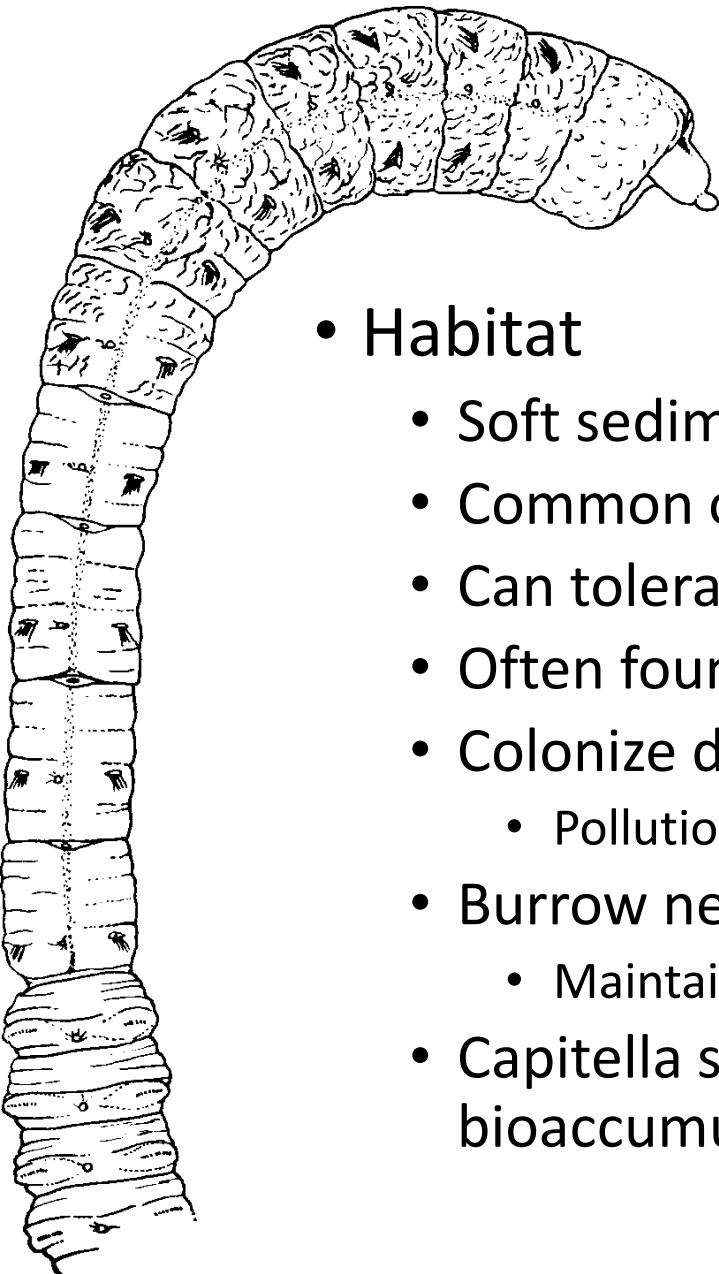
OUR SERVICE AREA

The Family Capitellidae



- Small, earthworm-like polychaetes
- Prostomium & Peristomium (sometimes with a degree of fusion)
- Thorax
 - With or usually without an achaetous segment
 - With capillary chaetae, hooded hooks, genital spines or a combination
- Abdomen
 - With or without branchiae
 - With hooded hooks, capillary chaetae and sometimes pre-pygidial spines
 - Pygidium with or without an anal cirrus, sometimes modified into a plaque

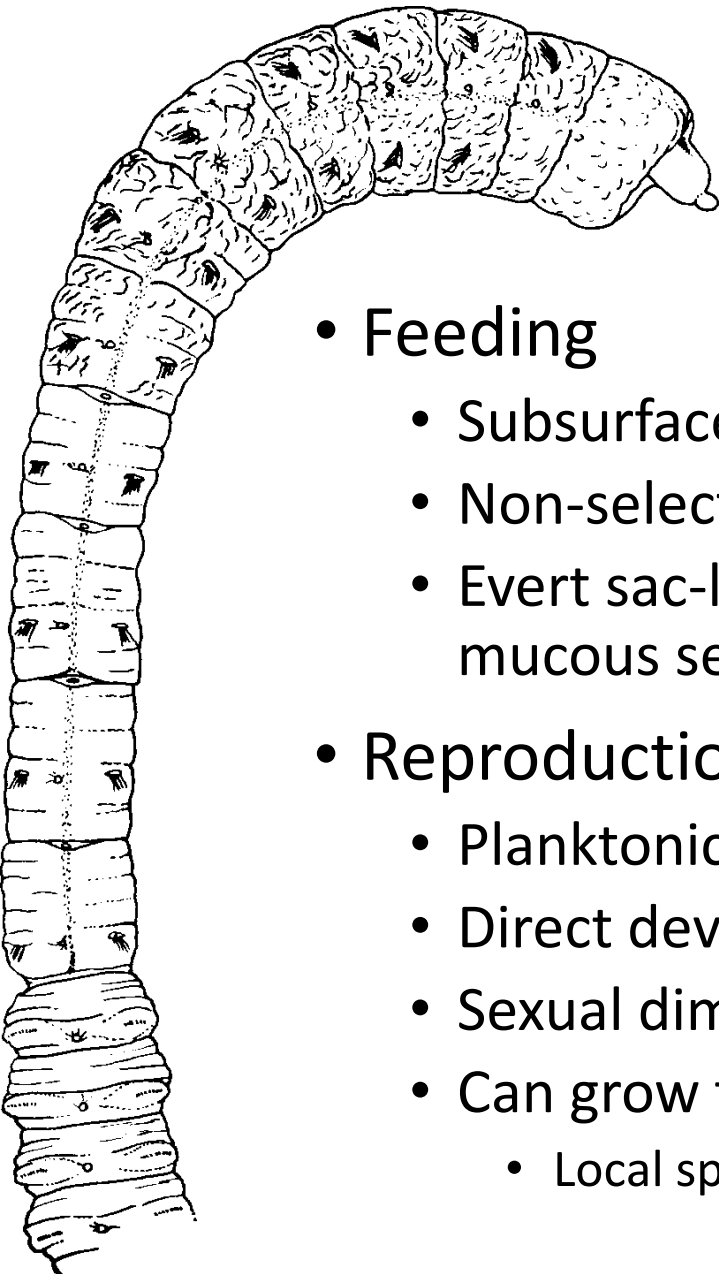
The Family Capitellidae



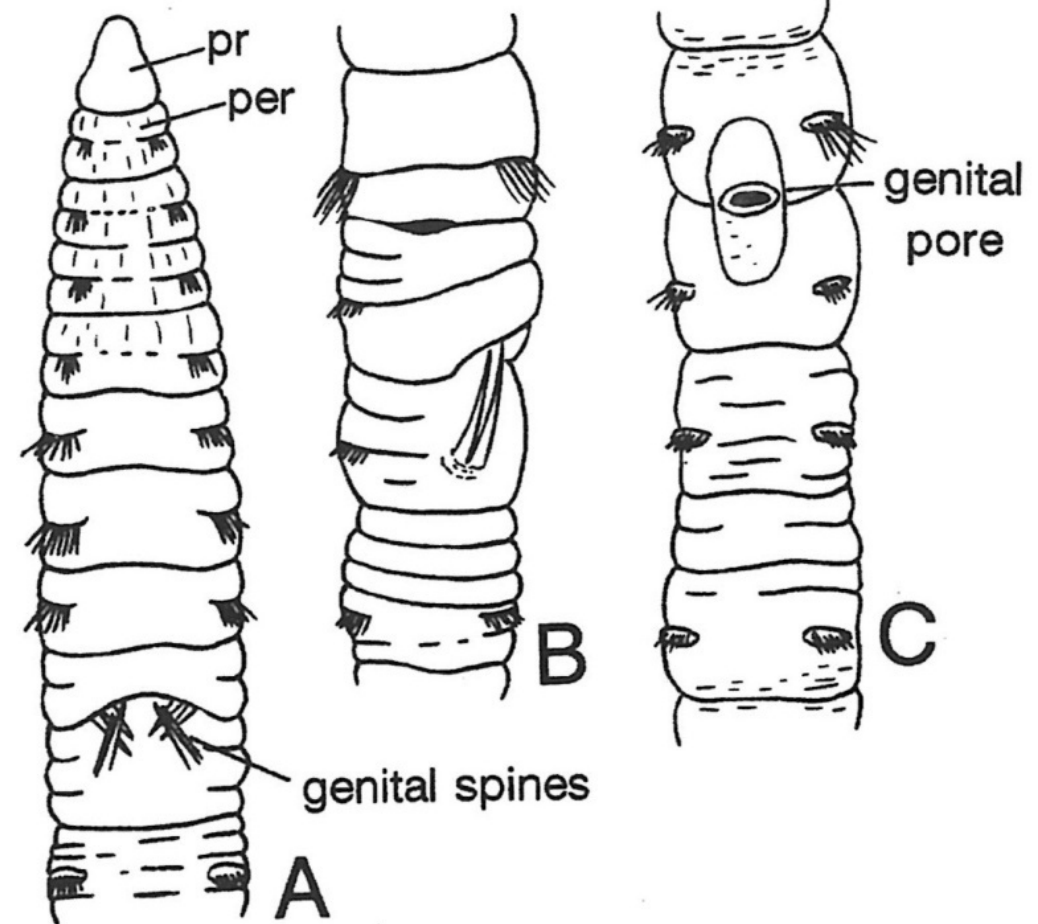
- Habitat

- Soft sediment
- Common offshore
- Can tolerate wide ranges of salinity and temperature
- Often found in anoxic muds
- Colonize disturbed areas
 - Pollution indicators
- Burrow near surface of sediment or build tubes up to 15 cm in length
 - Maintains connection with surface O₂ in anoxic environments
- *Capitella* spp. often used as a common test organism for toxicity and bioaccumulation studies

The Family Capitellidae



- Feeding
 - Subsurface deposit feeder
 - Non-selective
 - Evert sac-like proboscis and uses mucous secretions to collect sediment
- Reproduction/Growth
 - Planktonic larvae
 - Direct development
 - Sexual dimorphism in some species
 - Can grow to over 20 cm in length
 - Local species much smaller



Capitellidae – A History

- Family Capitellidae erected by Grube in 1862
- Reviewed by Eisig (1887)
- Reviewed by Hartman (1947)
- Taxonomy historically based on # of thoracic chaetigers w/ capillary chaetae & total # of thoracic chaetigers

- Also useful
 - Green (2002) – illustrations and definitions
 - Blake (2000) – MMS atlas

Capitellidae – A History

- Also used presence/absence of achaetous segment in thorax
 - Achaetous segment has been poorly defined historically and its use inconsistently applied between genera
- 21 genera with the peristomium counted as an achaetous segment in thorax
- 5 genera with the peristomium NOT counted as an achaetous segment in thorax
- 2 genera with a true achaetous segment in the thorax
- 13 genera with an achaetous segment described in thorax but not defined as peristomium or “true”

Capitellidae – Taxonomy

- Began my review by examining the diagnosis of the Class Polychaeta
 - Peristomium forms the lips and mouth and is part of the cephalic region, not thorax
- Reviewed the diagnosis of the Genus *Capitella*
 - *Capitella* is the Type Genus of the Family Capitellidae
 - Thorax with 9 segments, all chaetigerous
 - Peristomium is not included in the thoracic counts
- Based on these 2 factors
 - I revised the generic diagnosis of the genera of the Family Capitellidae to standardize them
 - I updated the thoracic formulas of the genera

Capitellidae – Taxonomy

- 41 Genera (pre-2020)
 - 5 Genera without achaetous segment
 - 36 Genera with achaetous segment
- 41 Genera Magalhães & Blake (2020)
 - 37 Genera without achaetous segment
 - 4 with achaetous segment
 - *Leiocapitellides*, *Scyphoproctus*, *Pseudonotomastus*, & *Mastobranchus*
- 41 Genera (my review)
 - 39 Genera without achaetous segment
 - 2 Genera with achaetous segment
 - *Scyphoproctus* & *Pseudonotomastus*
 - *Pseudonotomastus* described from an incomplete specimen. Its thoracic counts fall within the range of *Scyphoproctus*. A review of the type and new collection from the type location are needed to determine if the genus is valid.
 - *Mastobranchus* emended by Green (2002) to accommodate a misinterpretation of the type and an anterior fragment
 - I leave this genus defined as lacking an achaetous segment

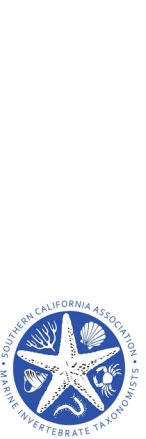
Capitellidae – Taxonomy

- 41 genera (WoRMS)
 - 20 genera with only a single species described
 - *Abyssocapitella*
 - *Anotomastus*
 - *Baldia*
 - *Capitobranchus*
 - *Dodecamastus*
 - *Eunotomastus*
 - *Leiocapitellides*
 - *Leiochrus*
 - *Lumbricomastus*
 - *Neonotomastus*
 - *Neopseudocapitella*
 - *Nonatus*
 - *Octocapitella*
 - *Paracapitella*
 - *Parheteromastides*
 - *Parheteromastus*
 - *Pseudocapitella*
 - *Pseudoleiocapitella*
 - *Pseudonotomastus*
 - *Undecimastus*



Capitellidae – Taxonomy

- Problems with ontogeny
 - Juveniles have fewer thoracic chaetigers & capillary chaetae than adults
 - some genera may be described juveniles
 - Be cautious of genera described as having mixed fascicles of capillaries and hooded hooks
- Little genetic work done on group until recently

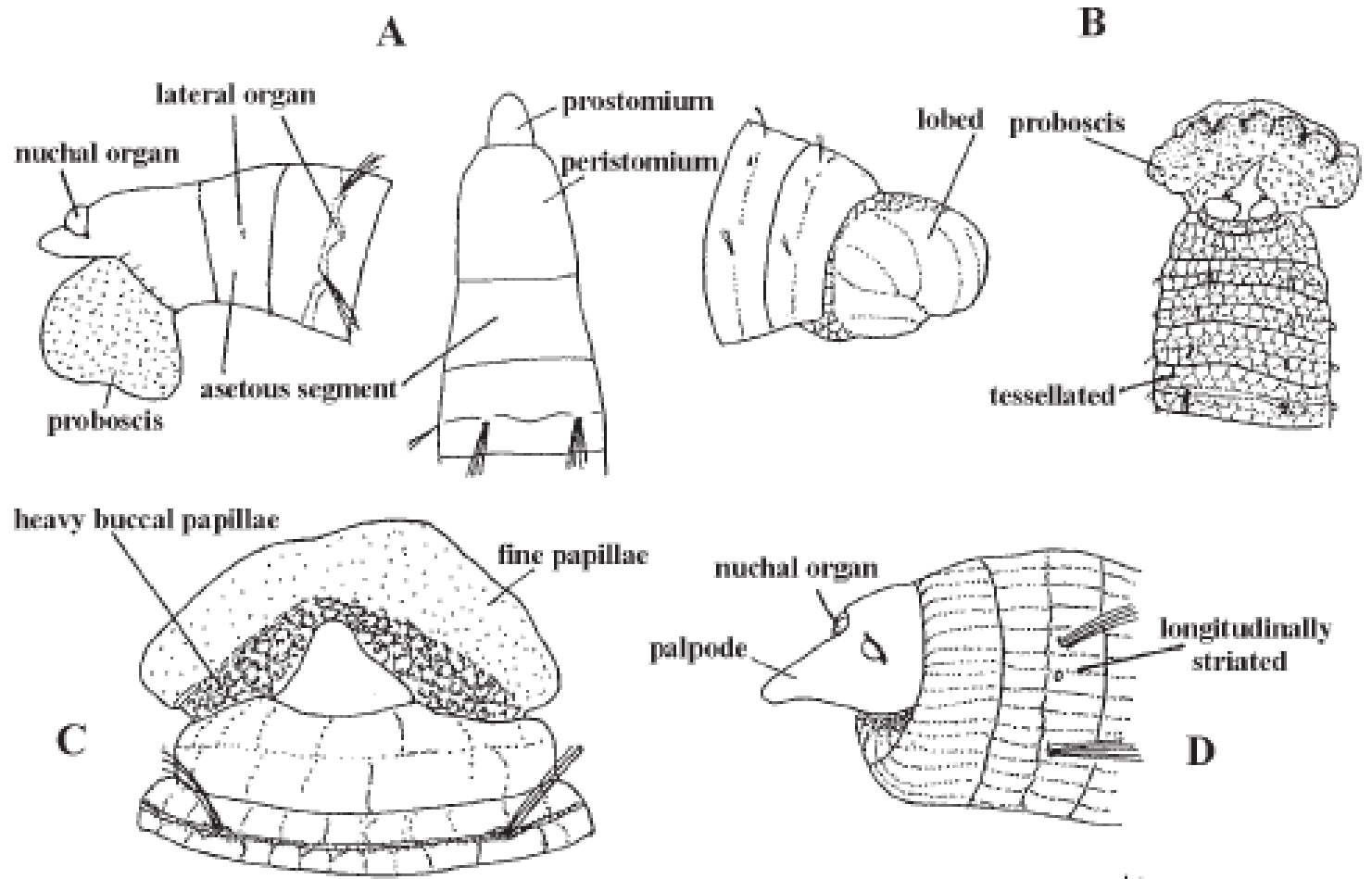


Capitellidae – Taxonomy

- 223 species globally (WoRMS) - 19 listed in SCAMIT Ed. 14 (+2 Cmplx & 4 provisionals)
 - *Amastigos acutus* Piltz, 1977
 - *Anotomastus gordiodes* (Moore, 1909)
 - *Barantolla* sp
 - *Capitella capitata* Cmplx
 - *Capitella teleta* Blake et al., 2009
 - *Dasybranchus glabrus* Moore, 1909
 - *Decamastus gracilis* Hartman, 1963
 - *Dodecamastus mariaensis* Blake, 2000
 - *Heteromastus filiformis* Cmplx
 - *Heteromastus filobranchus* Berkeley & Berkeley, 1932
 - *Leiochrides hemipodus* Hartman, 1960
 - *Mediomastus acutus* Hartman, 1969
 - *Mediomastus ambiseta* (Hartman, 1947)
 - *Mediomastus californiensis* Hartman, 1944
 - *Mediomastus* sp A SCAMIT, 2015 §
 - *Neomediomastus glabrus* (Hartman, 1960)
 - *Notodasus oraria* (McCammon & Stull, 1978)
 - *Notomastus hemipodus* Hartman, 1945
 - *Notomastus latericeus* M. Sars, 1851
 - *Notomastus lineatus* Claparède, 1869
 - *Notomastus magnus* Hartman, 1947
 - *Notomastus tenuis* Moore, 1909
 - *Notomastus* sp E Harris, 2021 §
 - *Notomastus* sp SD2 Rowe, 1999 §
 - *Notomastus* sp SD3 Rowe, 2004 §
 - *Scyphoproctus oculatus* Reish, 1959

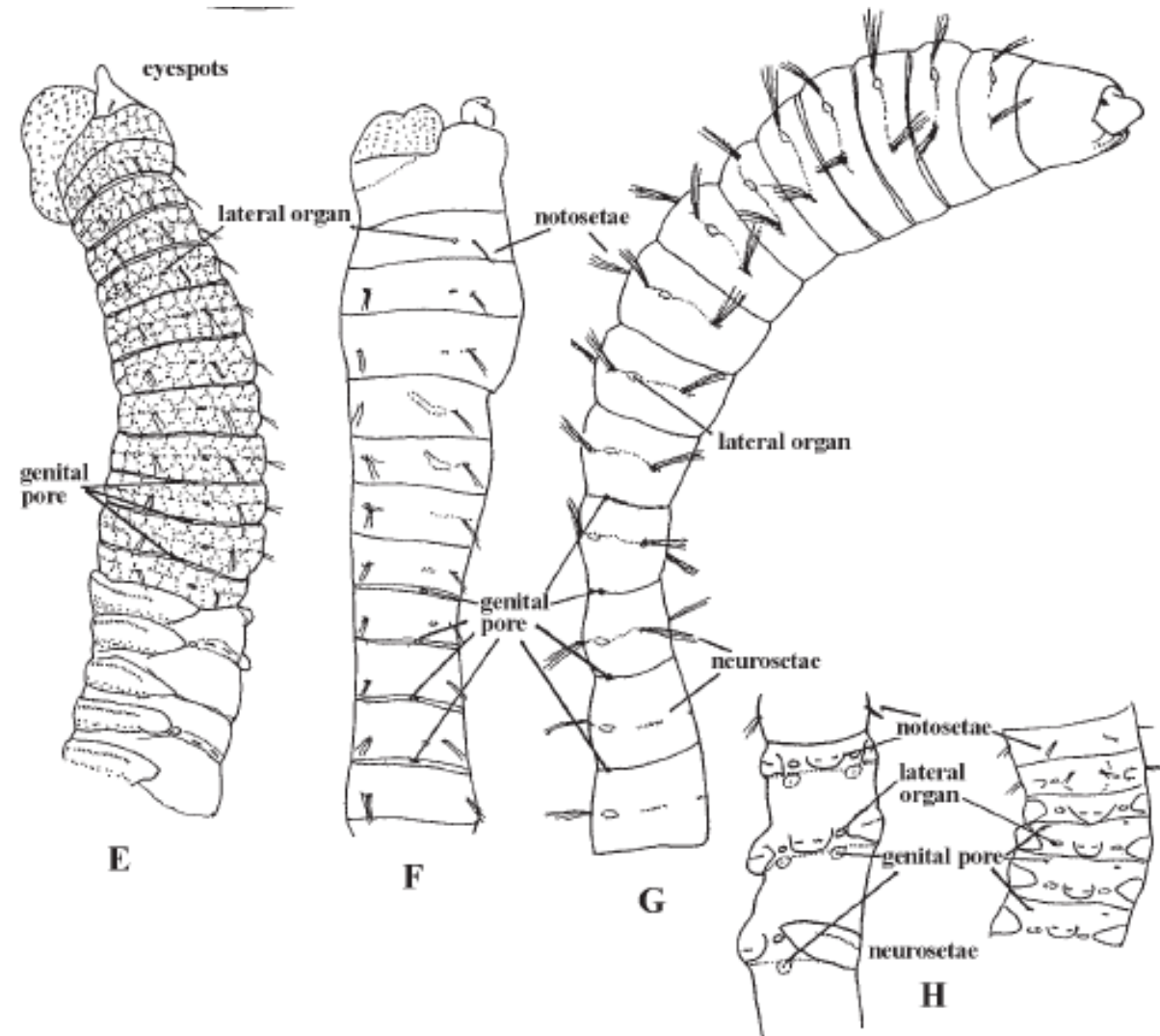
Capitellidae – Definitions

- Prostomium
 - Rounded to conical
 - elongation at the tip (palpode) retractable
 - Present or absent
 - With or without eyespots
 - Nuchal organs as slits at base
 - May evert during preservation
- Peristomium
 - Achaetous
- Proboscis
 - Globular to sac-like
 - May be slightly lobed
 - Degree of papillation varies



Capitellidae – Definitions

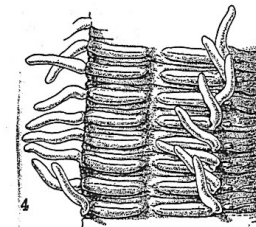
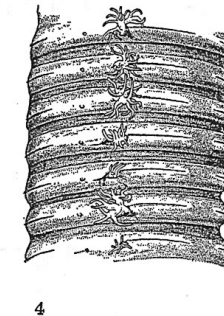
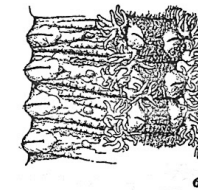
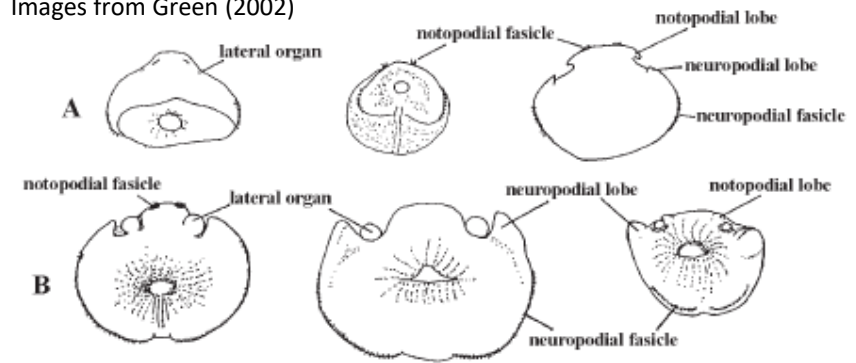
- Thorax/Abdomen defined by:
 - Chaetal type
 - Parapodial development
 - Body width
 - More distinct intersegmental groove
- Genital Pores
 - Lateral in position
 - Inter-segmental in thoracic chaetigers
 - Anterior to segmental furrow in abdomen
 - Not always visible
 - Level of maturity
 - Preservation state
- Lateral Organs
 - Thoracic and/or abdominal
 - Inter-ramal in position
 - Not on peristomium, but present on true achaetous segments



Capitellidae – Definitions

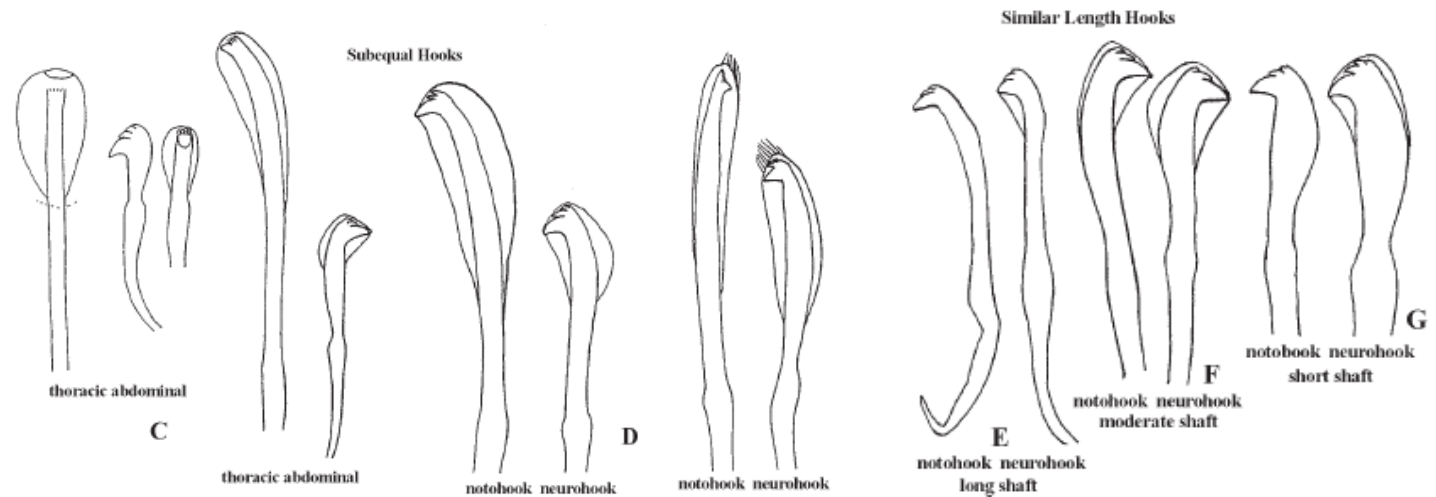
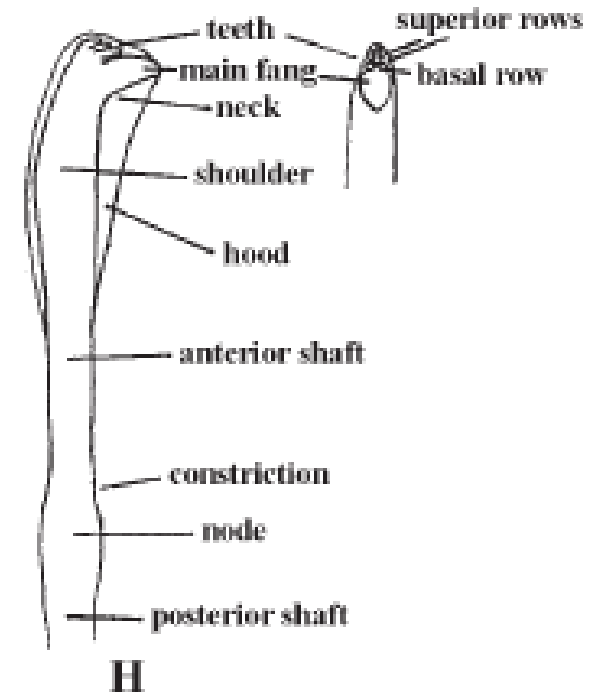
- Parapodial lobes
 - If present, best developed in abdomen
- Branchiae
 - When present, abdominal only
 - Simple, rounded lobes
 - Digitate
 - Branched/filamentous

Images from Green (2002)



Capitellidae – Definitions

- Chaetae
 - Type and location are diagnostic at the generic level
 - Long, tapering capillary chaetae in thorax
 - Occasionally also present in anterior abdomen
 - *Abyssocapitella*, *Neonotomastus*, *Notodasus*, *Polymastigos*, *Neopseudocapitella*, *Mastobranchus*, *Promastobranchus*, & *Paracapitella*
 - Multidentate hooded hooks sometimes present in thorax
 - Sometimes with genital spines in posterior thorax
 - *Capitella*
 - Multidentate hooded hooks in abdomen
 - Sometimes absent from the notopodia of branchial chaetigers of some species
 - *Leiochrides hemipodus*



Capitellidae – Definitions

Legend to the Thoracic Formulas

Achaetigerous segment + ^(thoracic notopodia)/_(thoracic neuropodia) + ^(abdominal notopodia)/_(abdominal neuropodia)

c = capillary chaetae

h = hooded hooks

e = either capillaries or hooded hooks

m = mixed fascicle of capillaries & hooded hooks

g = genital spines

s = spatulate chaetae

p = paddle-like capillary chaetae

(-) = achaetigerous segment present

0 = without chaetae (used for incomplete 1st chaetiger)

Examples

$$(17-18c) / (0+15-16c+1m)$$

$$(6c+1m(h)+4h) / (0+5c+5h)$$

$$(\sigma) (7c+2g) / (7c+2h)$$

$$(\text{♀}) (7c+2h) / (7c+2h)$$

$$(4c+6(5-7)h) / (4c+6(5-7)h)$$

$$(4c+3h+3p) / (4c+6h)$$

$$(11c) / (11c) + (1(2)c) / (1(2)e(m))$$

$$(-) + (9-14c) / (8-13c+1e)$$

Amastigos

- **Generic Diagnosis** – (emended after Magalhães & Blake, 2020) – Prostomium conical, palpode absent; peristomium *achaetous, short; eyespots present*. Thorax with 8 chaetigers; *achaetous segment absent*; capillary chaetae entirely absent, hooded hooks only present in both notopodia and neuropodia of both thorax and abdomen; transition from thorax to abdomen abrupt at chaetiger 9. No visible branchiae or nephridial papillae. Lateral organs not described. Pygidium conical, with or without anal cirrus.
- **Thoracic Formula:** $(8h) / (8h)$



Amastigos

- 3 accepted species
 - *Amastigos acutus* Piltz, 1977
 - Southern California
 - Type locality – near Carpinteria, CA; intertidal; fine-grained, sandy beaches
 - Reported by ??, maybe DCE
 - *Amastigos caperatus* Ewing & Dauer, 1981
 - Chesapeake Bay
 - *Amastigos delicatus* López, Capa, Aguado & Cladera, 2005
 - Coiba Island, Panama



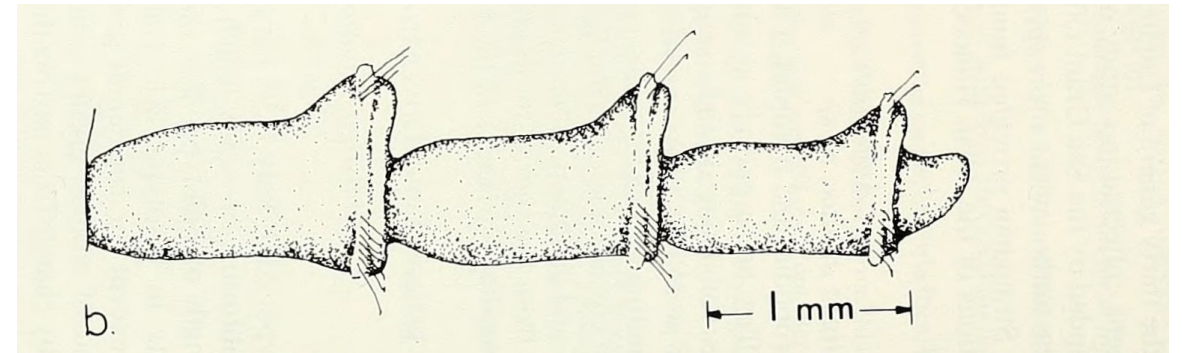
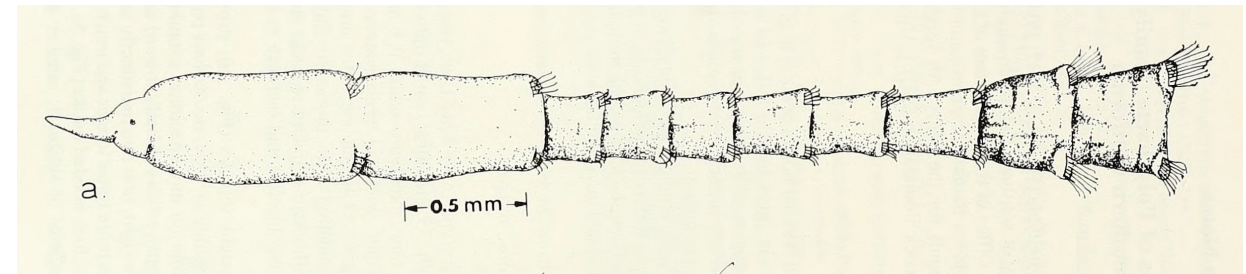
Amastigos acutus Piltz, 1977

- Key Characters

- Capillary chaetae completely lacking
- 1st 2 chaetigers are elongated

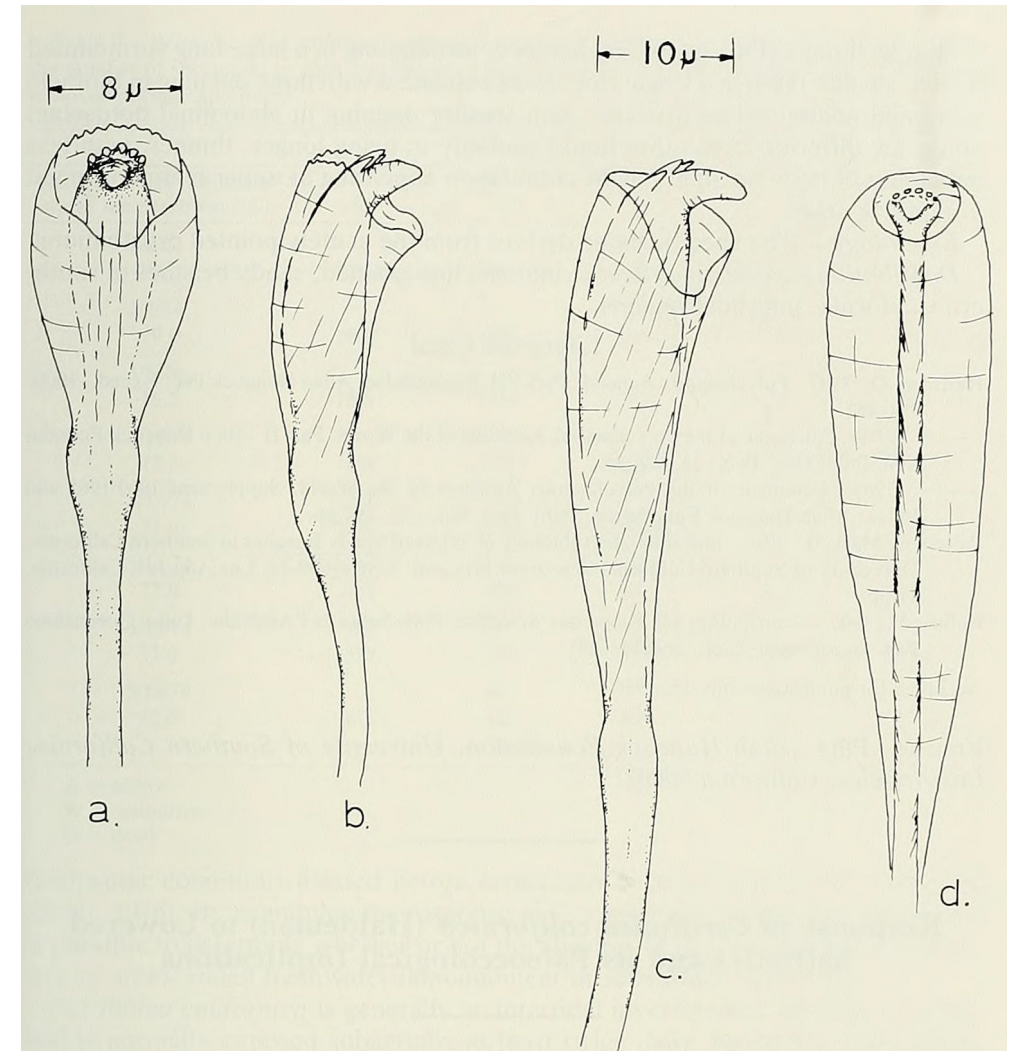
- Image A – lateral view of thorax and first 2 abdominal chaetigers

- Image B – Pygidium and last 3 abdominal chaetigers



Amastigos acutus Piltz, 1977

- Image A – frontal view of notopodial hooded hook from thorax (chaetiger 3)
- Image B – lateral view of same
- Image C – lateral view of neuropodial hooded hook from abdomen (chaetiger 34)
- Image D – frontal view of notopodial hooded hook from abdomen (chaetiger 12)



Anotomastus

• **Generic Diagnosis** – (emended after Magalhães and Blake, 2020 and Fauchald, 1977). *Prostomium* conical, palpode absent; *peristomium* *achaetous*, clearly distinct from the *prostomium*; eyespots present as multiple spots; nuchal organs present. Thorax with 17 or 18 chaetigers; *achaetous* segment absent; first chaetiger incomplete, notopodia only; chaetigers 2 thru 16-17 with capillary chaetae only; last thoracic chaetiger with capillaries in the notopodia and mixed fascicle of capillaries and hooded hooks in the neuropodia. Abdomen with many segments; abdominal chaetigers with long-handled hooded hooks only. Palmately branched branchiae in posterior abdominal segments. Lateral organs present on all thoracic chaetigers. Nephridial papillae present in the segmental furrows of some thoracic chaetigers.

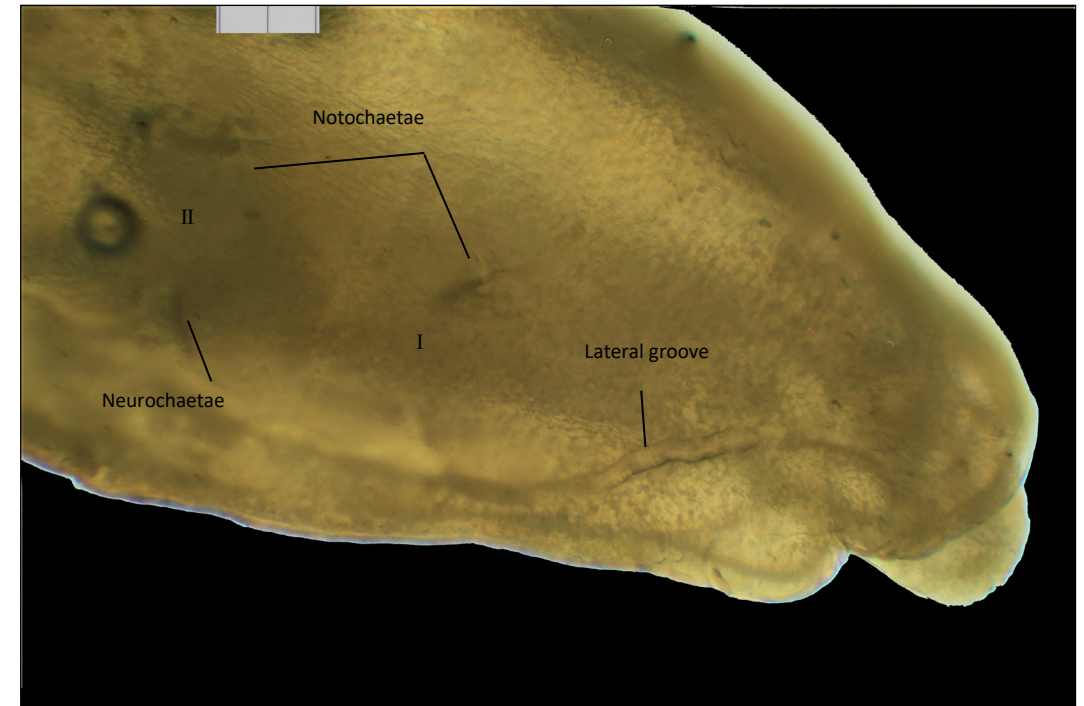
• **Thoracic Formula:** $(17-18c) / (0+15-16c+1m)$

Anotomastus

- 1 accepted species
 - *Anotomastus gordiodes* (Moore, 1909)
 - Southern California
 - Type locality – San Diego, CA; mud flats in low, intertidal zones to shelf depths
 - Reported by
 - CLAEMD from 15-146m
 - LACSD from 15-30m
 - OCSD from 29m
 - CSD from 1-37m
 - Collected by SCAMIT from San Diego to Ventura & Santa Cruz Island
 - Literature distribution from southern to central California (Hartman, 1969)
 - Questionable extensions North to Bodega Bay (Hartman, 1947) & South to Bahía de los Ángeles, Baja California, Mexico (Reish, 1968)

Anotomastus gordiodes (Moore, 1909)

- Key Characters
 - Prostomium elongate & rounded
 - w/ 6-15 reddish-brown eyespots
 - Peristomium with lateral groove
 - Thorax with 17-18 chaetigers
 - Chaetiger 1 incomplete, notochaetae only
 - Abdominal neuropodia forming distinct ventro-lateral tori, glandular
 - Branchiae present in posterior abdominal segments
 - Abdominal hooded hooks with a distinct shoulder and much inflated hood
 - 5 teeth in three rows (1*2*2) over main fang



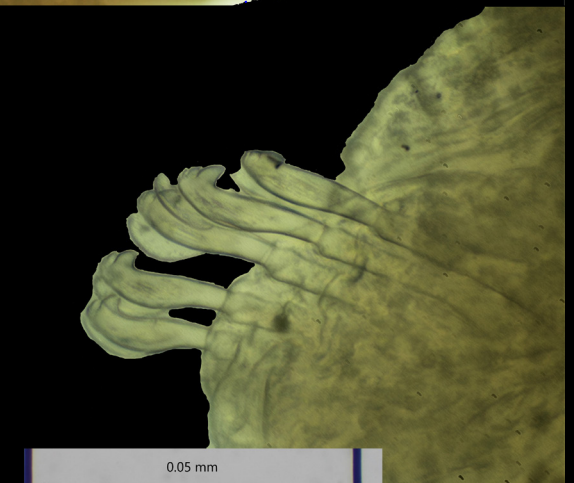
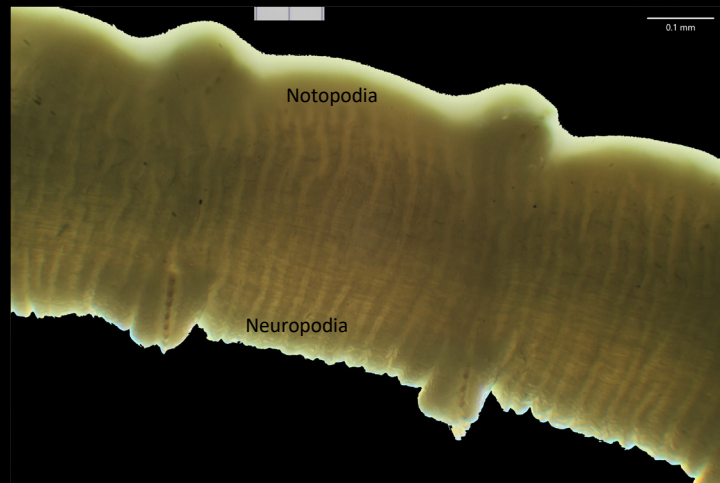
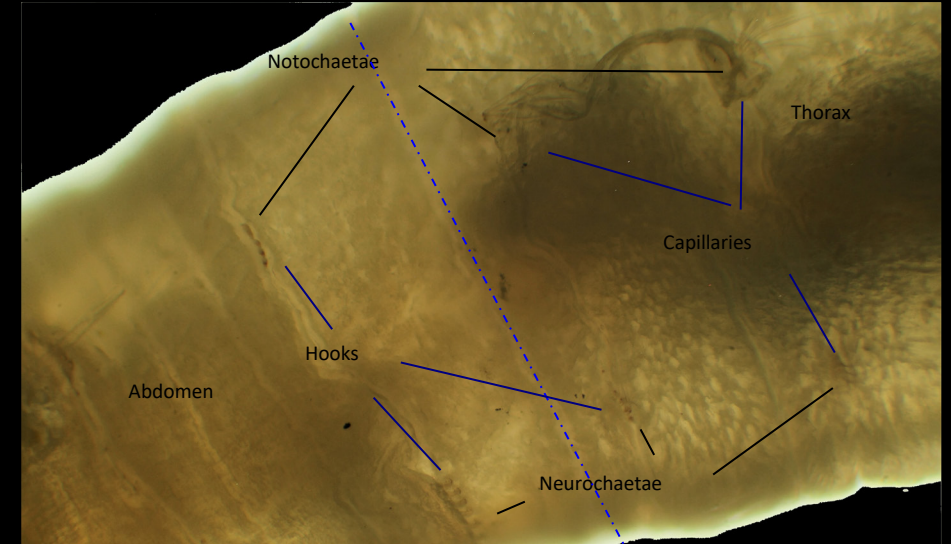
Anotomastus gordiodes (Moore, 1909)

- Methyl Green Stain
 - Prostomium, peristomium and chaetiger 1 with lightly speckled stain
 - Chaetigers 2-15(16) staining intensely
 - Last thoracic & 1st abdominal chaetigers with stain lightening
 - Abdominal stain with thin bands around tori, connecting ventrally but not dorsally
 - Stain fades and stops around branchial insertion
 - Great variability in pattern of stain in posterior thorax but intensity seems consistent
 - Image 12 “Honeycomb” pattern reported by CLAEMD



Anotomastus gordiodes (Moore, 1909)

- Methyl Green Stain continued
 - Abdominal banding is also highly variable
 - Can be present or absent
 - Suggests there might be an undescribed species



Barantolla

- **Generic Diagnosis** – (emended after Blake, 2000). Prostomium oval to conical, with terminal palpode; eyes present or absent; *peristomium achaetous*. Thorax with 11 chaetigers; *achaetous segment absent*; chaetiger 1 with neurochaetae present or absent. Notopodia with capillary chaetae only thru chaetiger 6; chaetiger 7 with mixed fascicle of capillaries and hooded hooks or with hooded hooks only; chaetigers 8-11 with hooded hooks only. Neuropodia with capillary chaetae in *chaetigers 1 or 2 thru 6 or 8*, remaining thoracic neuropodia with hooded hooks only. Branchiae present or absent, when present with 3 or more lobes. Pygidium without appendages.

- **Thoracic Formula:** $(6c+1m(h)+4h)/(0+5c+5h)$ or $(6c+1m(h)+4h)/(8c+3h)$



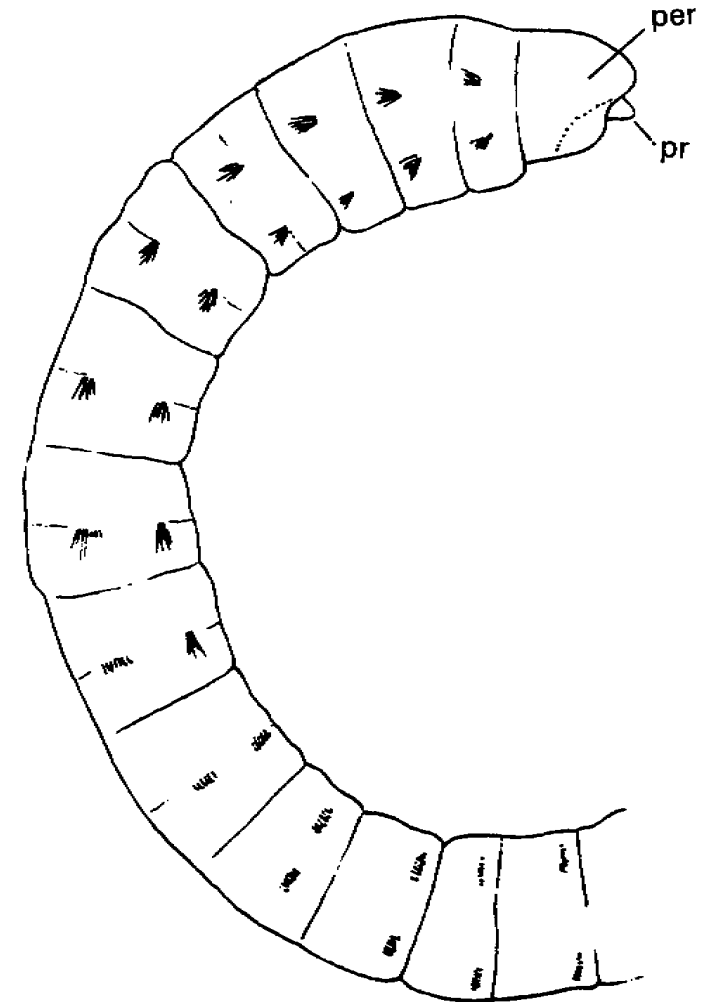
Barantolla

- 5 accepted species
 - *Barantolla americana* Hartman, 1963; Monterey Bay, CA; intertidal – 976m
 - *Barantolla cryptogenica* Çinar, Dağlı & Erdoğan-Dereli, 2022; Levantine Sea, Turkey
 - *Barantolla lepte* Hutchings, 1974; New South Wales, Australia
 - *Barantolla orientalis* Yabe & Mawatari, 1998; Hokkaido, Japan
 - *Barantolla sculpta* Southern, 1921; Ganges Delta, India
- Reported as *Barantolla* sp by
 - CLAEMD from 129m (1 occurrence, special project)
 - LACSD from 61-152m (2001 only, 5 individuals)

Barantolla americana Hartman, 1963

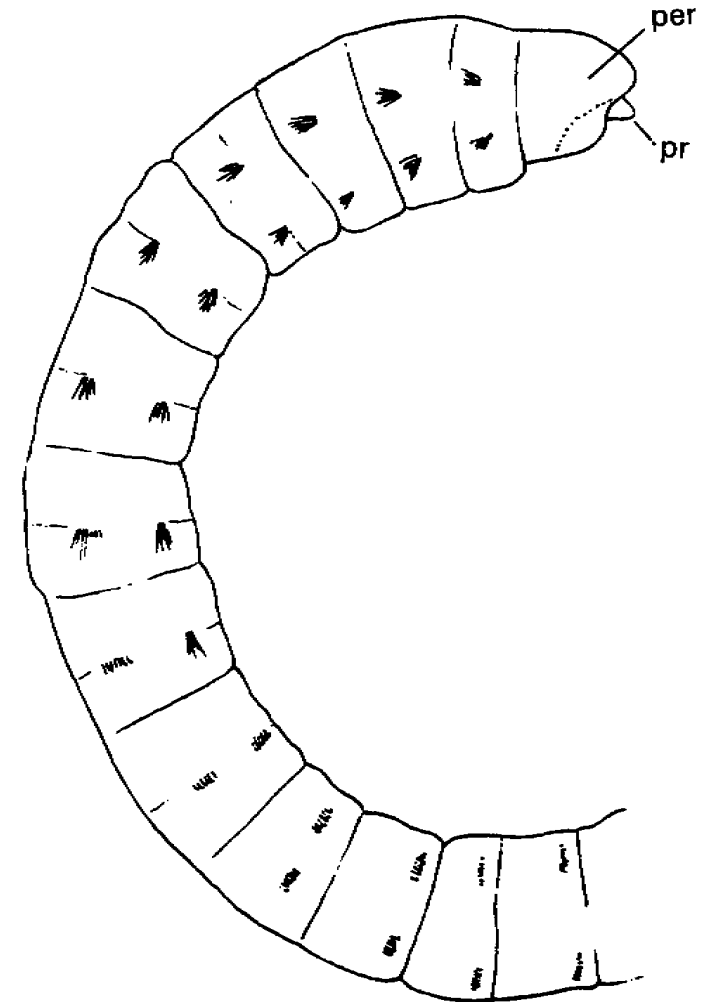
- Key Characters

- 1st chaetiger complete
- $(6c+1m+4h)/(8c+3h)$
- Separation between thorax and abdomen visible as a groove
 - Abdomen abruptly wider than thorax
- Branchiae not described
- MGS not described



Barantolla americana Hartman, 1963

- Comments
 - Blake (2000) – a different species of *Barantolla* occurs in Puget Sound and S.E. Alaska (R. E. Ruff, pers. comm.)
 - Still undescribed
 - Magalhães & Blake (2020) – Hartman (1971) provided a description for an additional species identified as *Barantolla* near *B. americana* from abyssal depths (2000-3753m). This material presented a different arrangement of thoracic neuropodial chaetae and it could belong to an undescribed species.



Barantolla sp

- LACSD review
 - 4 individuals found from 152m (all small juveniles, possibly *Decamastus gracilis*)
 - Station 0701-8B
 - 1 w/ 9 capillary notochaetae (6c+3m)
 - Damaged anterior fragment – would call this Capitellidae
 - Station 0101-2B
 - 1 w/ 10 capillary notochaetae (10c)
 - Prostomium & peristomium w/out stain; C1-3 w/ dark speckling; stain retained in intersegmental furrows of posterior thorax; dark speckling in anterior abdomen – likely a juvenile *Decamastus gracilis*
 - 2 w/ 8 capillary notochaetae (6c+2m)
 - Prostomium & peristomium w/out stain; C1-2 w/ dark speckling; stain retained in intersegmental furrows of remaining thoracic chaetigers; dark speckling in anterior abdomen
 - 1 w/ faint paired ventral stripes in abdomen – would call this Capitellidae
 - 1 w/out ventral stripes in abdomen – would call this Capitellidae

Capitella

- **Generic Diagnosis** — (emended after Silva *et al.* 2016 & Silva *et al.* 2017). Prostomium conical to bluntly rounded, sometimes dorsoventrally flattened, with dorsal groove present or absent, with nuchal organs as paired slits at border between prostomium and peristomium; eyes present or absent. Peristomium forming a complete or incomplete achaetigerous ring. *Thorax with nine chaetigers; achaetous segment absent; first chaetiger complete*; with capillary chaetae in both rami of chaetigers 1-3, 1-4, 1-6, or 1-7, or capillaries and hooded hooks in various combinations in both rami; chaetigers 8 and 9 with all capillaries, mixed fascicles of capillaries and hooded hooks or hooded hooks only; arrangement is sometimes size dependent. Genital hooks present in notopodia of chaetigers 8 and 9 of males and hermaphrodites; females usually with enlarged lateral genital pores between chaetigers 7-8 or 8-9. Capillary chaetae unilimbate, hooded hooks with multiple rows of denticles above the main fang. Abdominal segments with hooded hooks in both rami, without capillaries. Branchiae present or absent. Pygidium without appendages.

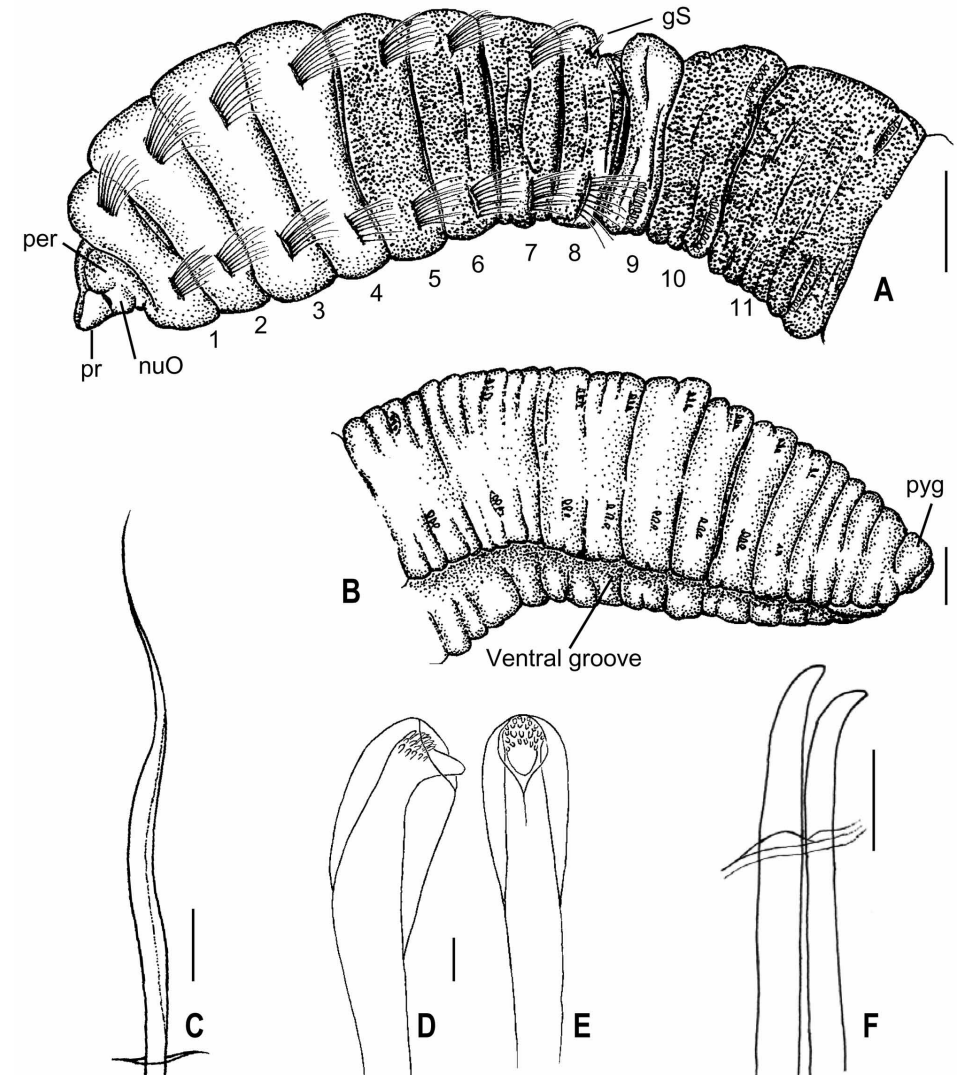
- **Thoracic Formula:** variable based on species; *Capitella capitata* formula (σ) $(7c+2g)/(7c+2h)$ (♀) $(7c+2h)/(7c+2h)$

Capitella

- 24 accepted species & 7 *Capitella capitata* subspecies
 - *Capitella aberranta* Hartman & Fauchald, 1971; New England; 4862m
 - *Capitella blakei* Magalhães & Hilliard, 2022; Monterey Bay, CA; 3100m
 - *Capitella capitata* (Fabricius, 1780); West Greenland; 20m
 - Redescribed by Blake, 2009; distribution restricted to Greenland (type locality)
 - *Capitella capitata floridana* Hartman, 1959; Florida
 - *Capitella capitata oculata* Hartman, 1961; La Jolla Canyon, CA; 15-637m
 - *Capitella capitata tripartita* Hartman, 1961; San Pedro, CA; 46-119m
 - *Capitella caribaeorum* Warren & George, 1986; Florida; mangroves
 - *Capitella dizonata* Johnson, 1901; Washington
 - *Capitella gracilis* (Verrill, 1879); Connecticut
 - *Capitella multibranchiata* Magalhães & Hilliard, 2022; Monterey Bay, CA; 3100m
 - *Capitella ovincola* Hartman, 1947; Monterey Bay, CA; 60-98m; squid egg mass
 - *Capitella teleta* Blake, Grassle & Eckelbarger, 2009; Lab culture, Woods Hole, MA

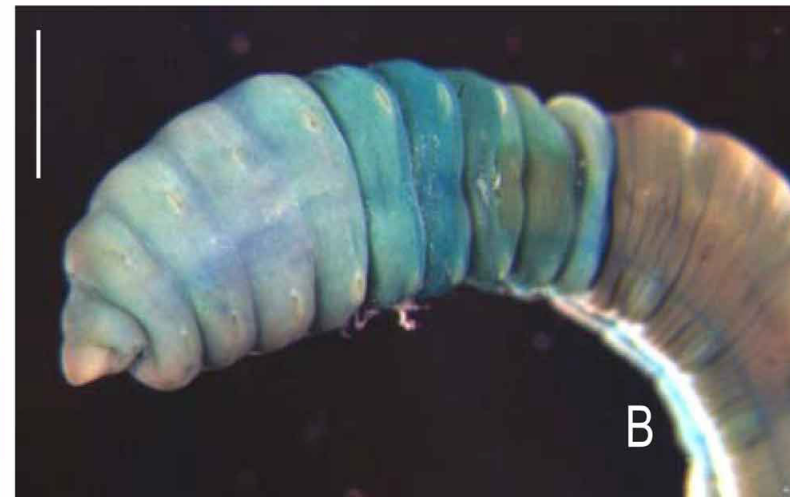
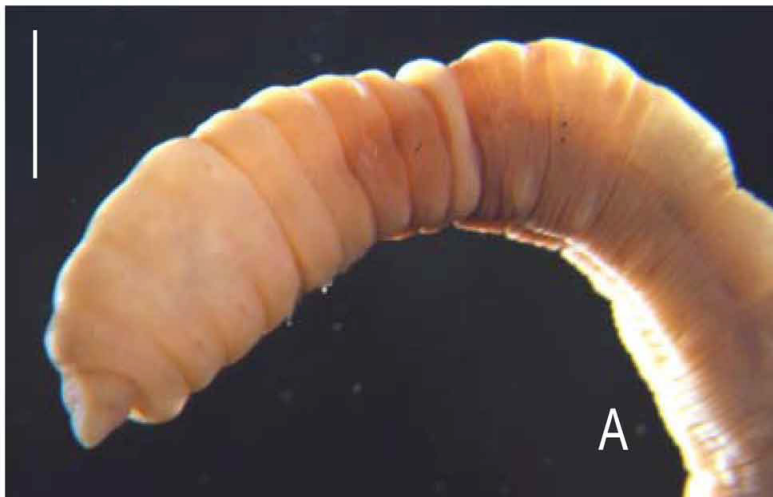
Capitella capitata (Fabricius, 1780)

- Redescribed by Blake (2009)
- Restricted distribution to Western Greenland
 - Type locality of original description
- Allows for comparison of local *Capitella capitata* Cmplx and creation of local provisionals
- Thoracic Formula – $(7c+2g)/(7c+2e)$
 - Males, females & hermaphrodites



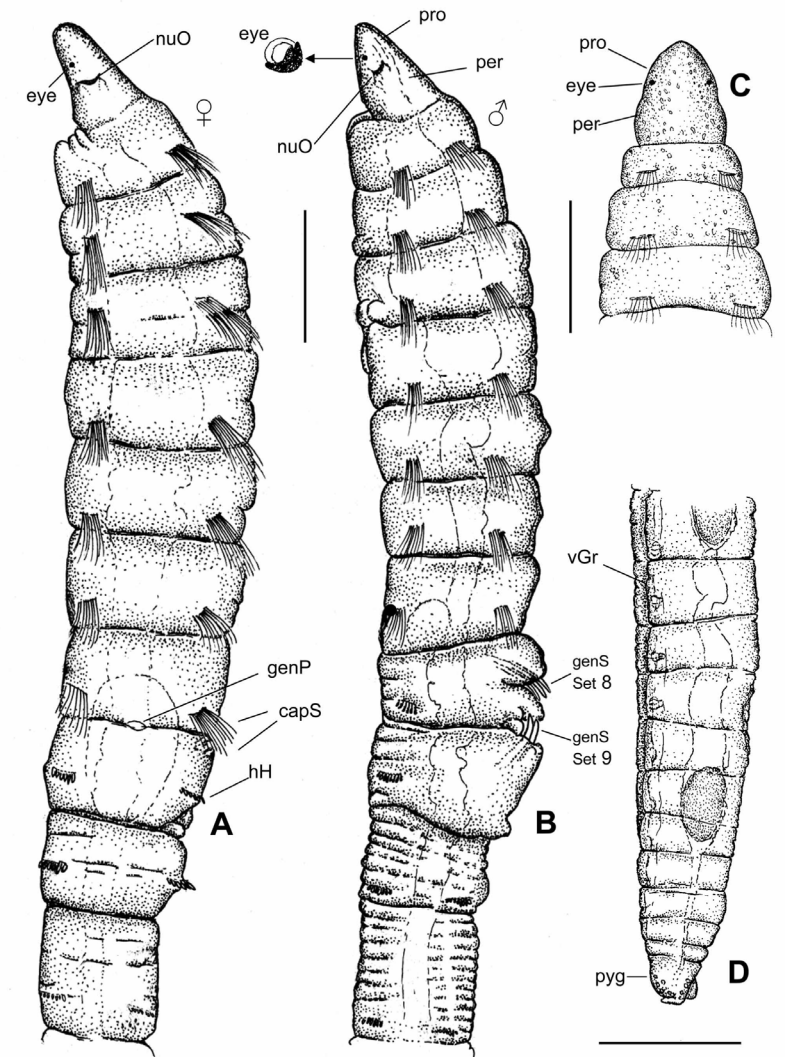
Capitella capitata (Fabricius, 1780)

- Methyl Green Stain
 - Prostomium unstained
 - Peristomium & chaetigers 1-6 staining lightly
 - Chaetigers 7-9 staining more darkly
 - Abdominal chaetigers not staining or with light speckling near parapodia

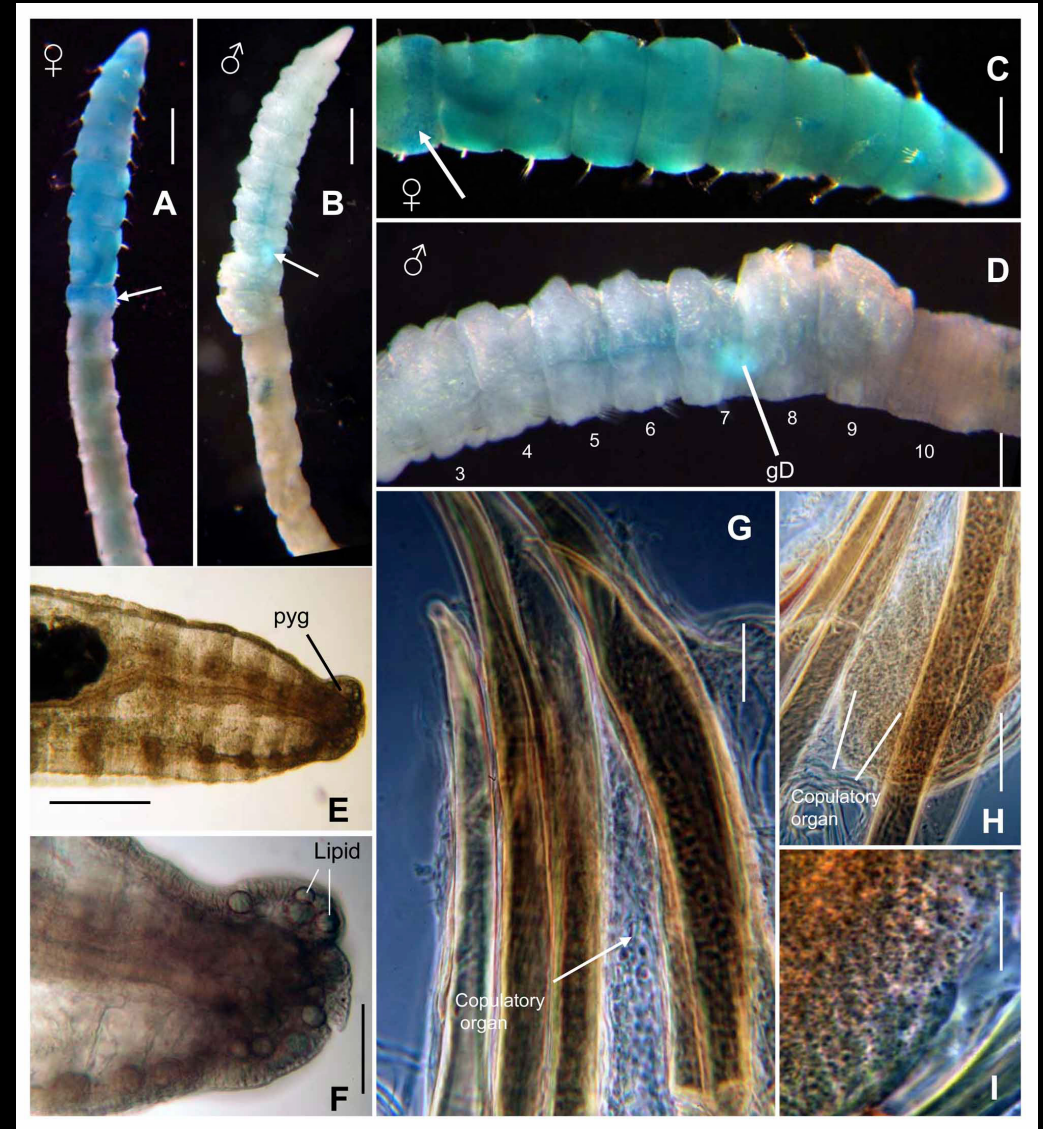
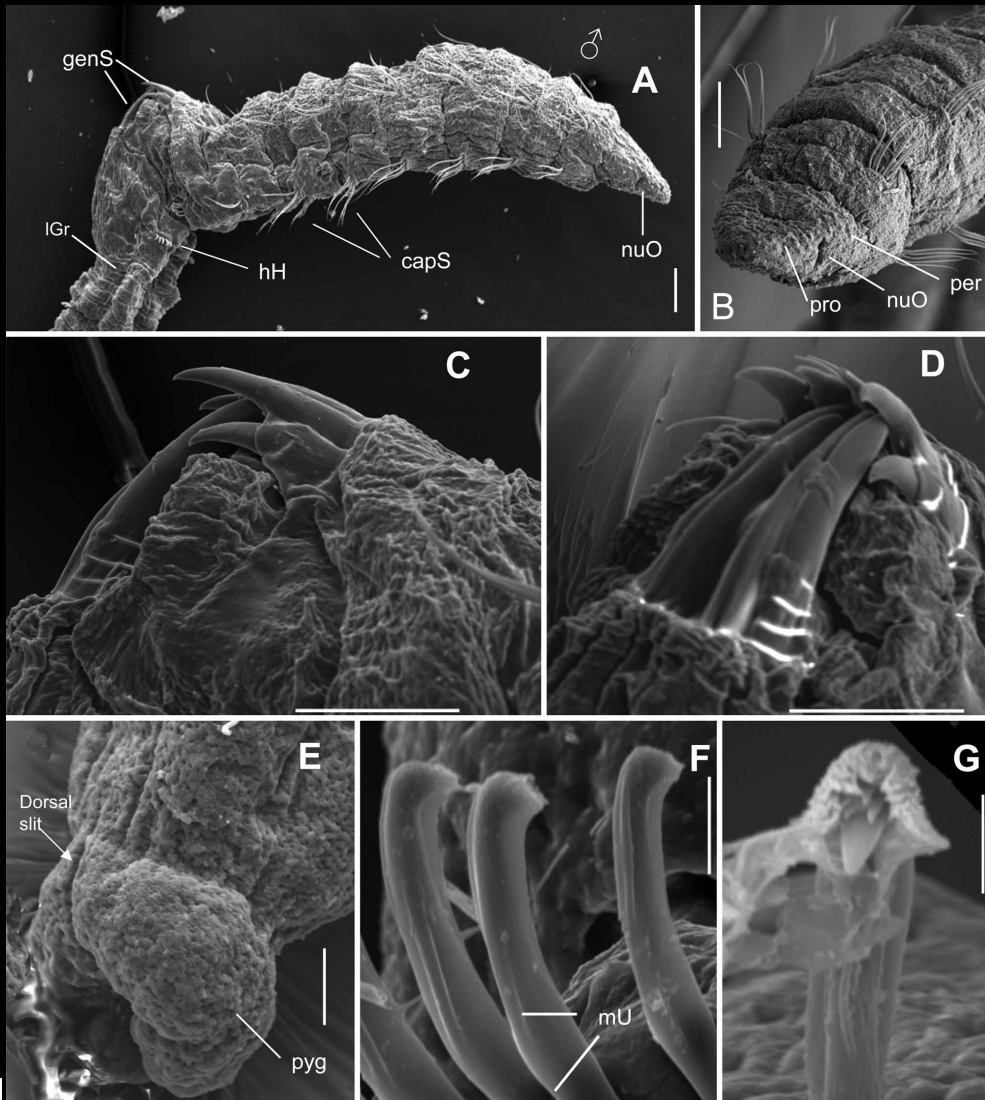


Capitella teleta Blake, Grassle & Eckelbarger, 2009

- Prostomium with red eyes laterally
- Males with genital spines in chaetigers 8-9
 - Up to 8 spines in C8; 4 spines in C9 (larger, more robust than in C8)
- Methyl Green Stain
 - Males not retaining stain
 - Females retaining stain on chaetigers 6-9, with distinct speckling on anterior of chaetiger 9
- Identified from laboratory cultures in Woods Hole, MA
 - Confirmed via DNA to be found in southern CA
- Thoracic Formula
 - (♂) $(7c+2g) / (7c+2h)$
 - (♀) $(7c+2h) / (7c+2h)$

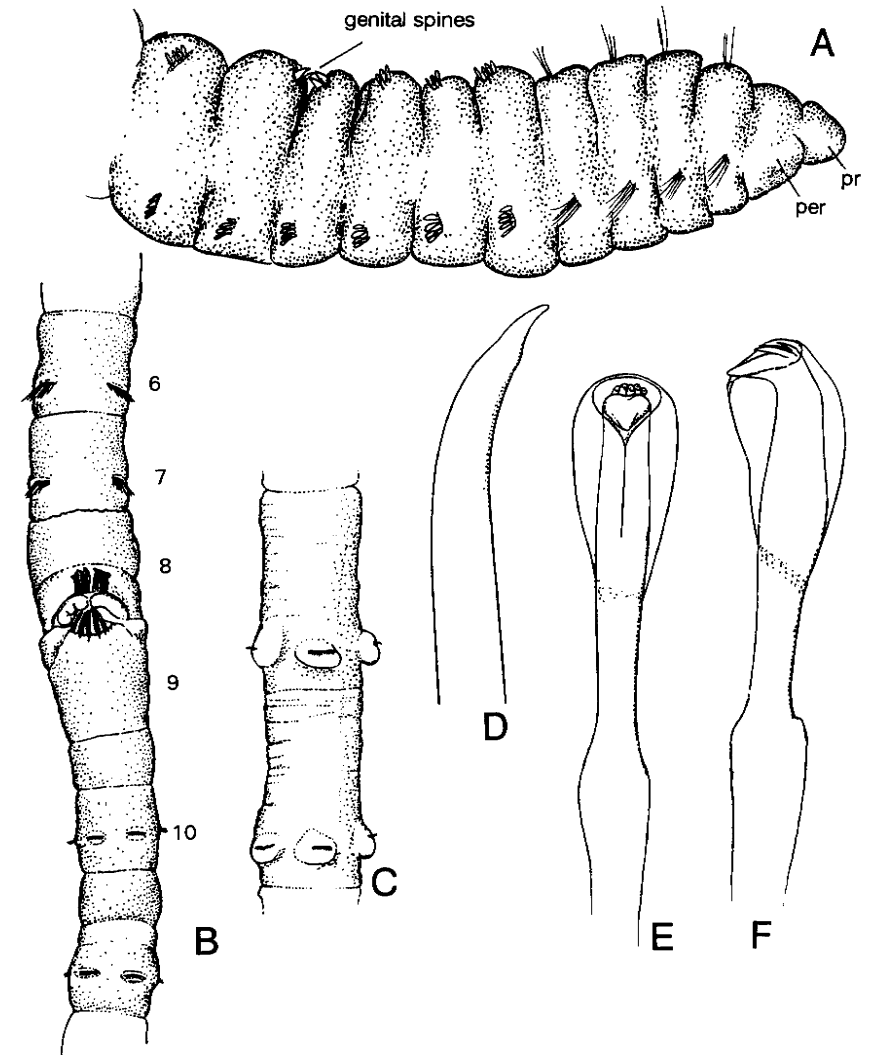


Capitella teleta Blake, Grassle & Eckelbarger, 2009



Capitella ovincola Hartman, 1947

- Prostomium without eyes
- Males with genital spines in chaetigers 8-9
 - Up to 10 spines in C8; 8 spines in C9
- MGS not described
- Known only from squid egg masses
- Thoracic Formula
 - (♂) $(5c+2c(m)+2g)/(4c+3c(m)+2h)$
 - (♀) $(5c+2c(m)+2h)/(4c+3c(m)+2h)$



Capitella capitata oculata Hartman, 1961

- Prostomium with black eyes laterally
- Males with genital spines in chaetigers 8-9
 - Few spines, brassy-yellow
- MGS not described
- Originally found hosting a parasitic copepod *Monstrilla capitellicola*
- Differs from stem species in smaller size & deeper habitat
- Thoracic Formula
 - (♂) $(7c+2g)/(7c+2h)$
 - (♀) $(7c+2h)/(7c+2h)$

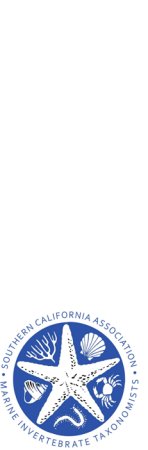
Capitella capitata tripartita Hartman, 1961

- Prostomium occasionally with small, lateral eyespots
- Males with genital spines in chaetigers 8-9
 - Spines few, thick
- MGS not described
- Originally found hosting a parasitic copepod *Monstrilla capitellicola*
- Differs from stem species in thoracic chaetal arrangement
- Thoracic Formula
 - (♂) $(3c+1c(m)+2m+1m(h)+2g) / (3c+2m+2m(h)+2h)$
 - (♀) $(3c+1c(m)+2m+1m(h)+2h) / (3c+2m+2m(h)+2h)$

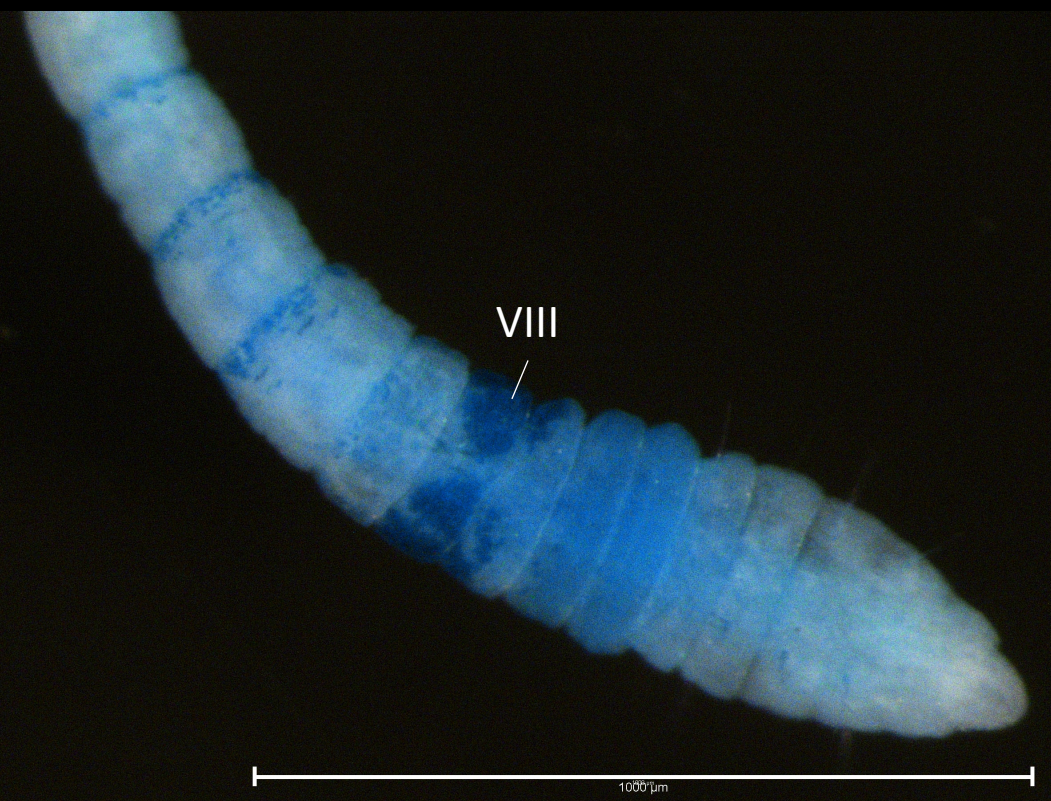
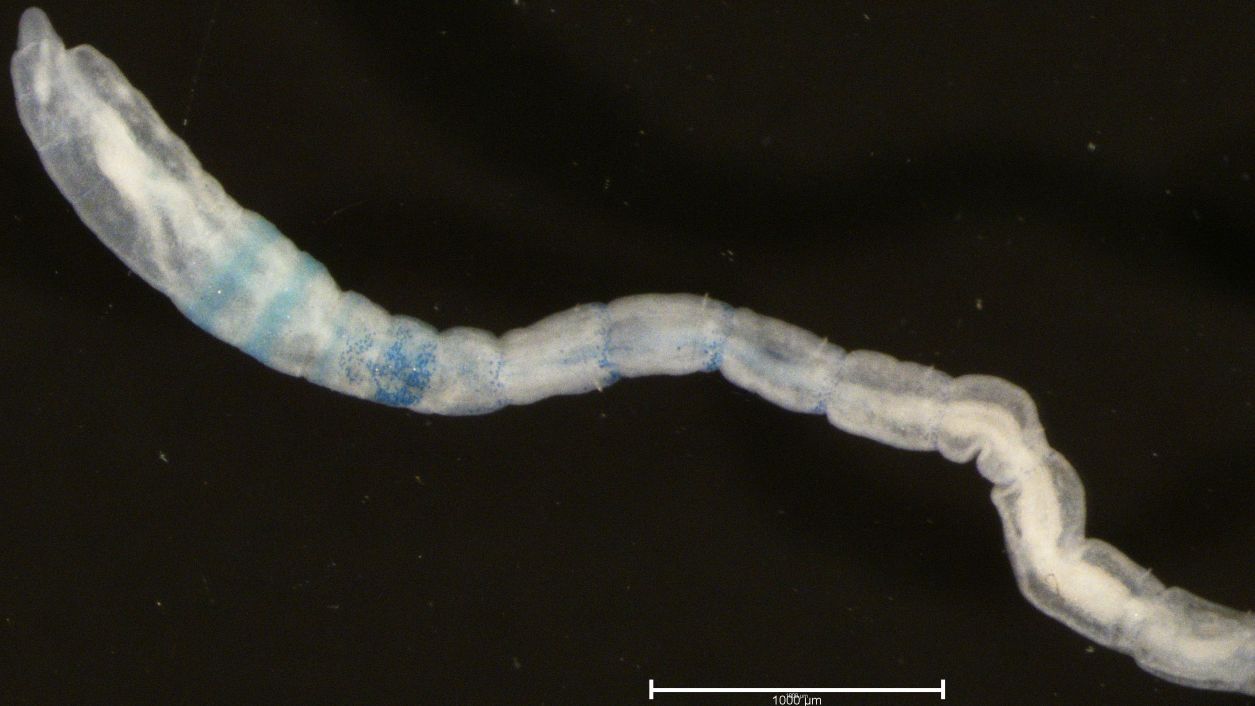
Capitella sp LA3 Haggin, 2023 §

Capitella capitata Cmplx of authors SCB

- Prostomium conical, rounded; eyes absent
- Males with genital spines in chaetigers 8-9
 - 1-2 pairs max in each chaetiger
- Methyl Green Stain
 - Not retaining stain, OR
 - Light speckling on chaetigers 1-4
 - Light banding on chaetigers 5-6
 - Broad lateral stain patch in chaetigers 7-8; post-chaetal only in chaetiger 7
 - Chaetiger 9 and anterior abdomen with post-chaetal stain band
- Differs from other *Capitella* species in thoracic chaetal arrangement
 - Only 4 chaetigers with capillary notochaetae
 - 7 chaetigers with capillary notochaetae in all other local species
- Thoracic Formula
 - (♂) & (♀) $(4c+3h+2g)/(4c+5h)$
- Still under review
 - not yet sure if this formula is for all of this species, or only for males and hermaphrodites
 - Have seen individuals with genital spines and developing eggs
 - Not yet sure if this is 2 provisional species based on different stain patterns
- Collected from 31-152m across the Palos Verdes peninsula and into Santa Monica Bay

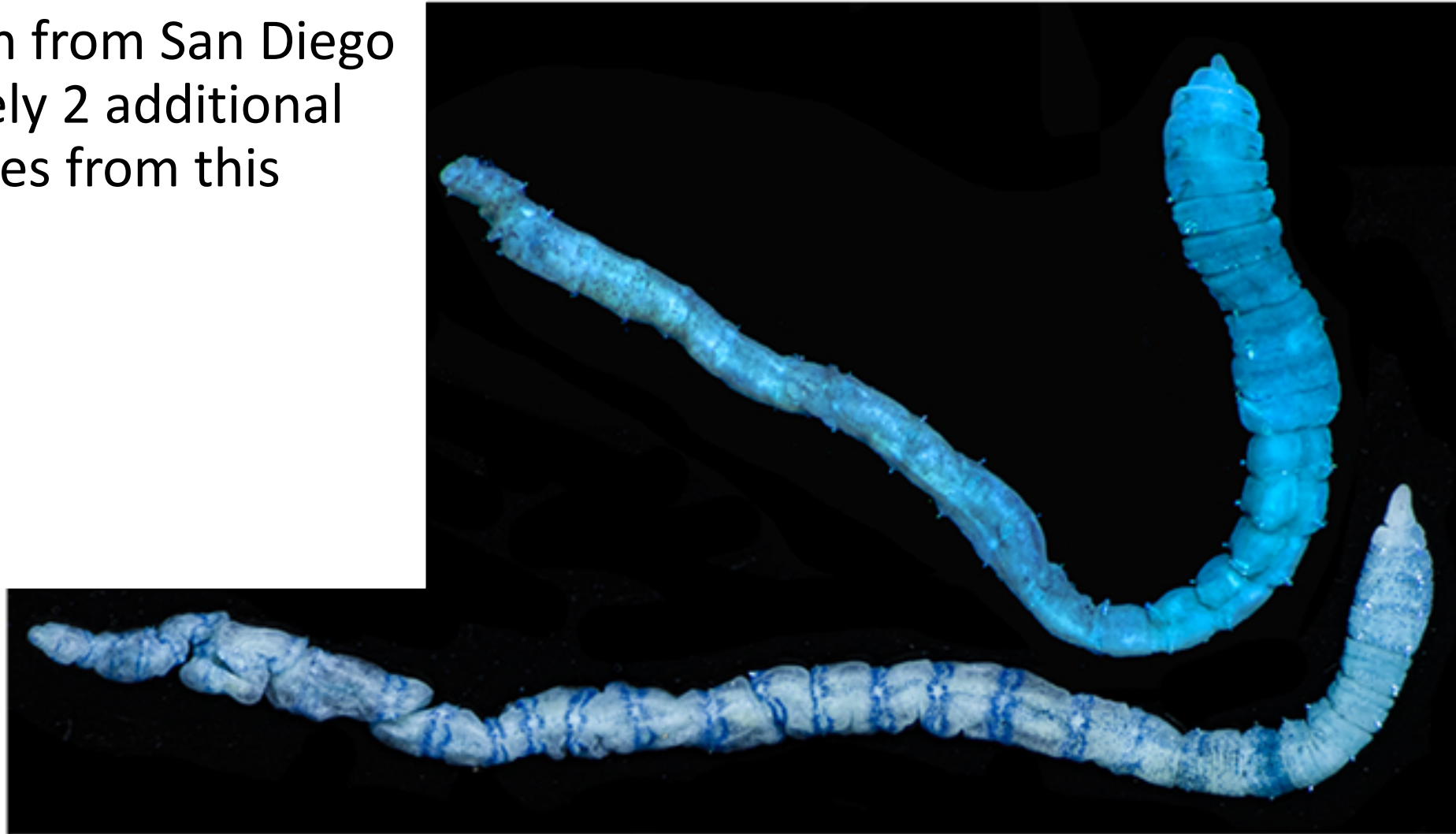


Capitella sp LA3 Haggin, 2023 ♂



Capitella capitata Cmplx

- Staining variation from San Diego show what is likely 2 additional provisional species from this complex



Dasybranchus

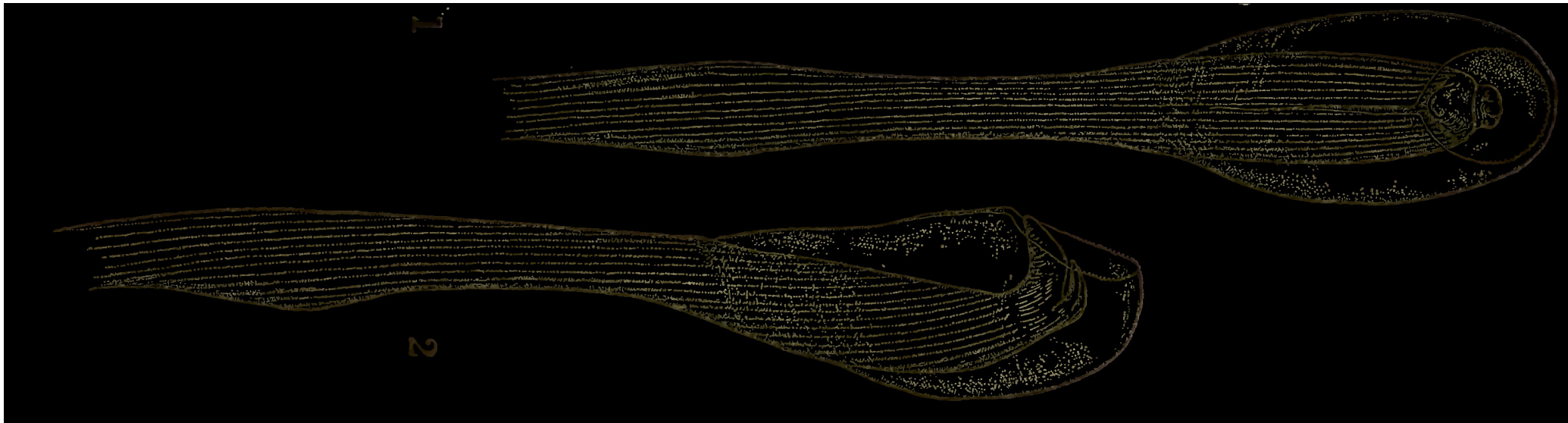
- **Generic Diagnosis** – (emended after Magalhães & Blake, 2020 and Green, 2002). *Prostomium rounded or conical, palpode present or absent; peristomium achaetous, clearly distinct from the prostomium; eyespots present in multiple spots or absent; nuchal organs present. Thorax with 13 chaetigers; achaetous segment absent; chaetiger 1 biramous; capillary chaetae only. Abdominal chaetigers with hooded hooks only in both rami; abdominal parapodial tori without expanded lobes. Branchiae retractile or nonretractable, as simple filaments or branched tufts, arising from superior edge of neuropodia on median and posterior abdominal segments. Genital pores beginning on posterior end of thorax. Lateral organs present on thorax and abdomen. Pygidium simple, without cirri.*
- **Thoracic Formula:** $^{(13c)}/_{(13c)}$

Dasybranchus

- 13 accepted species
 - *Dasybranchus bipartitus* (Schmarda, 1861); South Africa
 - *Dasybranchus caducus* (Grube, 1846); Mediterranean Sea
 - *Dasybranchus carneus* Grube, 1869
 - *Dasybranchus eisigi* Green, 2002; Andaman Sea, Thailand; 21m
 - *Dasybranchus gajolae* Eisig, 1887
 - *Dasybranchus glabrus* Moore, 1909; San Diego, CA
 - *Dasybranchus lumbricoides* Grube, 1878; Philippine Islands; intertidal – 64m
 - *Dasybranchus lunulatus* Ehlers, 1887; Florida
 - *Dasybranchus microchaetus* (Schmarda, 1861); Sri Lanka
 - *Dasybranchus parplatyceps* Kudenov, 1975; Gulf of California, Mexico; intertidal
 - *Dasybranchus platyceps* Hartman, 1947; Gulf of California, Mexico
 - *Dasybranchus rectus* Treadwell, 1901; Panama
 - *Dasybranchus serratus* Hartmann-Schröder, 1974; South Africa

Dasybranchus glabrus Moore, 1909

- Key Characters
 - Prostomium with eyespots absents
 - Thorax with capillary chaetae only
 - Branchiae present in posterior abdomen
 - 2 or 3 sausage-shaped filaments dorsal to neuropodium
- Reported by CSD from 22-114m



Dasybranchus lumbricoides Grube, 1878

- Reported by CLAEMD from Ballona Lagoon (single occurrence)
- Key Characters
 - Abdominal hooded hooks with main fang surmounted by up to 20 teeth in 3-4 rows
 - Branchiae retractile present in median and posterior segments
- Cosmopolitan distribution
 - Originally described from the Philippine Islands
 - Should probably be a local provisional

Dasybranchus sp SD1 Rowe, 2004 §??

- Reported by CSD during Bight '03 regional monitoring
- Collected from 100m
- Key Characters
 - 13 thoracic chaetigers
 - Thorax biannulated with deep furrows
- Currently on the SCAMIT hold-list pending documentation



Decamastus

- **Generic Diagnosis** – (emended after Magalhães & Blake, 2020 and Hernández-Alcántara *et al.*, 2019). Prostomium short, conical, palpode present or absent; eyespots present or absent; *peristomium achaetous, not clearly distinct from the prostomium*. Thorax with 10 chaetigers; *achaetous segment absent*; first chaetiger complete or with notopodia only; capillary chaetae only in both rami or last 1-2 thoracic chaetigers with mixed fascicles of capillaries and hooded hooks in neuropodia. Abdomen with multidentate hooded hooks in both rami. Branchiae absent. Genital pores and lateral organs not described. Pygidium simple, *without cirri*.
- **Thoracic Formula:** $^{(10c)}/_{(0+9c)}$ or $^{(10c)}/_{(8(9)c+2(1)m(e))}$



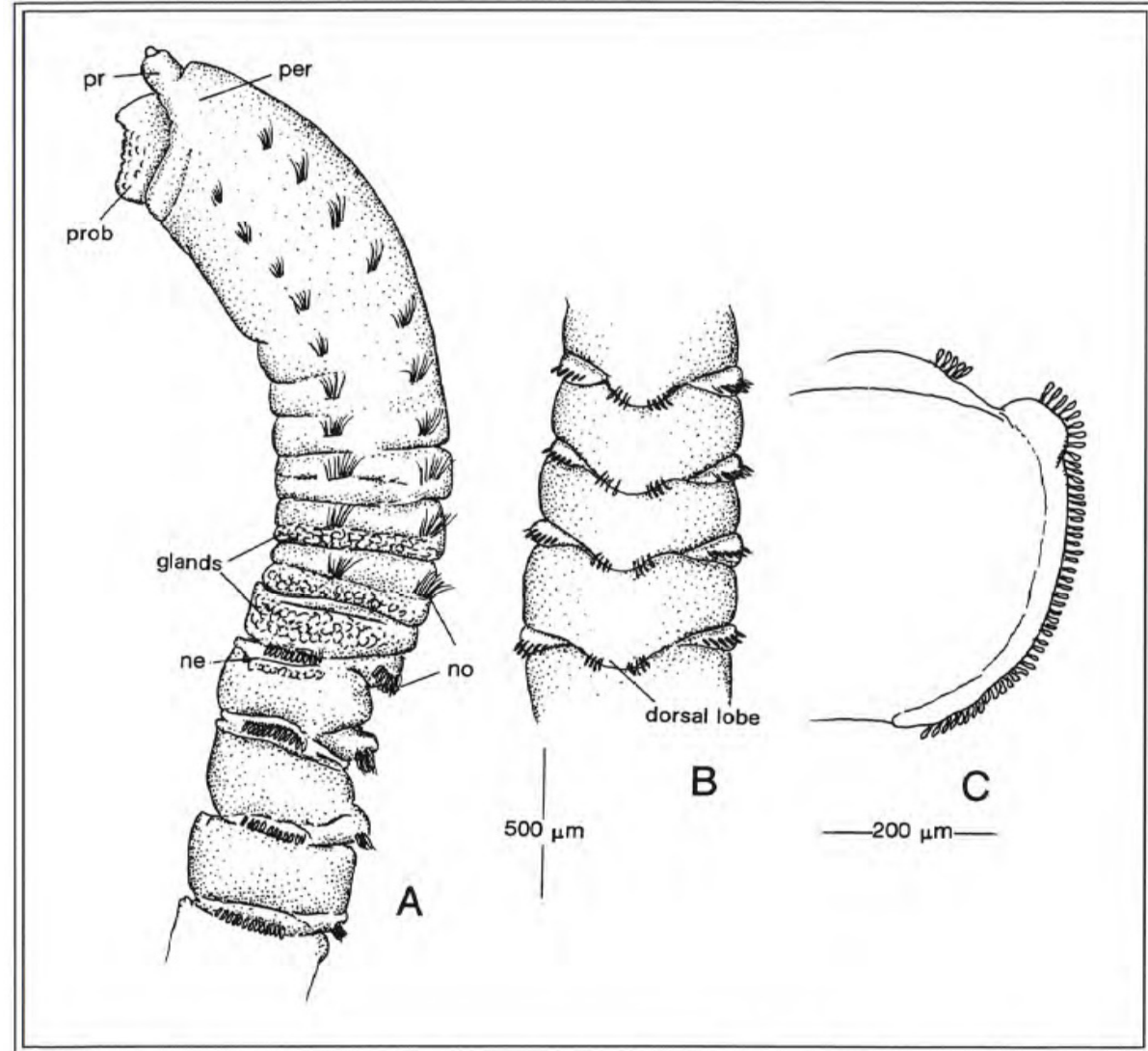
Decamastus

- 3 accepted species
 - *Decamastus gracilis* Hartman, 1963; southern CA
 - *Decamastus nudus* Thomassin, 1970; Madagascar
 - *Decamastus okuilin* Hernández-Alcántara, Solís-Weiss & García-Garza, 2019; Tiburon Island, Gulf of California, Mexico; 72m



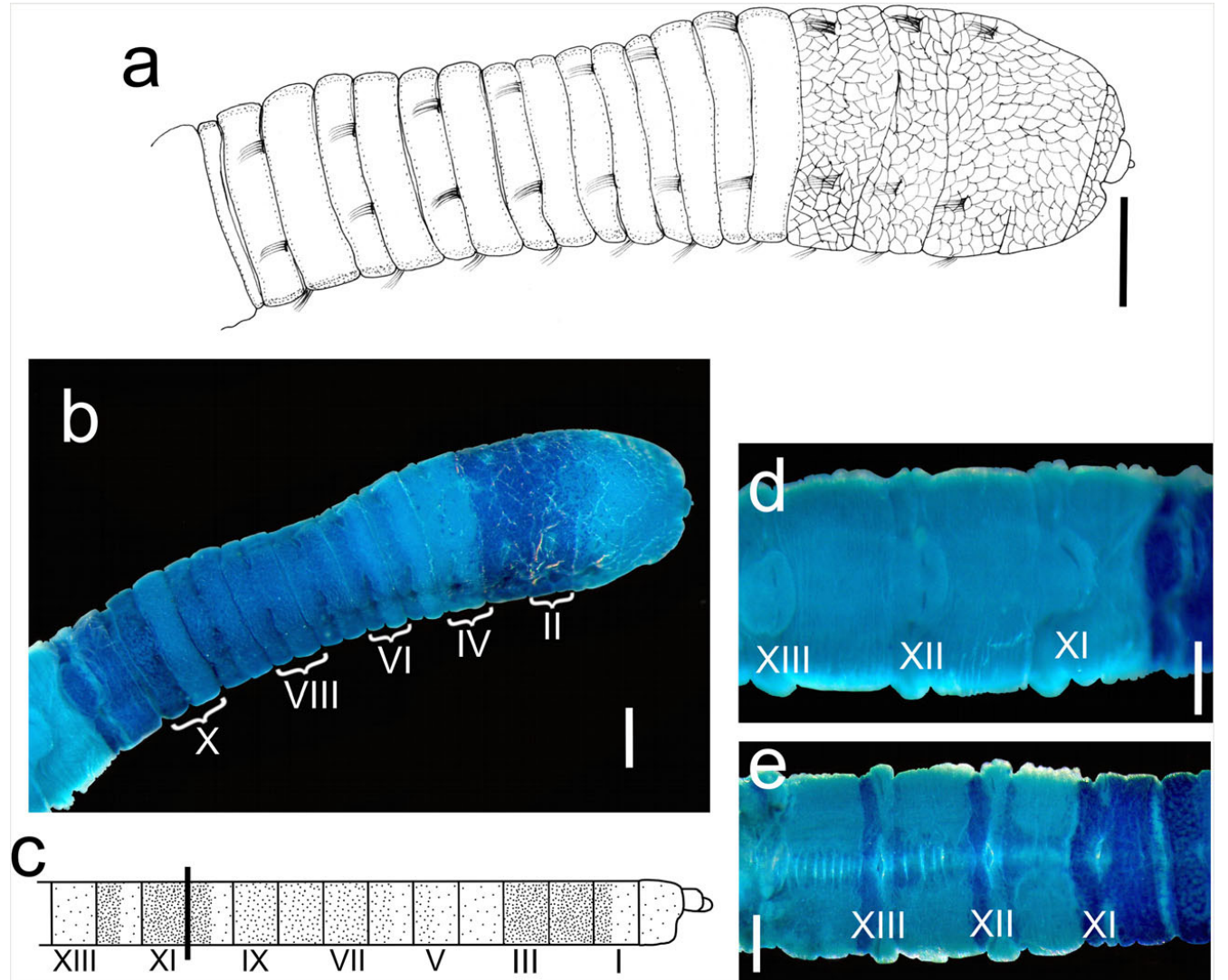
Decamastus gracilis Hartman, 1963

- Key Characters
 - Prostomium with eyespots absents
 - Thorax with capillary chaetae only
 - Thoracic formula $(^{10c}) / (8c+2e)$
 - Branchiae absent or not described
 - Pygidium unknown
- Reported by all agencies
 - 15-637m



Decamastus gracilis Hartman, 1963

- Methyl Green Stain
 - Prostomium, peristomium & 1st chaetiger w/ light stain
 - Chaetigers 2-3 w/ dark stain
 - Chaetiger 4 light stain
 - Chaetigers 5-9 moderate stain
 - Chaetiger 10 and anterior abdomen with dark stain
 - Abdomen with inter-segmental strip



Dodecamastus

- **Generic Diagnosis** – (emended after Magalhães & Blake, 2020 and Blake, 2000). Prostomium short, conical, palpode absent; eyespots absent; nuchal organs not apparent; peristomium achaetous, clearly distinct from the prostomium. Thorax with 12 chaetigers; *achaetous segment absent*; chaetiger 1 complete; chaetigers 1-10 with capillary chaetae in both rami; chaetigers 11 and 12 with hooded hooks in both rami. Abdominal chaetigers with hooded hooks only. Branchiae present, branched, superior to notopodia. Genital pores and lateral organs not described. Pygidium without appendages.

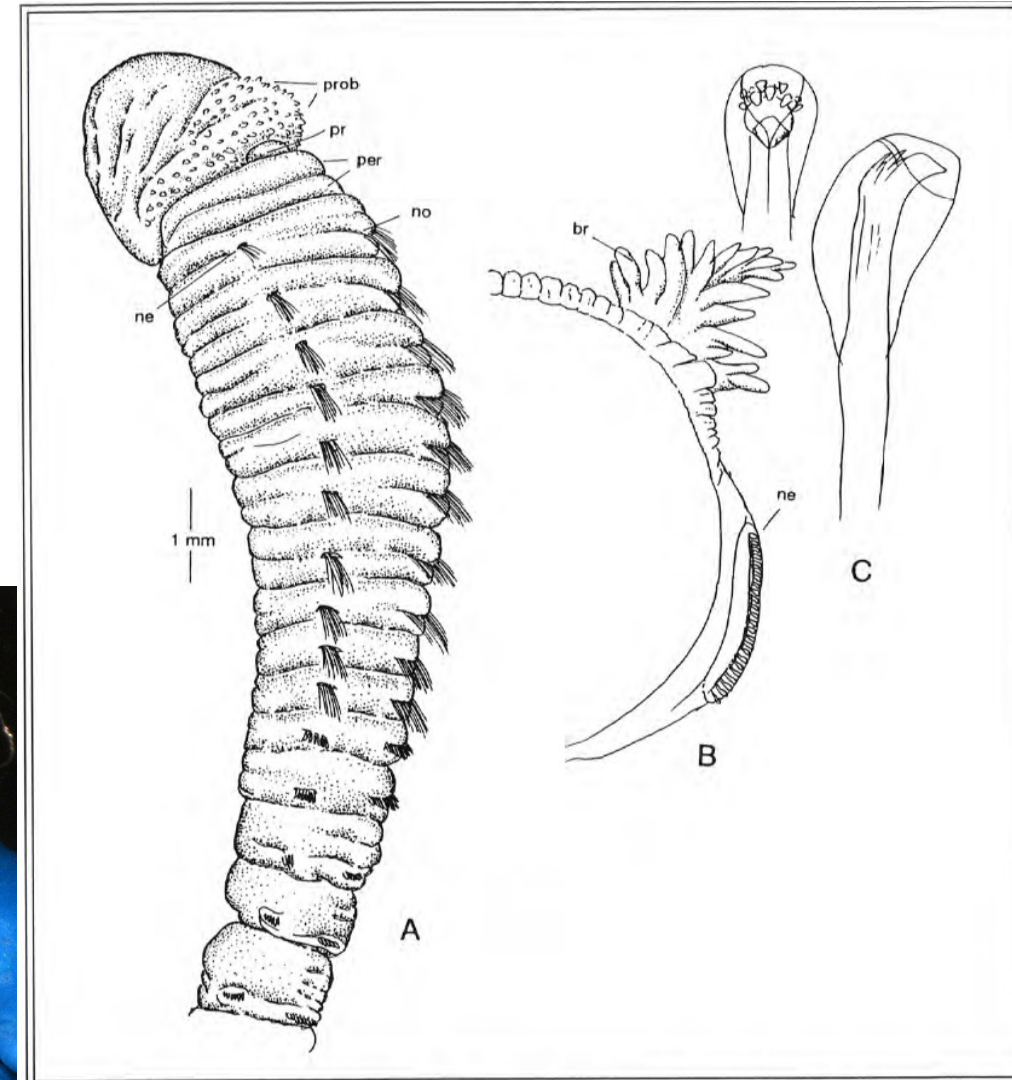
- **Thoracic Formula:** $(10c+2h)/(10c+2h)$



Dodecamastus

- 1 accepted species
 - *Dodecamastus mariaensis* Blake, 2000; Santa Maria Basin, CA; 585m
- Reported by
 - LACSD from 400-800+ m
 - CSD from 501-807m

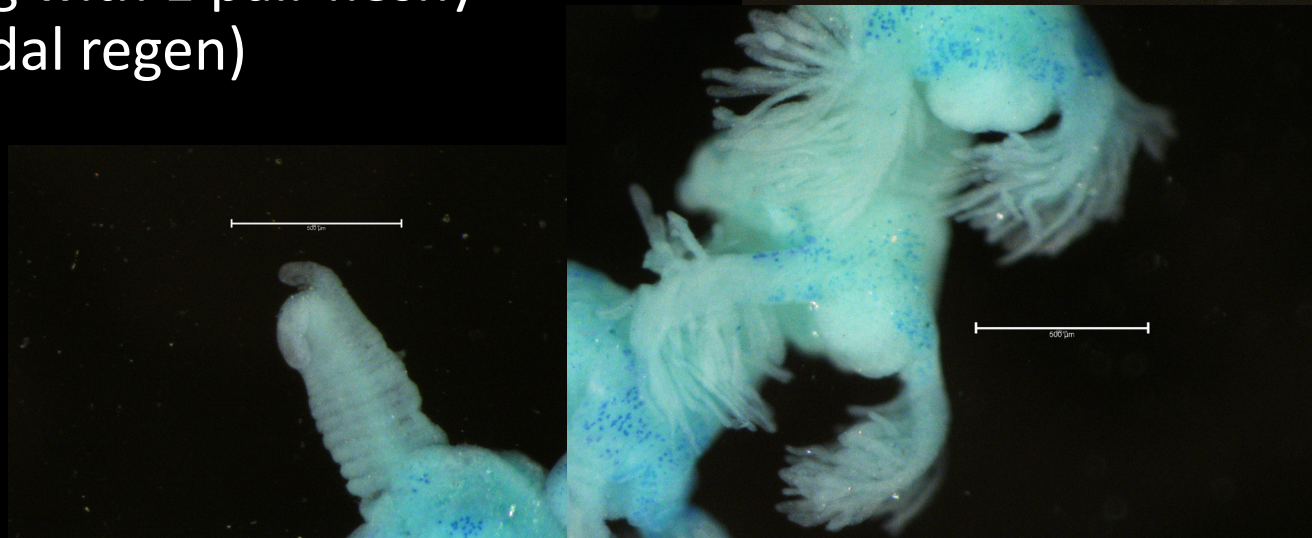
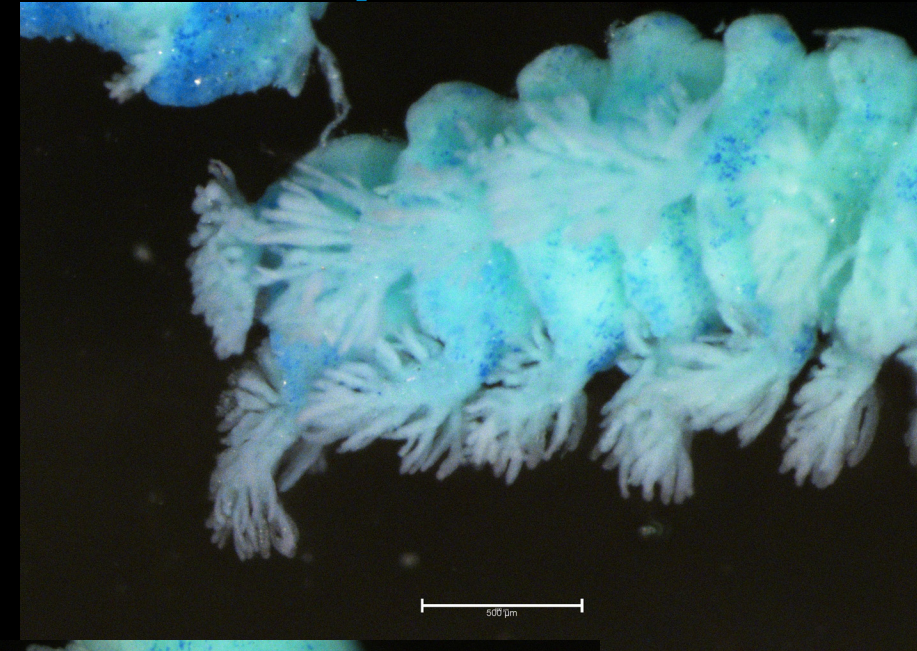
** Deep water, likely only to be encountered during Bight **



Dodecamastus mariaensis Blake, 2000

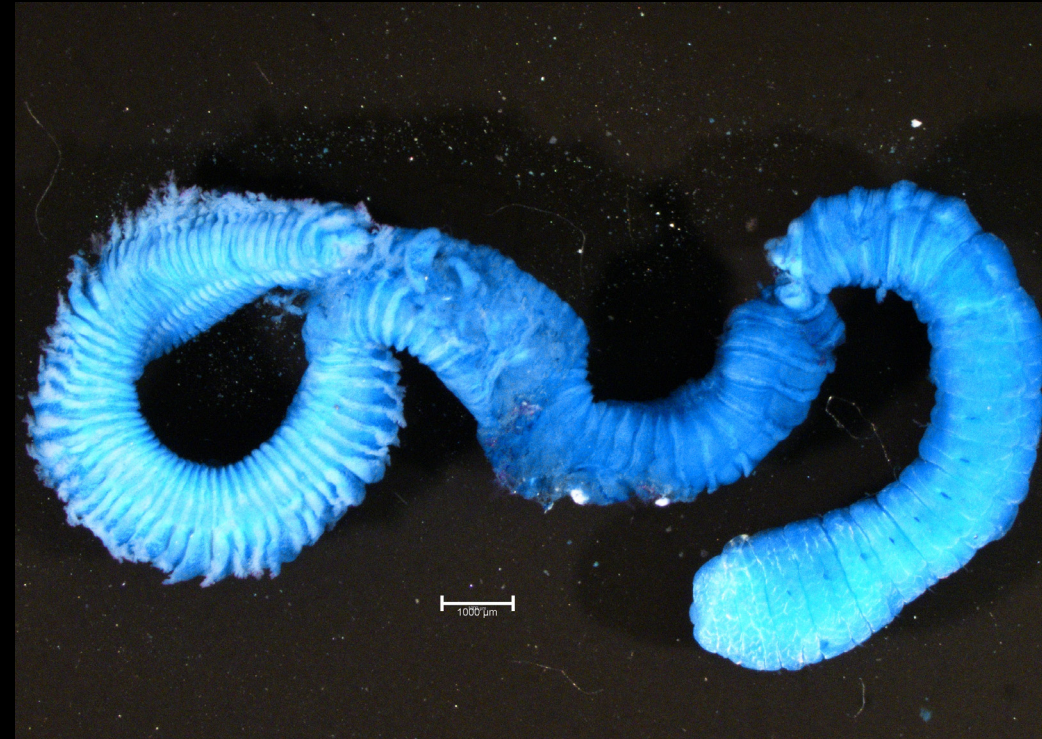
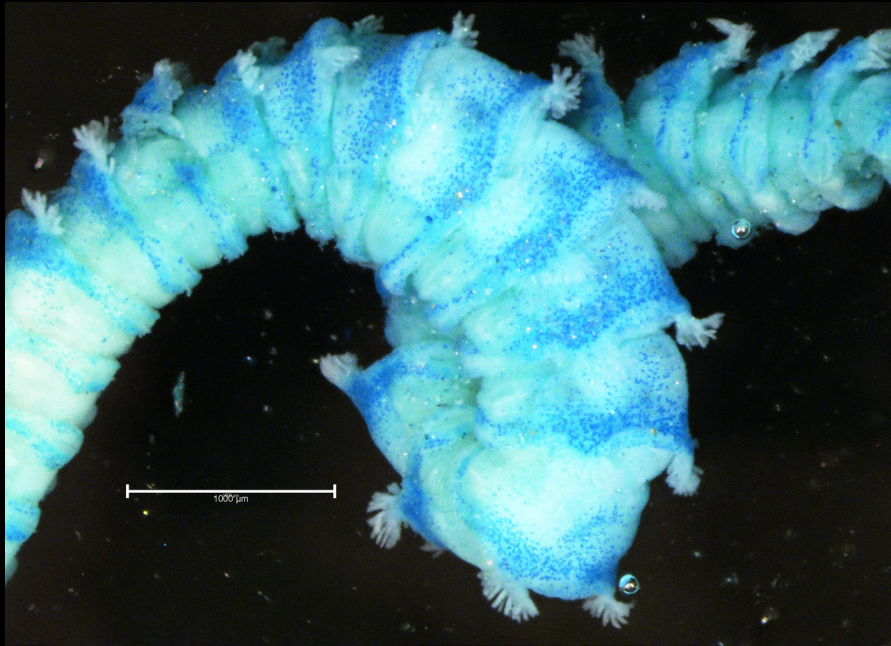
- Key Characters

- Prostomium with eyespots absents
- Thorax with capillary chaetae only
- Branchiae present from middle segments
 - Arborescent, branched structures w/ numerous filaments arising from posterior margin of segment
- Pygidium a terminal ring with 1 pair fleshy anal cirri (based on caudal regen)
 - Previously not reported



Dodecamastus mariaensis Blake, 2000

- Methyl Green Stain
 - Prostomium, peristomium & 1st chaetiger highlight reticulated cuticle
 - Chaetigers 2-11 stain uniformly
 - Chaetiger 12 staining intensely
 - Abdominal chaetigers with dark speckling around tori



Dodecamastus mariaensis Blake, 2000



Dodecamastus mariaensis
LA-3, St. QAF-02
Newport Canyon



Heteromastus

- **Generic Diagnosis** – (emended after Magalhães & Blake, 2020 and Magalhães & Bailey-Brock, 2012). Prostomium short to long, conical, sometimes tapering; palpode absent; eyespots present or absent, when present, paired; nuchal organs present; *peristomium achaetous, clearly distinct from the prostomium. Thorax with 11 chaetigers; achaetous segment absent; chaetiger 1 complete; chaetigers 1-5 with capillary chaetae in both rami; chaetigers 6-11 with long-handled hooded hooks. Abdominal chaetigers with short-handled hooded hooks only. Branchiae may be present or absent on posterior abdominal segments, when present, digitate or branched, notopodial. Genital pores on thorax from chaetigers 7-11. Lateral organs distinct on thorax and indistinct on abdomen. Pygidium with ventral caudal cirrus.*

- **Thoracic Formula:** $(5c+6h)/(5c+6h)$

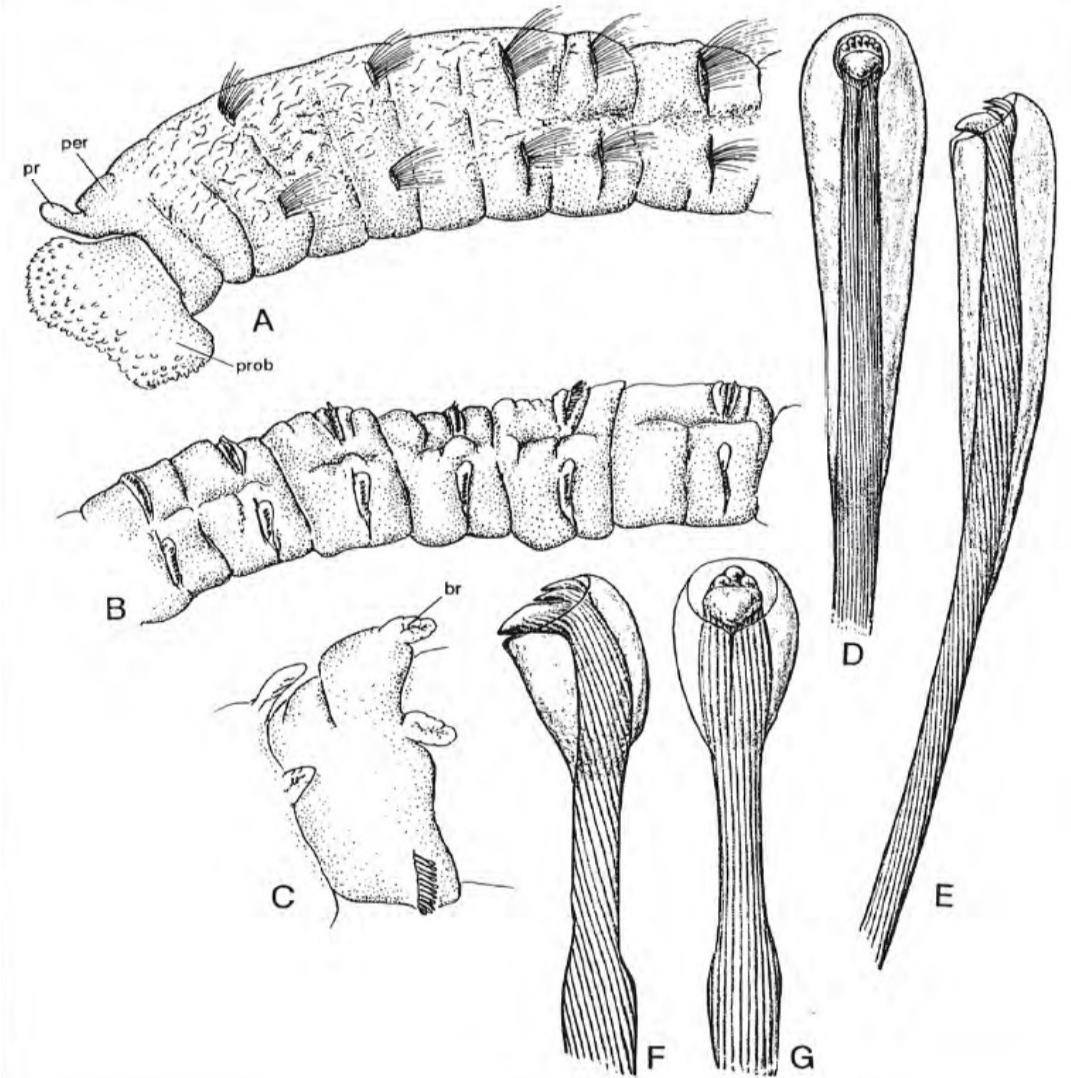


Heteromastus

- 10 accepted species
 - *Heteromastus caudatus* (Hartman, 1976); Arabian Sea
 - *Heteromastus filiformis* (Claparède, 1864); Mediterranean Sea
 - Redescribed by Hutchings & Rainer (1982) but from a non-type locality
 - Reported by SCAMIT as *Heteromastus filiformis Cmplx*
 - *Heteromastus filibranchus* Berkeley & Berkeley, 1932; British Columbia, Canada
 - *Heteromastus giganteus* Zachs, 1933; Sea of Japan
 - *Heteromastus gusipoensis* Jeong, Soh & Suh, 2019; South Korea; intertidal
 - *Heteromastus hutchingsae* Green, 2002; Andaman Sea, Thailand; 20-61m
 - *Heteromastus koreanus* Jeong, Soh & Suh, 2019; South Korea; intertidal
 - *Heteromastus namhaensis* Jeong, Soh & Suh, 2019; South Korea; 34m
 - *Heteromastus similis* Southern, 1921; Chilka Lake, India
 - *Heteromastus tohbaiensis* Yabe & Mawatari, 1998; Hokkaido, Japan; subtidal

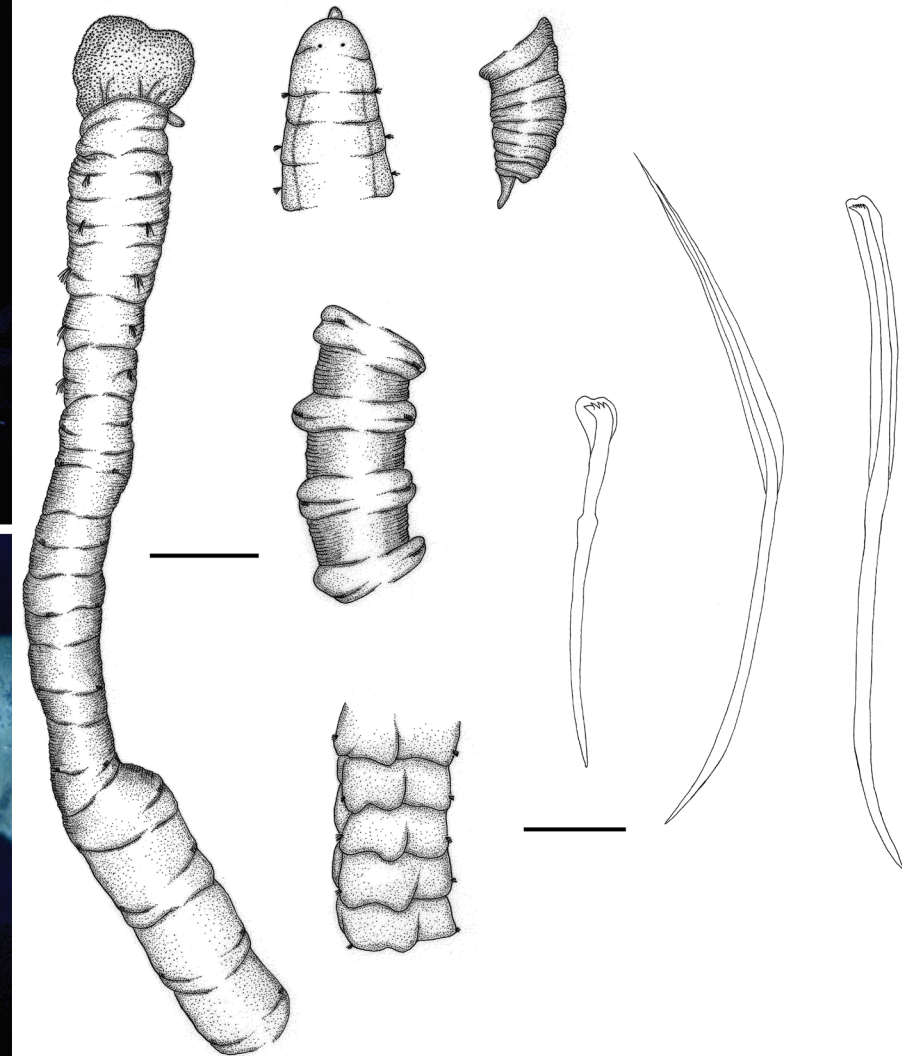
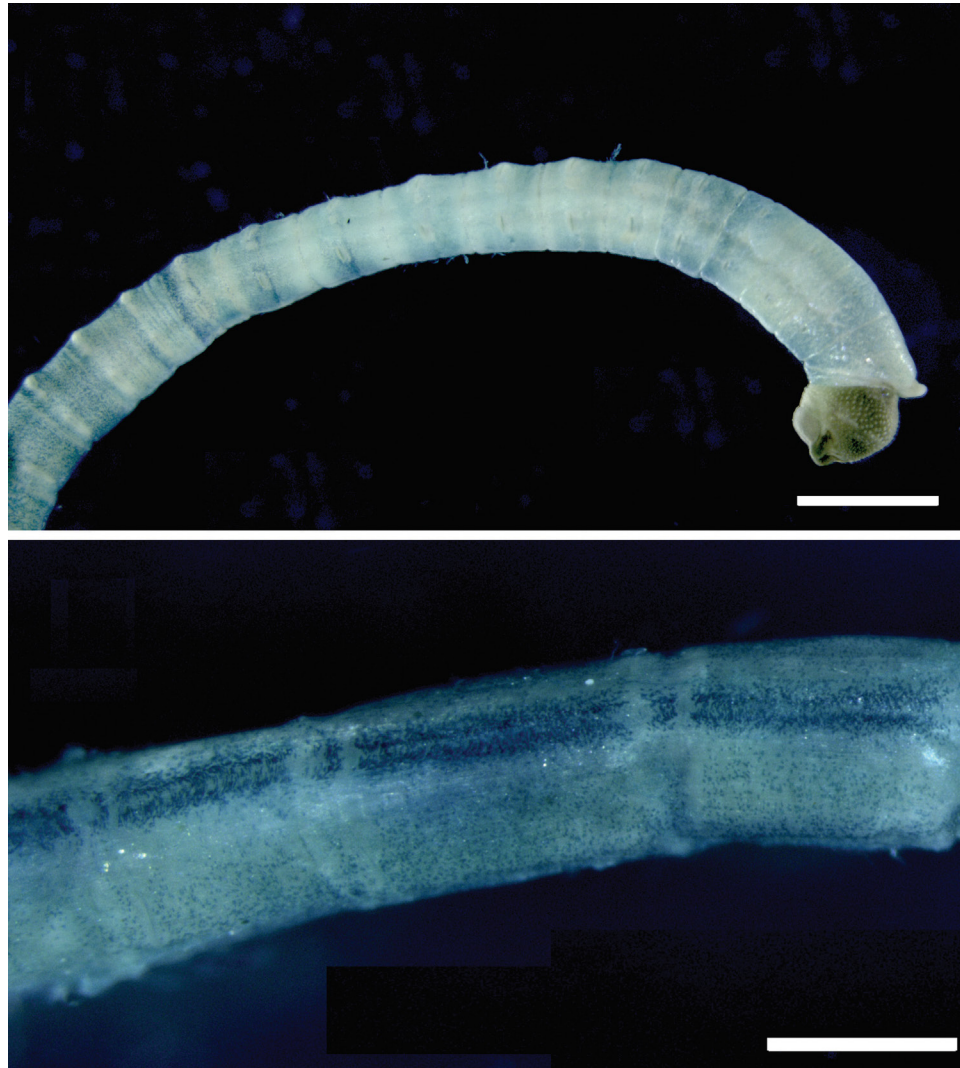
Heteromastus filiformis (Claparède, 1864)

- **Key Characters** (from Hutchings & Rainer, 1982 [redescription])
 - Prostomium with eyespots absents
 - Abdominal hooded hooks with 11-15 teeth in 3 rows above main fang
 - Branchiae present from middle segments
 - Short, broadly-based, rounded lamellae
 - Pygidium unknown
- **Methyl Green Stain** (from Blake, 2000)
 - Prostomium, peristomium unstained
 - Thoracic chaetigers stain solidly green, with chaetigers 5-9 most intense
 - Abdominal chaetigers with speckle band mid-ventrally on posterior ½ of segment



Heteromastus filiformis (Claparède, 1864)

Images from Korean material shows individuals possessing eyes (far right) and a much different stain pattern than what was described by Blake (2000) from California material. The thorax should be solidly stained rather than banded (top right) and the mid-ventral stripes should only occupy the posterior ½ of the segment rather than all of it (bottom right).



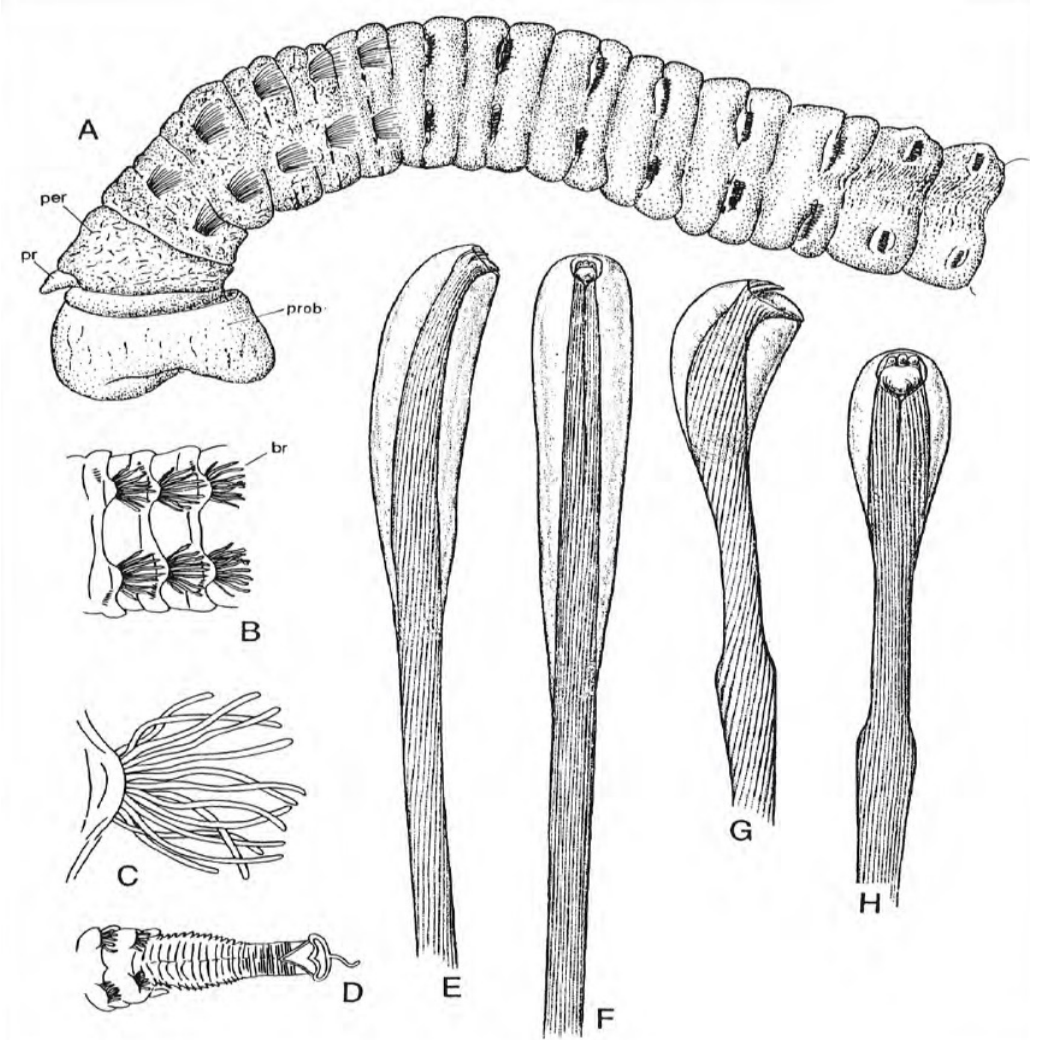
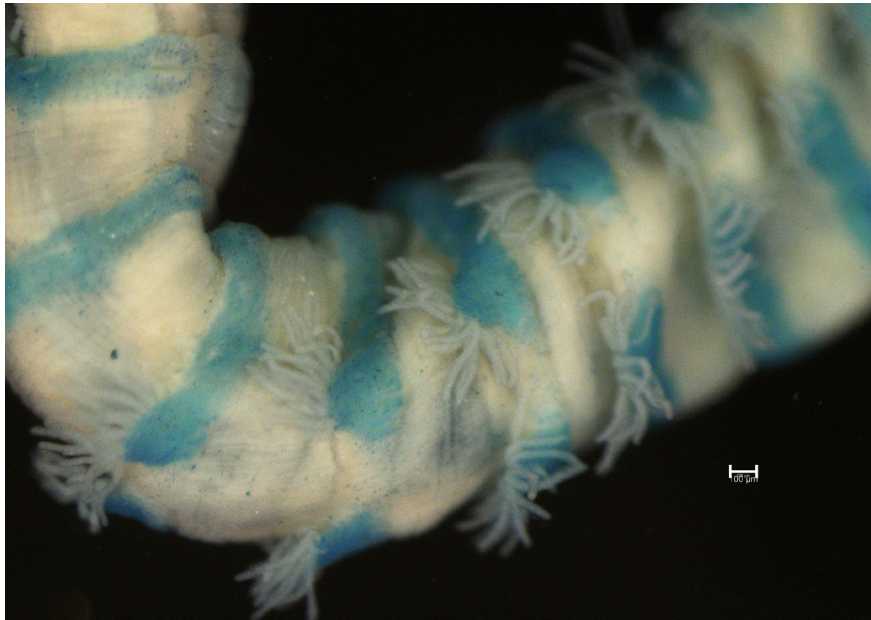
Heteromastus filiformis (Claparède, 1864)

Comments

- While the species was re-described in 1982 and a neotype selected, the material came from a non-type location within the Mediterranean Sea.
 - Type: Port-Vendres, France
 - Neotype: Alexandria, Egypt
 - 1,664 miles apart
 - Would be like selecting a neotype from southern Alaska for a species described from San Diego
- Morphological and stain differences from Korean material show that this is a species complex, not cosmopolitan distribution
 - California material is different and should be given a provisional designation

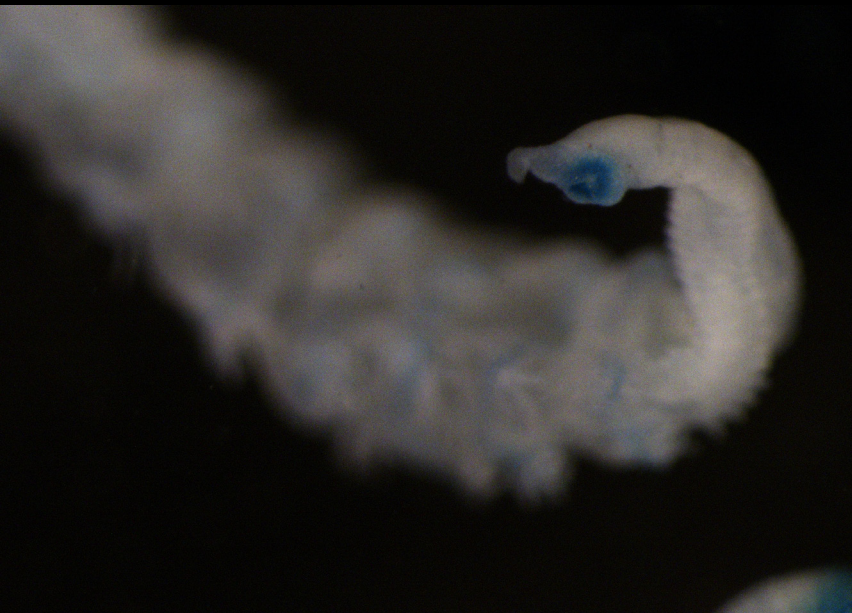
Heteromastus filobranchus Berkeley & Berkeley, 1932

- Key Characters
 - Prostomium with eyes absent
 - Branchiae filiform, up to 16 filaments, from chaetiger 30-50
 - Pygidium with terminal filament



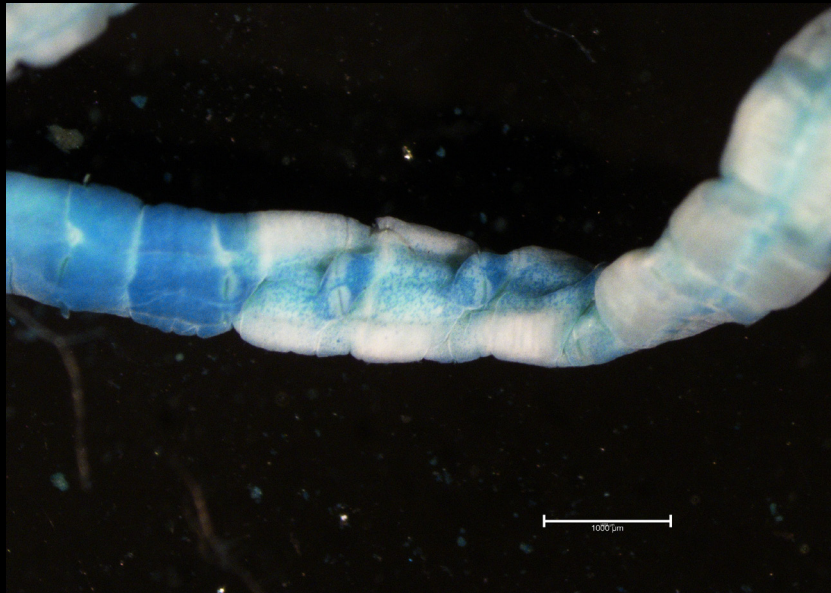
Heteromastus filobranchus Berkeley & Berkeley, 1932

- Methyl Green Stain
 - Peristomium and thorax staining uniformly
 - Anterior abdominal chaetigers with speckles around parapodial lobes
 - Pygidial ring staining, not the filament



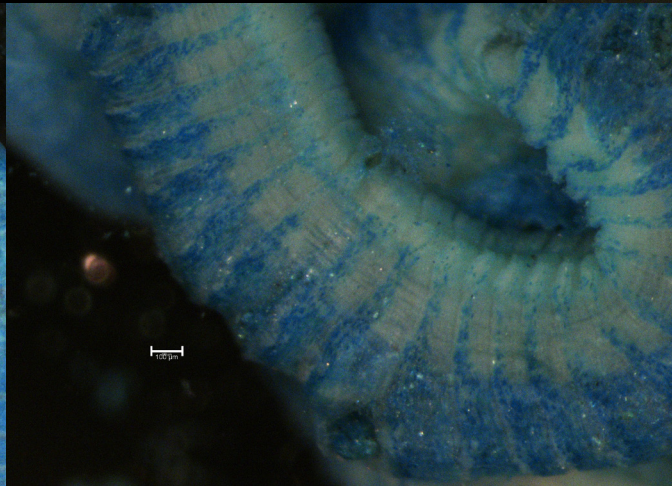
Heteromastus filobranchus Berkeley & Berkeley,

- Methyl Green Stain
 - Anterior abdomen sometimes retaining stain dorsally



Heteromastus filobranchus Berkeley & Berkeley, 1932

- Reported by
 - CLAEMD from 11-151m
 - LACSD from 30-600m
 - Prior to 2003, reported 50+ per survey
 - After 2003, reported 2-10 per survey
 - Not reported since 2016
 - OCSD (1 occurrence)
 - CSD from 20-438m

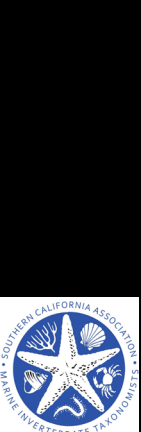
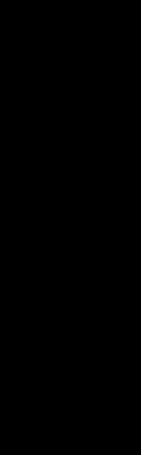


*2003 LACSD switched to full secondary Treatment at JWPCP

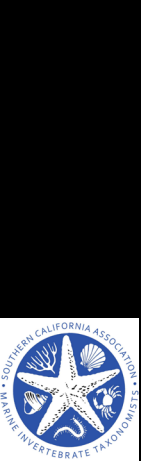
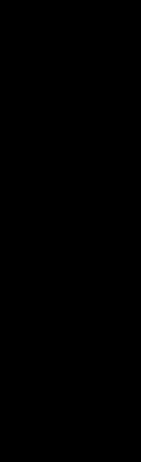
Heteromastus sp LH1 Harris, 20?? §

- Collected from LA-3 Dump site, Station QAF-07, ~450m
 - Newport Canyon, CA
- 11 thoracic chaetigers; 5 w/ capillary notochaetae
- Filiform branchiae in abdomen from chaetigers 55-100
 - Up to 8 filaments
- Methyl Green Stain
 - Thorax staining uniformly
 - Anterior abdomen with dorsal half of each segment dark, forming a continuous stripe down body
 - Posterior margins with dark spots

Heteromastus sp LH1 Harris, 20?? §

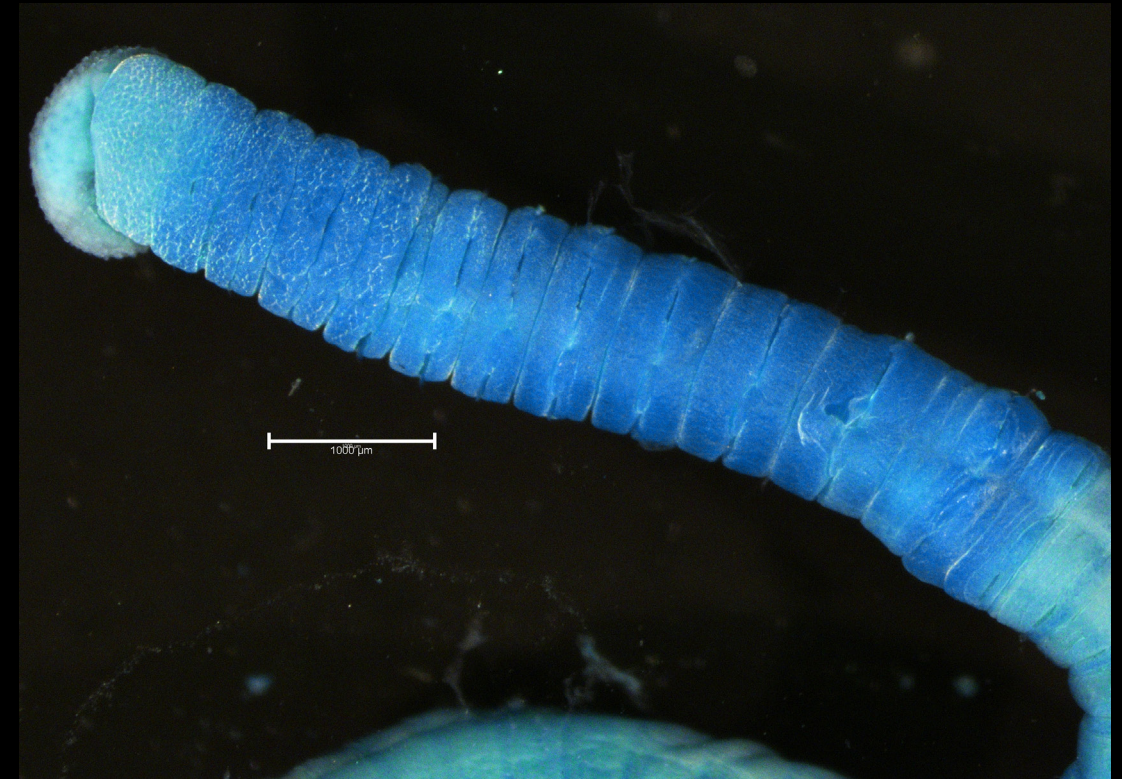
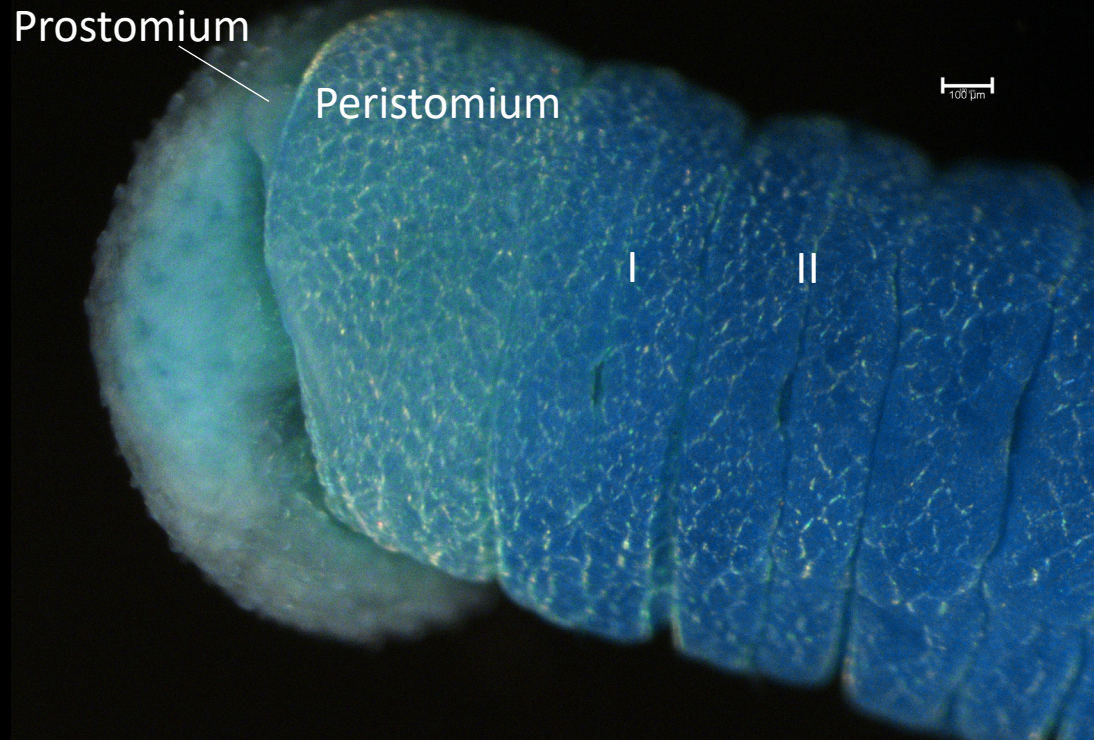


Heteromastus sp LH1 Harris, 20?? §



Heteromastus sp LA3 Haggin, 2023 §

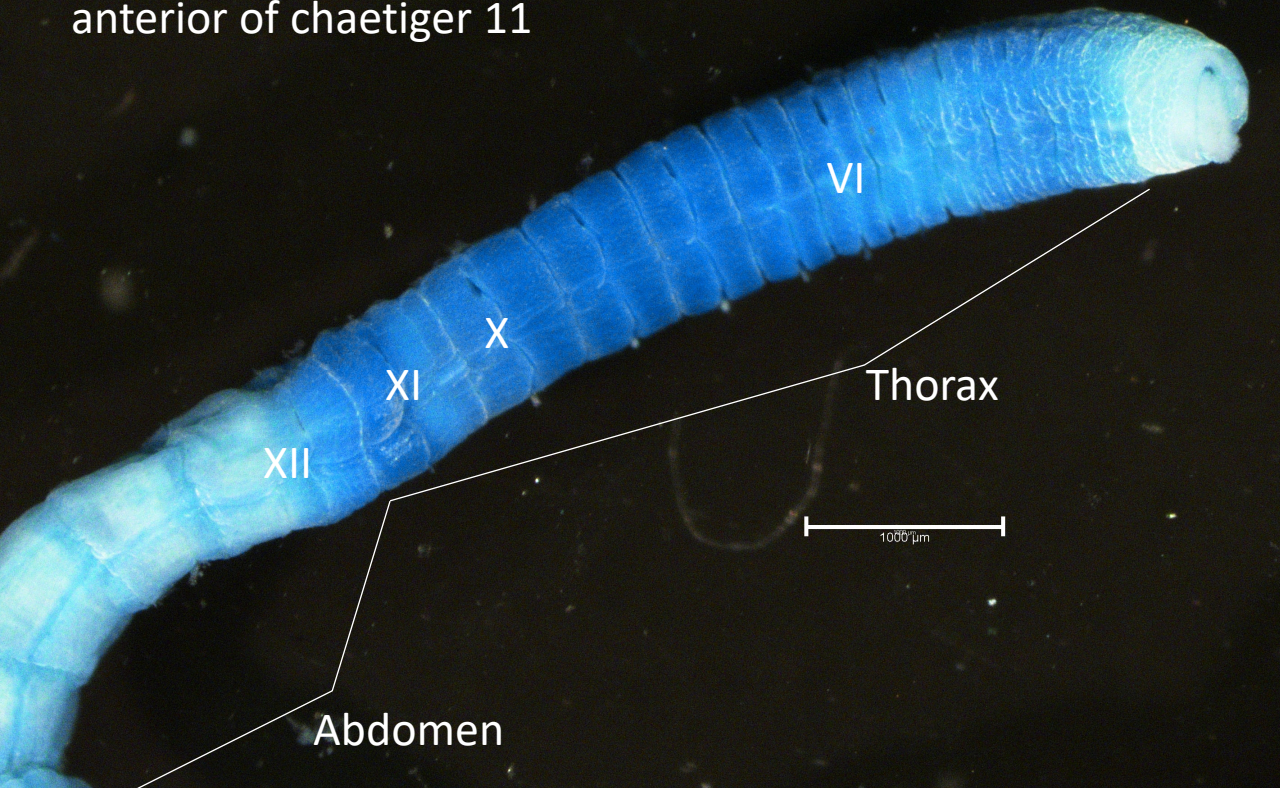
Erected provisional species to contain NEP *Heteromastus filiformis*



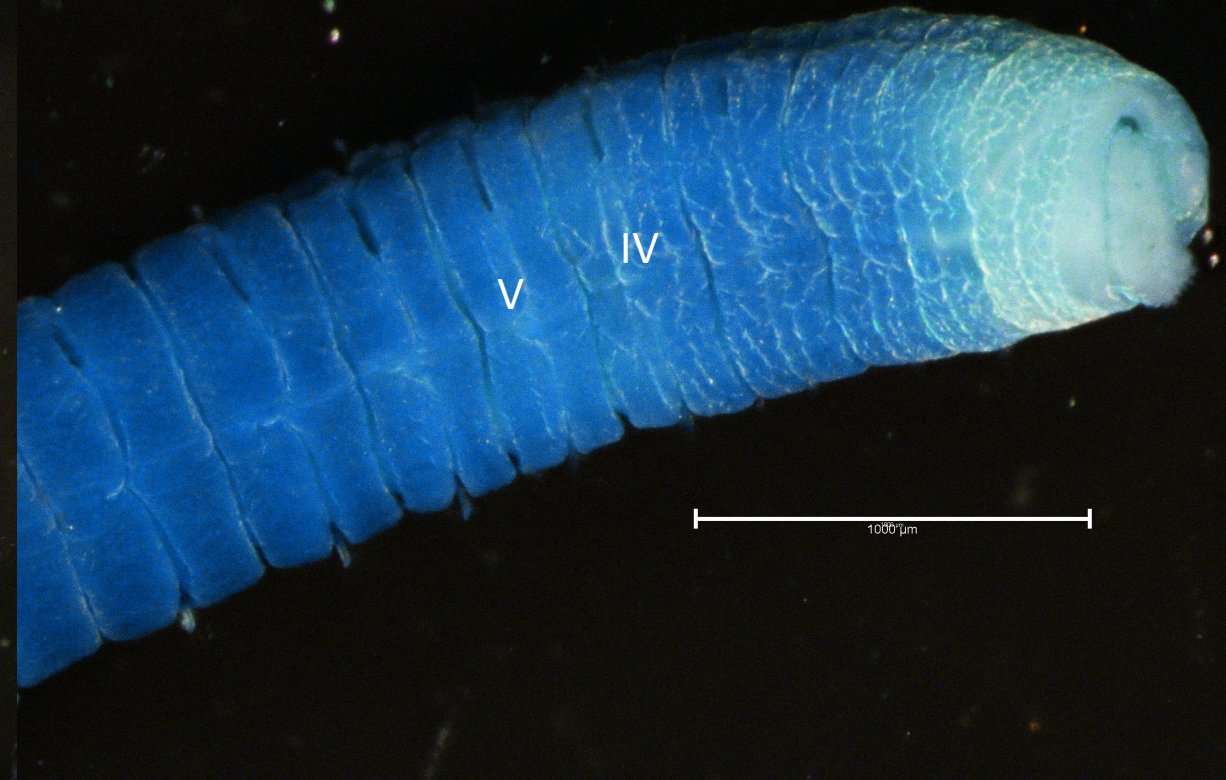
Heteromastus sp LA3 Haggin, 2023 §

Erected provisional species to contain NEP *Heteromastus filiformis*

- Prostomium and Peristomium not staining
- Thoracic stain darkest chaetigers 6-11, with lighter band on anterior of chaetiger 11

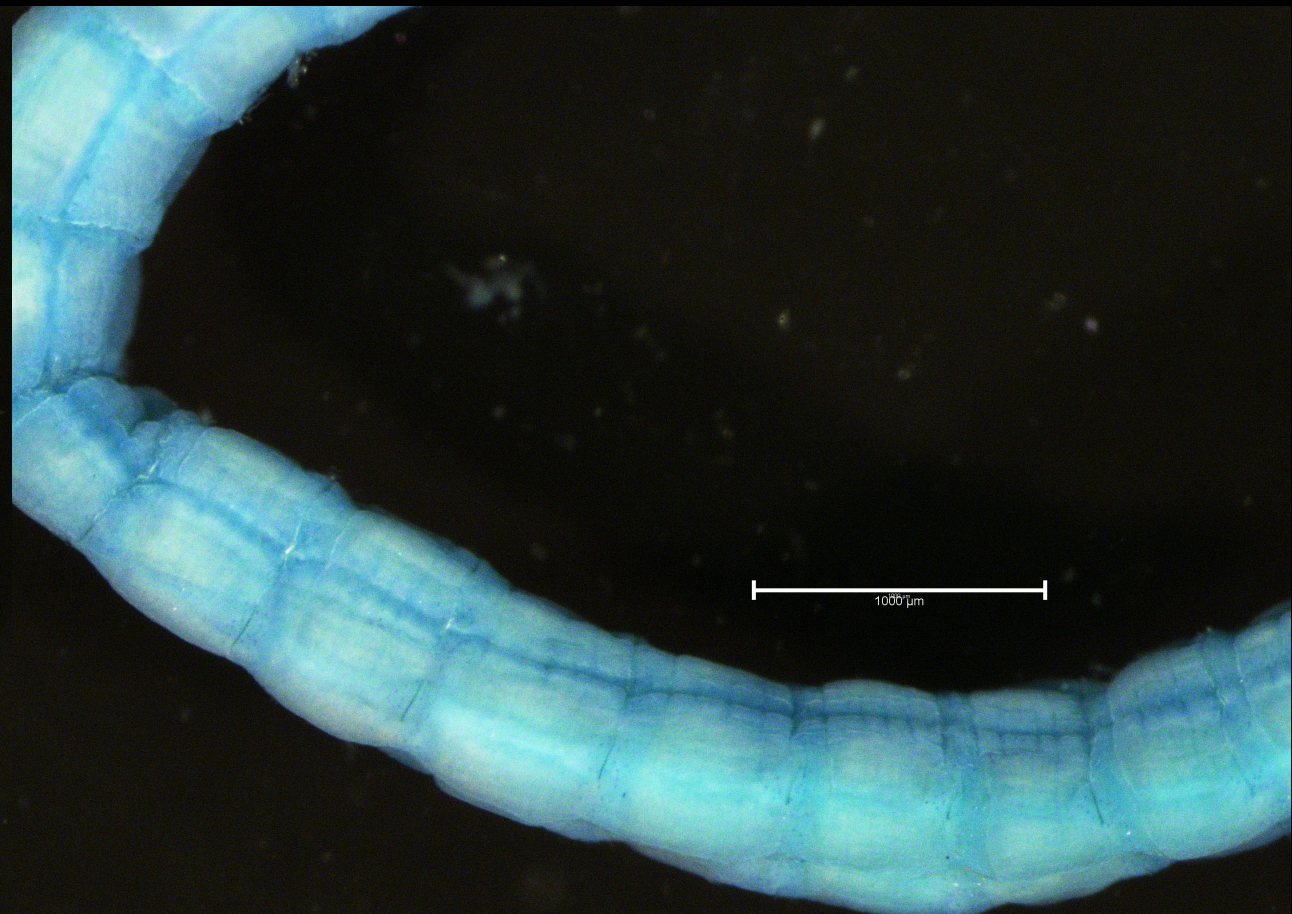


- Thorax areolated thru chaetiger 4, not inflated



Heteromastus sp LA3 Haggin, 2023 §

Erected provisional species to contain NEP *Heteromastus filiformis*



- Abdomen with inter-segmental banding
 - ventral ½ stripe described by Blake (2000) for NEP material not observed

Heteromastus sp MEC1 ??

- Collected during Bight '03
- Currently on the SCAMIT hold-list pending documentation



Leiochrides

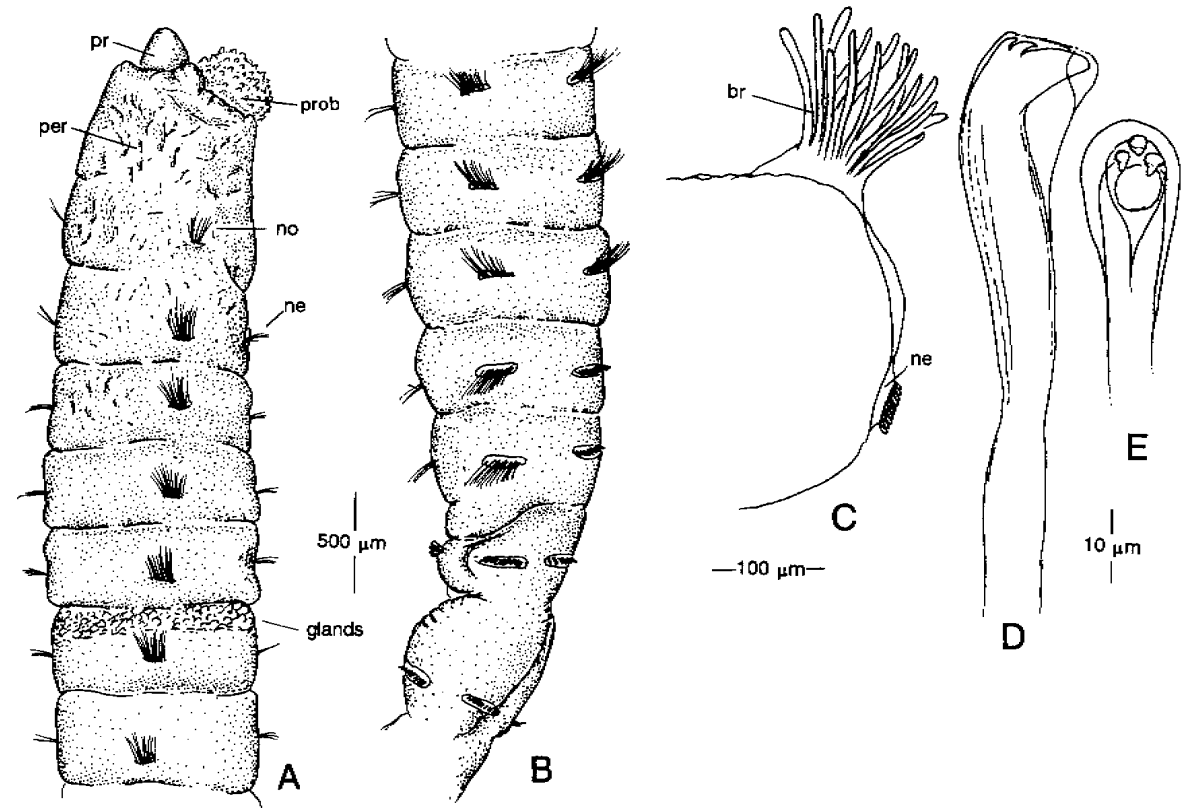
- **Generic Diagnosis** – (emended after Jeong *et al.*, 2017). Prostomium rounded to conical; peristomium achaetous. Thorax with 12 chaetigers; *achaetous segment absent*; chaetigers 1-10 with capillary chaetae in both rami; chaetigers 11-12 with capillary chaetae in both rami or with capillaries in notopodia and hooded hooks in neuropodia. Abdominal chaetigers with hooded hooks only. Parapodia reduced. Retractable branchiae present or absent.
- **Thoracic Formula:** $(12c)/(10c+2e)$

Leiochrides

- 11 accepted species
 - *Leiochrides africanus* Augener, 1918; Congo
 - *Leiochrides andamanus* Green, 2002; Andaman Sea, Thailand; 45m
 - *Leiochrides australis* Augener, 1914; Western Australia
 - *Leiochrides biceps* Hartman, 1954; northern Marshall Islands
 - *Leiochrides branchiatus* Hartman, 1976; Bay of Bengal, India; 15-20m
 - *Leiochrides deltaicus* (Capaccioni-Azzati & Martin, 1992); Mediterranean Sea
 - *Leiochrides guangxiensis* Lin, García-Garza, Lin & Wang, 2020; Beibu Gulf, China; 12m
 - *Leiochrides hemipodus* Hartman, 1960; southern California; shelf & slope, deep basins
 - *Leiochrides norvegicus* Fauchald, 1972; Sognefjorden, Norway; 1272m
 - *Leiochrides pallidior* (Chamberlin, 1918); Pacific Grove, California
 - *Leiochrides yokjidoensis* Jeong, Wi & Suh, 2017; Yokjido, South Korea; 53m

Leiochrides hemipodus Hartman, 1960

- Key Characters
 - Prostomium with eyespots absents
 - Chaetiger 1 incomplete, notochaetae only
 - Neurochaetae of chaetiger 11 with either capillaries or hooded hooks
 - Neurochaetae of chaetiger 12 with hooded hooks
 - Branchiae present from middle segments
 - Palmately branched, arising from notopodial region
 - Notochaetae absent from chaetigers with branchiae
 - Pygidium simple, with 2 lobes
- Thoracic Formula $(^{12c}) / (0+9c+1e+1h)$
- Methyl Green Stain
 - Distinct, dense speckled pattern on all thoracic chaetigers
 - Chaetiger 6 with smooth, green band on anterior border
 - Remainder of body not staining



Leiochrides hemipodus Hartman, 1960

- Methyl Green Stain

- Distinct, dense speckled pattern on all thoracic chaetigers
- Chaetiger 6 with smooth, green band on anterior border
- Remainder of body not staining

LA-3 Dump Site, Station QAF-01
Newport Canyon, CA
Collected 2015



Leiochrides sp A Harris, 1985

- Key Characters (from SCAMIT 3(11))
 - Chaetiger 1 incomplete, notochaetae only
 - Last 2 thoracic chaetigers with hooks in neuropodia
 - Palmate branchiae present in posterior abdomen; dorsally situated
- Methyl Green Stain not described
- Deep water 600-1000m
- Description is very much like *Leiochrides hemipodus*
 - Should be added as a synonym in Ed. 15?



Leiochrides pallidior (Chamberlin, 1918)

- From Blake (2000)
 - ... *L. pallidior* (Chamberlin, 1918) from Pacific Grove, California (referred to this genus by Hartman, 1947 by a process of elimination), ...
 - Chamberlin's species should be considered *incertae sedis* because it was incompletely described and not illustrated



Mediomastus

- **Generic Diagnosis** – (emended after Magalhães & Blake, 2020 and Green, 2002). Body small, thread-like. *Prostomium conical, palpode present; eyespots present or absent, when present, in multiple spots; peristomium achaetous*, clearly distinct from the prostomium. Proboscis papillated. Thorax with 9-11 chaetigers, usually 10; *achaetous segment absent*; chaetigers 1-4 with capillary chaetae in both rami; remaining thoracic chaetigers with long-handled hooded hooks; sometimes paddlelike chaetae may be present in thoracic chaetigers. Thorax not clearly demarcated from the abdomen. Abdominal chaetigers with short-handled hooded hooks in both rami; occasionally with capillary chaetae in notopodia of far posterior abdominal chaetigers. Branchiae absent. Genital pores in three pairs from chaetigers 7-8 or 8-9 but difficult to observe. Lateral organs present on thorax and inconspicuous in abdomen. Pygidium terminal with mid-ventral caudal cirrus.
- **Thoracic Formula:** $(4c+6(5-7)h) / (4c+6(5-7)h)$

Mediomastus

- 14 accepted species (usually reported by SCAMIT as *Mediomastus sp.*)
 - *Mediomastus acutus* Hartman, 1969; off Ventura, CA; 7m
 - *Mediomastus ambiseta* (Hartman, 1947); Newport Bay, CA
 - *Mediomastus australiensis* Warren, Hutchings & Doyle, 1994; New South Wales, Australia
 - *Mediomastus californiensis* Hartman, 1944; Tomales Bay, CA; intertidal
 - *Mediomastus calliopensis* Warren, Hutchings & Doyle, 1994; Queensland, Australia
 - *Mediomastus capensis* Day, 1961; South Africa
 - *Mediomastus chinensis* Lin, Wang & Zheng, 2018; China
 - *Mediomastus deductus* (Pillai, 1961); Sri Lanka
 - *Mediomastus duobalteus* Tomioka, Nishi & Kajihara, 2014; Tokyo Bay, Japan; 5m
 - *Mediomastus fragilis* Rasmussen, 1973; Denmark
 - *Mediomastus hanedaensis* Tomioka, Nishi & Kajihara, 2014; Tokyo Bay, Japan
 - *Mediomastus opertaculeus* Tomioka, Hiruta & Kajihara, 2013; Hokkaido, Japan; intertidal
 - *Mediomastus thomassini* Warren, Hutchings & Doyle, 1994; Madagascar
 - *Mediomastus warrenae* Green, 2002; Andaman Sea, Thailand; 17-61m
- 1 Provisional Species
 - *Mediomastus sp A* SCAMIT, 2015 §; southern CA; 9-30m

Mediomastus acutus Hartman, 1969

- Key Characters

- Prostomium with eyespots present or absent
- Chaetiger 1 complete
- Notopodial hooded hooks of chaetigers 8-10 with modified spine-like hooded hooks (paddle-like according to Warren *et al.*, 1994)
 - Only visible under SEM, otherwise appear as bidentate
- Neurochaetae of chaetiger 12 with hooded hooks

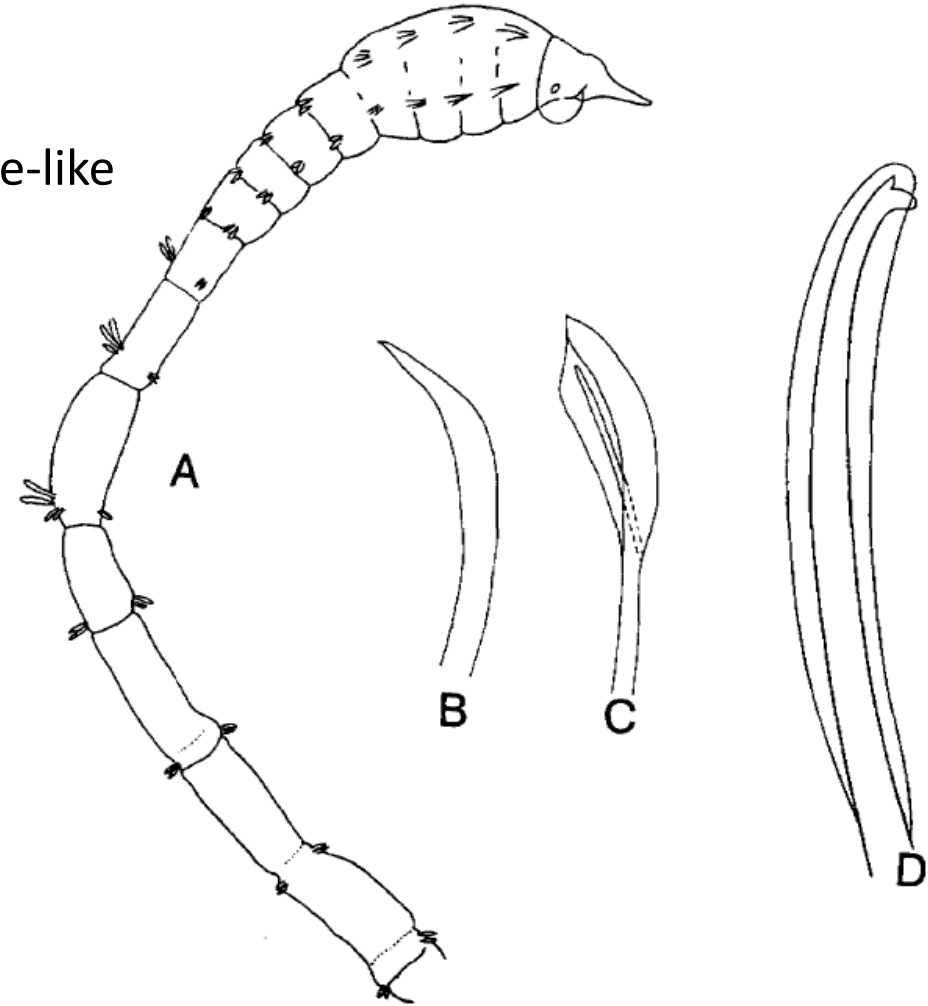
- Thoracic Formula $(4c+3h+3p)/(4c+6h)$

- Methyl Green Stain (from Blake, 2000)

- Prostomium thru chaetiger 5 not retaining stain
- Chaetiger 6-9 and most of 10 staining intensely
- Abdomen with speckles of stain around parapodial tori
 - Also along midventral line in larger individuals

- Reported by:

- CLAEMD from 15m
- LACSD from 30m
- OCSD from 57m
- CSD from 7-116m



Mediomastus acutus Hartman, 1969

- Methyl Green Stain (from Blake, 2000)
 - Prostomium thru chaetiger 5 not retaining stain
 - Chaetiger 6-9 and most of 10 staining intensely
 - Abdomen with speckles of stain around parapodial tori
 - Also along midventral line in larger individuals



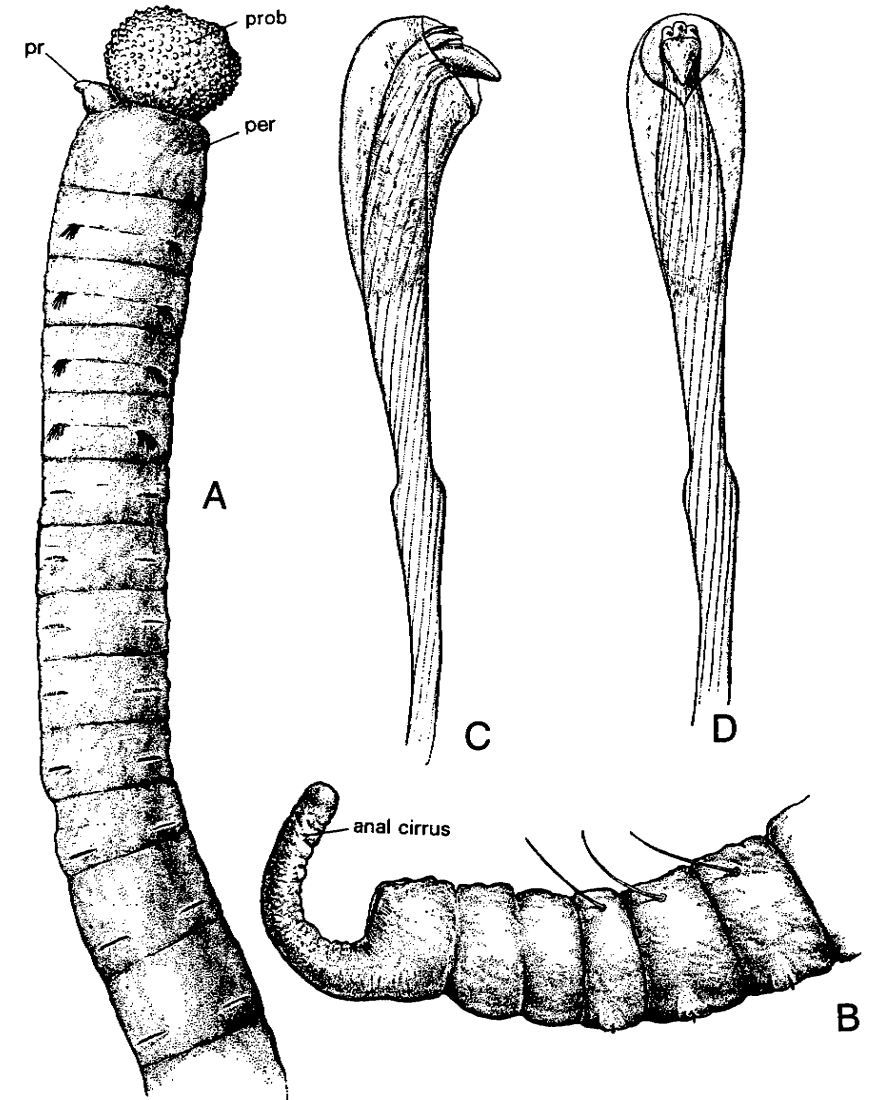
Mediomastus ambiseta (Hartman, 1947)

- Key Characters

- Prostomium with eyespots absent
- Chaetiger 1 complete
- Thoracic hooded hooks long handled
- Abdominal hooded hooks short handled
- Posterior abdominal notopodia with capillary chaetae only, hooks absent

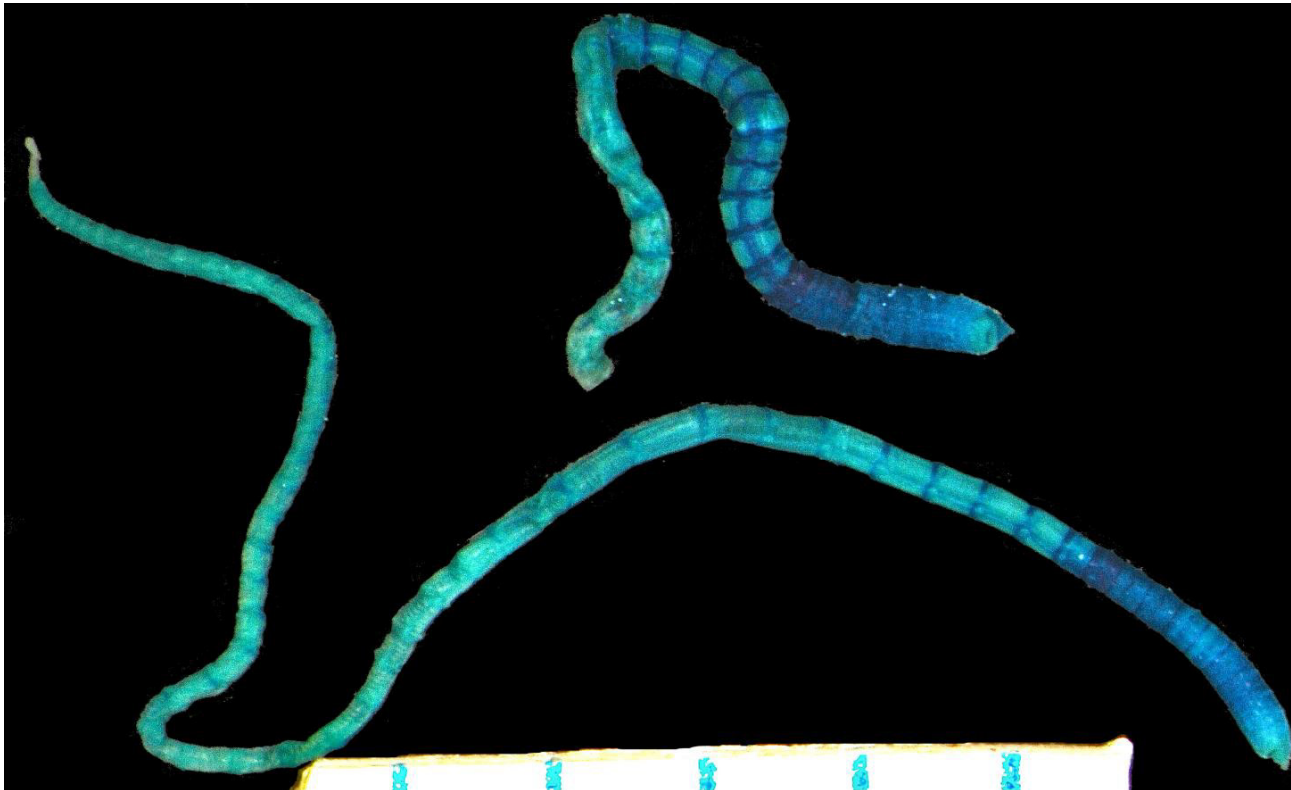
- Thoracic Formula $(4c+6h) / (4c+6h)$

- Reported by CSD from 80-116m



Mediomastus ambiseta (Hartman, 1947)

- Methyl Green Stain (from Blake, 2000)
 - Prostomium, peristomium & chaetiger 1 unstained
 - Thorax staining darkly from chaetiger 2-9
 - Chaetiger 9 most intense
 - Abdominal chaetigers staining weakly



Mediomastus californiensis Hartman, 1944

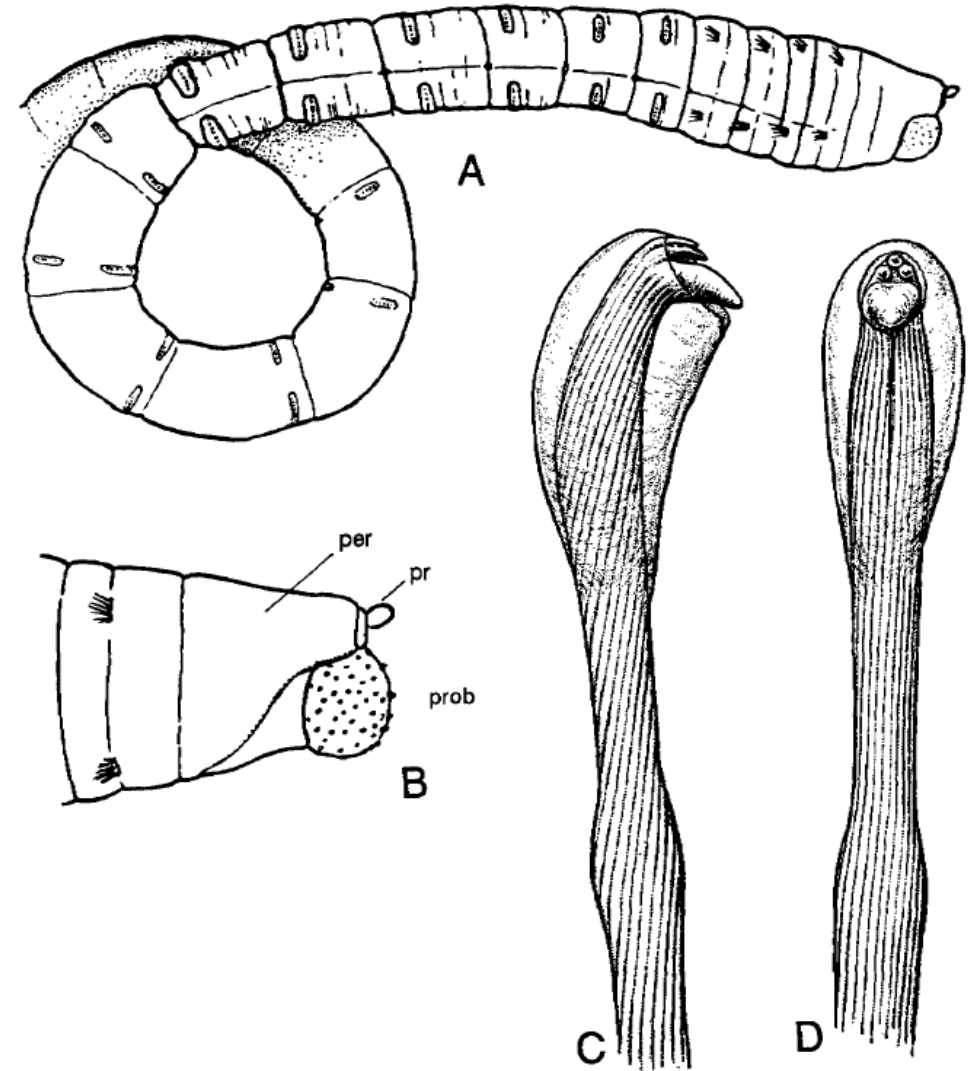
- Key Characters

- Prostomium with 2 small eyes present dorsally
- Chaetiger 1 complete
- Thoracic hooded hooks long handled, without constriction
 - Main fang surmounted by 3 or more teeth in multiple rows
- Abdominal hooded hooks long handled, with slight constriction
 - Main fang surmounted by 3-12 teeth in 3 rows
- Pygidium with midventral appendage

- Thoracic Formula $\frac{(4c+6h)}{(4c+6h)}$

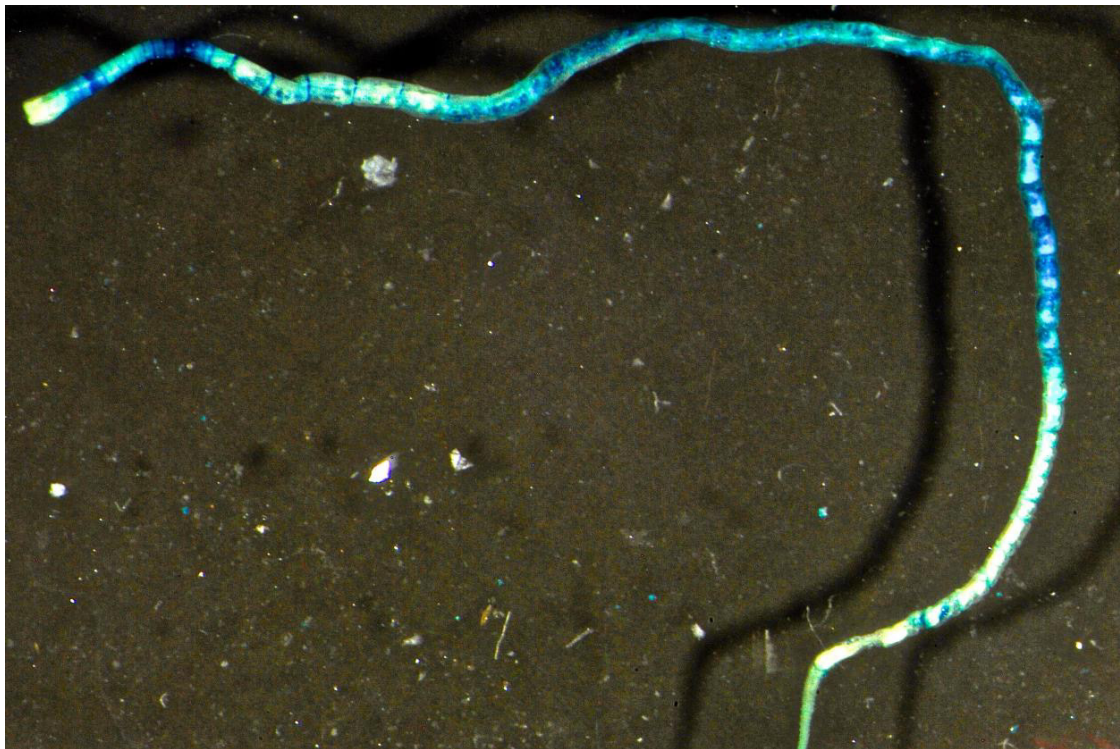
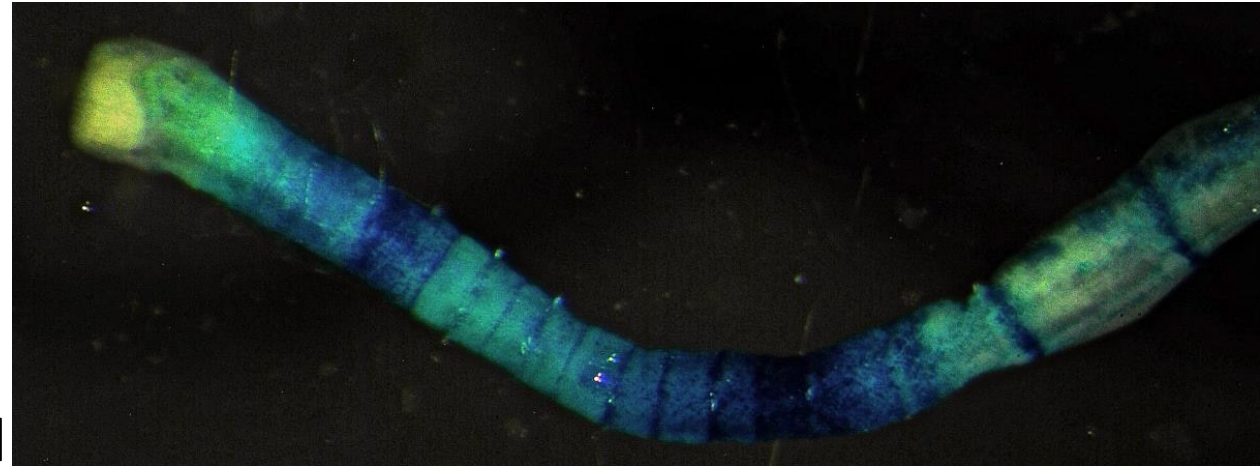
- Reported by

- CLAEMD from 60-158m



Mediomastus californiensis Hartman, 1944

- Methyl Green Stain (from Blake, 2000)
 - Prostomium, peristomium & chaetigers 1-4 unstained
 - Chaetigers 5-10 stain intensely, but variably
 - Abdominal chaetigers sometimes speckled



Mediomastus sp A SCAMIT, 2015 §

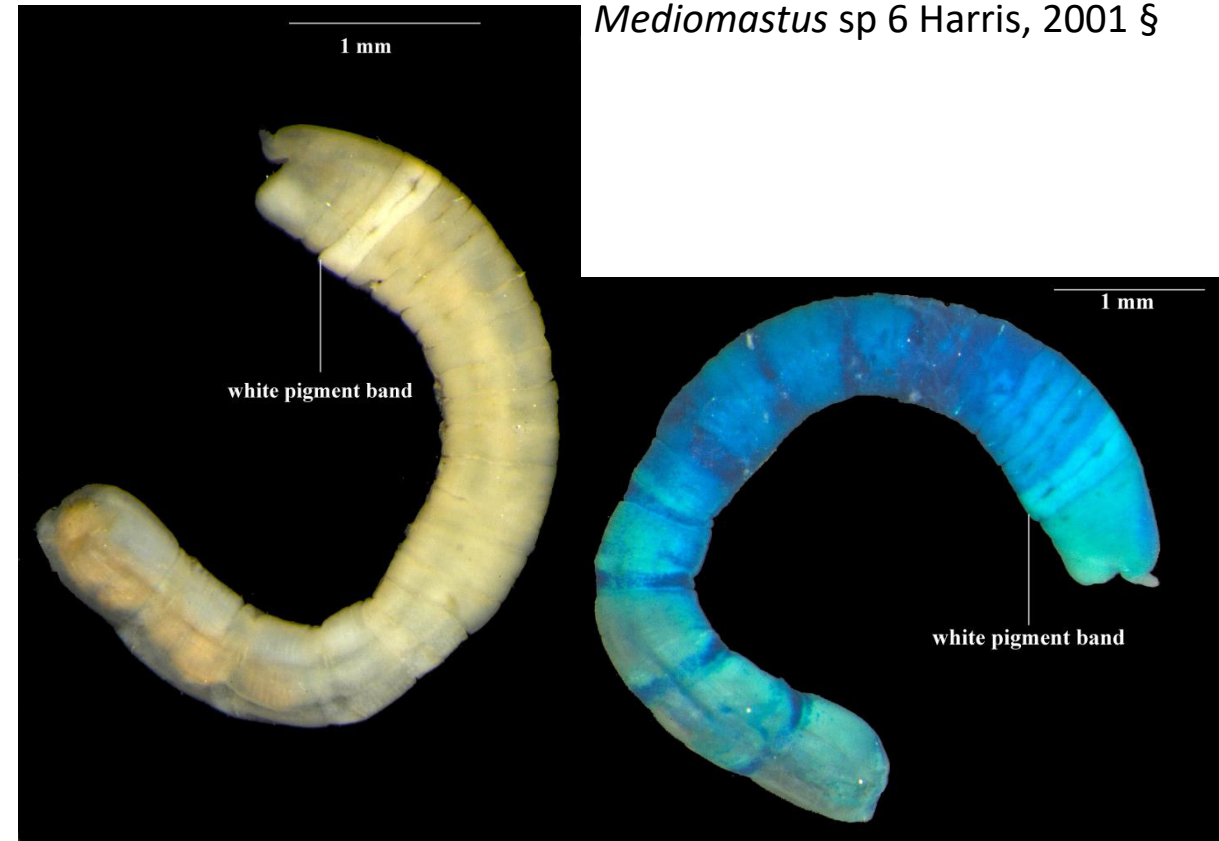
- Key Characters

- Prostomium a small lobe, palpode present
- Chaetiger 1 complete
- Chaetiger 2 with white pigment band
 - Obvious without staining

- Thoracic Formula $(4c+6h) / (4c+6h)$

- Methyl Green Stain

- Dorsal patch on posterior prostomium and all peristomium
- Chaetigers 1-2 not staining
 - Chaetiger 2 white pigment band obvious
- Posterior thoracic chaetigers darkly stained
- Abdominal chaetigers with intersegmental bands



Specimen pictured from upper Newport Bay, 5m

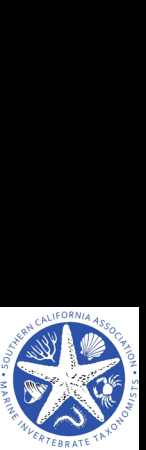
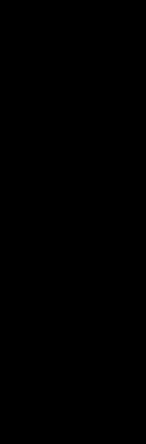
Mediomastus sp 5 (7)? Harris, 2020 §

Mediomastus sp 5 San Diego Bay st. CB-ES, R.3, -3 ft., 14 May 2020
Need whole body to distinguish from *M. ambiseta*; difference is shape & stain of posterior lobes



L.Harris, Nov. 2020

Images by L. Harris

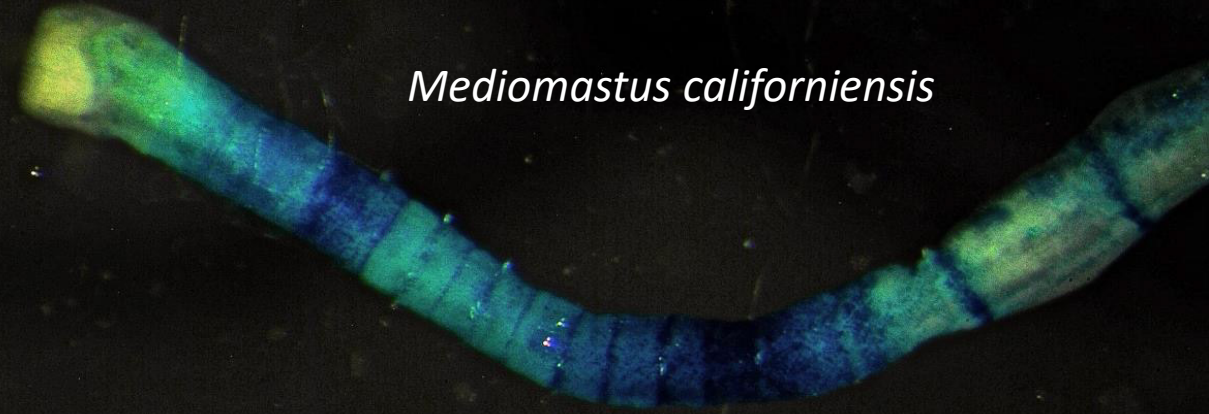


Mediomastus stain comparison

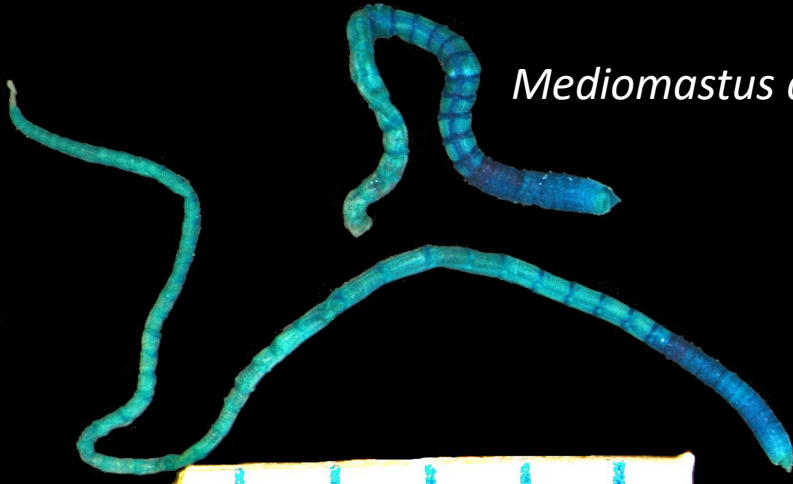
Mediomastus acutus



Mediomastus californiensis



Mediomastus ambiseta



Mediomastus sp A

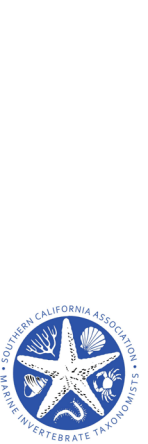


Neomediomastus

- **Generic Diagnosis** – (emended after Magalhães & Blake, 2020; Green, 2002 & Blake, 2000). *Prostomium short, conical, palpode present or absent; eyespots present or absent; nuchal organs present; peristomium achaetous, clearly distinct from the prostomium. Thorax with 9-10 chaetigers; achaetous segment absent; chaetiger 1 complete; chaetigers 1-6 with capillary chaetae in both rami; remaining thoracic chaetigers with long-handled hooded hooks. Thorax clearly demarked from the abdomen. Small notopodial processes (“branchiae”) may be present in posterior abdominal segments. Genital pores and lateral organs not described. Pygidium unknown.*
- **Thoracic Formula:** $(6c+3(4)h) / (6c+3(4)h)$

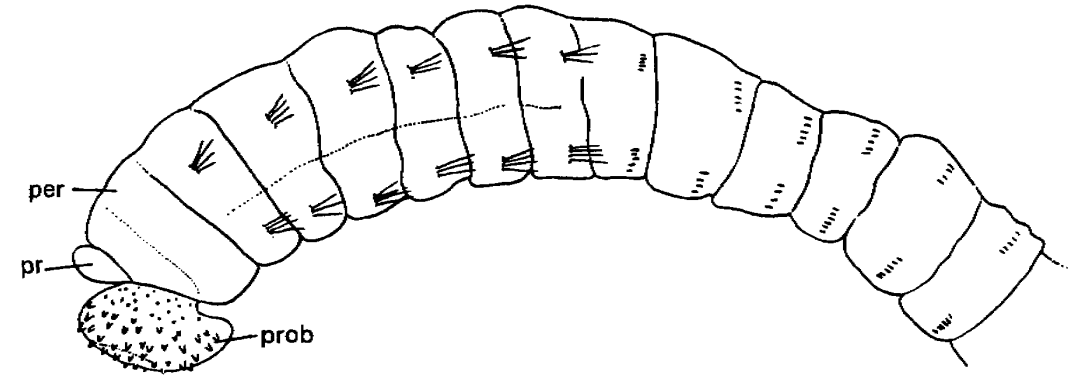
Neomediomastus

- 2 accepted species
 - *Neomediomastus glabrus* (Hartman, 1960); southern California
 - *Neomediomastus leptus* Green, 2002; Andaman Sea, Thailand; 75m
- Reported by
 - Unknown, likely from Bight based on the organisms reported depth



Neomediomastus glabrus (Hartman, 1960)

- Key Characters (from Blake, 2000 & Warren *et al.*, 1994)
 - Prostomium short, triangular, with rounded tip; palpode absent; eyes absent
 - Thorax with 10 chaetigers, chaetiger 1 biramous
 - Abdominal hooded hooks shorter than thoracic, with larger main fang surmounted by at least 2 rows of 5 small teeth
- Thoracic Formula $\frac{(6c+4h)}{(6c+4h)}$
- Methyl Green Stain (from Blake, 2000)
 - Body uniformly green
 - Thoracic chaetigers with bands from chaetiger 4 thru 11, darkest on 10-11
 - Abdominal chaetigers with lateral speckles



** Deep basins; 900-1749m

Notodasus

- **Generic Diagnosis** – (emended after Magalhães & Blake, 2020 and Lin *et al.*, 2019). *Prostomium conical, palpode present; eyespots present or absent; peristomium achaetous, clearly distinct from the prostomium.* Thorax with 11 chaetigers; *achaetous segment absent; first chaetiger complete; thoracic chaetigers with capillary chaetae only in both rami.* First 1 or 2 abdominal chaetigers with bilimbate capillary chaetae in both rami, subsequent abdominal chaetigers with hooded hooks only. Branchiae present, retractile, branched, superior to notopodia. Genital pores, when observed, in up to three pairs from chaetigers 8-9. Lateral organs present on thorax and abdomen. Pygidium with or without caudal cirrus.
- **Thoracic Formula:** $^{(11c)}/_{(11c)} + ^{(1(2)c)}/_{(1(2)e(m))}$

Notodasus

- 12 accepted species

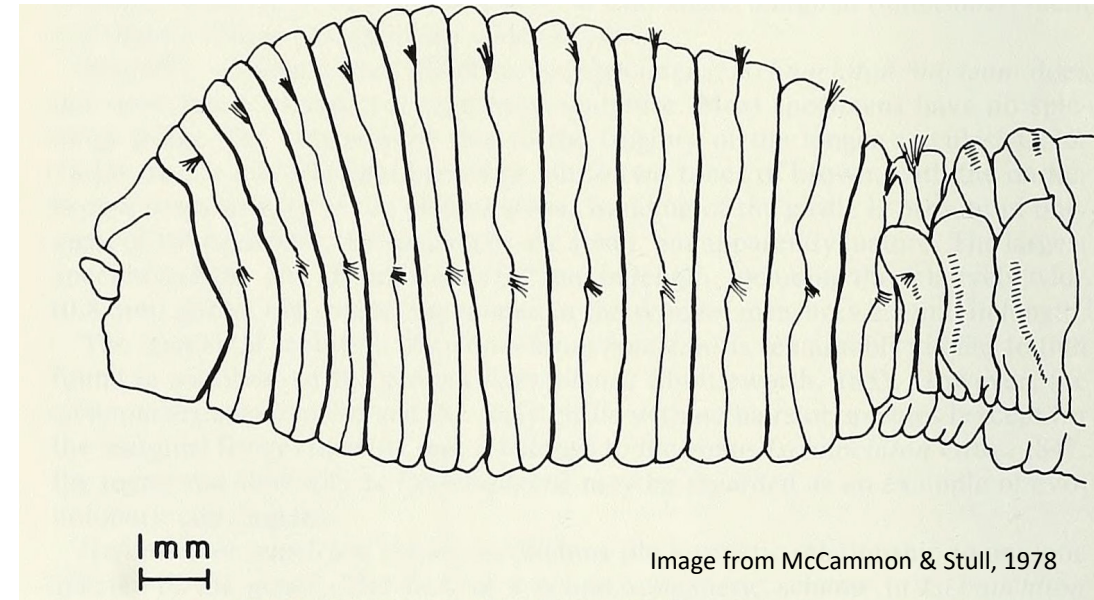
- *Notodasus arenicola* Hartmann-Schröder, 1992; Ascension Island, Atlantic Ocean
- *Notodasus celebensis* Lin, García-Garza & Arbi, in Lin *et al.*, 2019; North Sulawesi, Indonesia; 1 m
- *Notodasus chinensis* Lin, García-Garza & Wang, in Lin *et al.*, 2019; Qinzhou Bay, China; 8 m
- *Notodasus dasybranchoides* Magalhães & Bailey-Brock, 2012; Kaneohe Bay, Oahu Island, Hawaii; intertidal-30 m
- *Notodasus dexterae* Fauchald, 1973; Naos Island, Panama, Pacific Ocean; intertidal
- *Notodasus eibyejacobseni* (Green, 2002); Andaman Sea, Thailand; 19-22 m
- *Notodasus fauchaldi* (Green, 2002); Andaman Sea, Thailand; 21-55 m
- *Notodasus harrisae* García-Garza, Hernández-Valdez & de León-González, 2009; La Paz Bay, Baja California Sur, Mexico; intertidal-1 m
- *Notodasus hartmanae* García-Garza, Hernández-Valdez & de León-González, 2009; Chiapas, Mexico; 0.5 m
- *Notodasus magnus* Fauchald, 1972; Gulf of California, Carmen Island, Mexico; 173-210 m
- *Notodasus oraria* (McCammon & Stull, 1978); southern California, USA; 1-180 m
- *Notodasus salazari* García-Garza, Hernández-Valdez & de León-González, 2009; Quintana Roo, Mexico; 0.7 m

- Reported by

- LACSD from 30-305 m
- CSD from 39-171 m

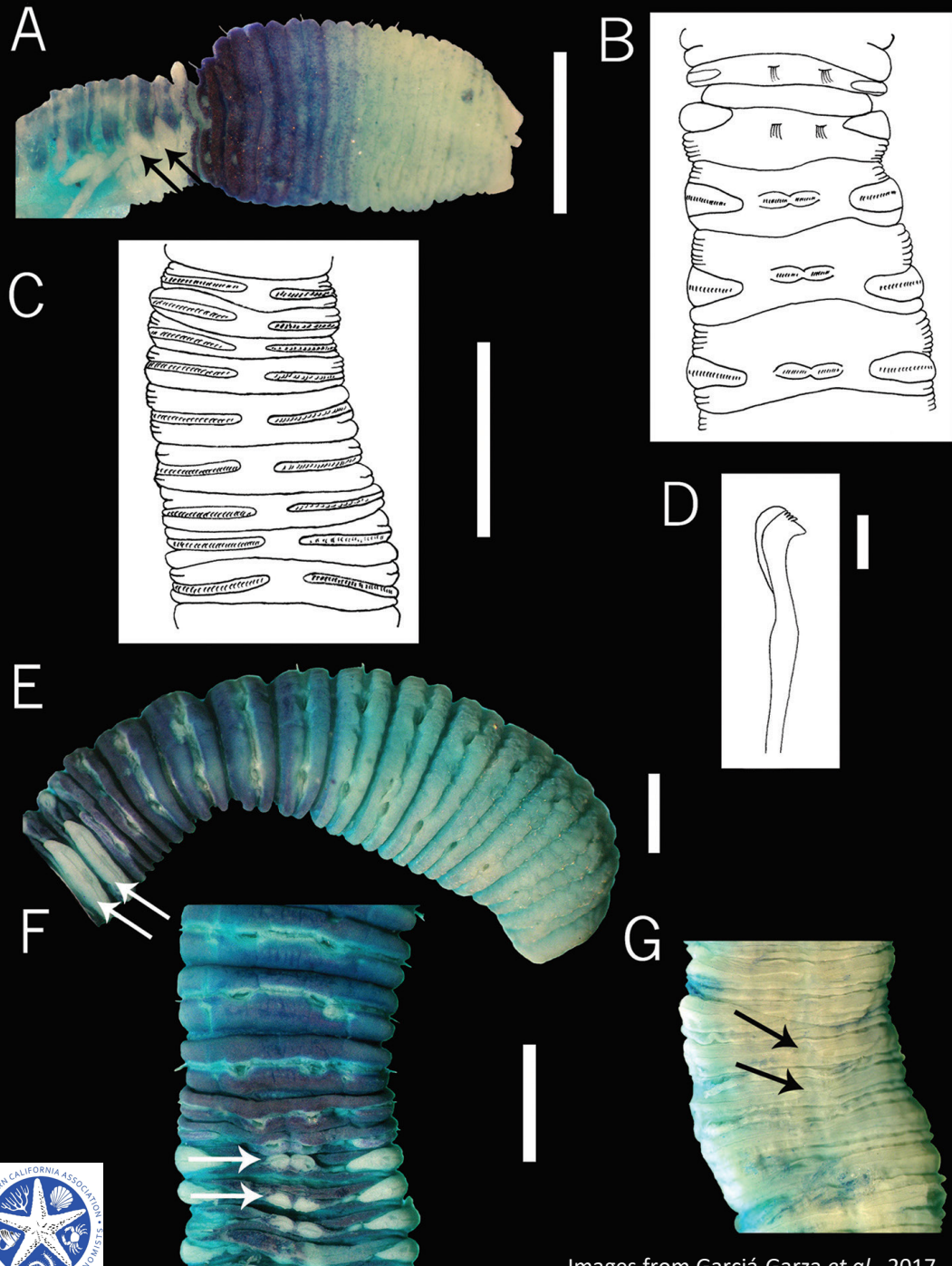
Notodasus oraria (McCammon & Stull, 1978)

- Key Characters (from McCammon & Stull, 1978 and Garcíá-Garza *et al.*, 2017)
 - Prostomium triangular; palpode present, digitate; eyes present, faint, lateral
 - Thorax with 11 chaetigers, chaetiger 1 biramous; all capillaries
 - 1st abdominal segment with capillary notochaetae and either neurochaetal hooks or capillaries or mixed
 - 2nd abdominal segment with capillary notochaetae and neurochaetal hooks
- Thoracic Formula $\frac{(1^{11}c)}{(11c)} + \frac{(1^{(2)}c)}{(1^{(2)}e(m))}$



Notodasus oraria (McCammon & Stull, 1978)

- Methyl Green Stain (from Garcíá-Garza *et al.*, 2017)
 - Prostomium, peristomium and 1st 6 chaetigers unstaining
 - Post-chaetal 7 thru pre-chaetal 11 moderate
 - Chaetigers 12 & 13 darkest



Images from Garcíá-Garza *et al.*, 2017

Notomastus

- **Generic Diagnosis** – (emended after Magalhães & Blake, 2020 and Lin *et al.*, 2020). Prostomium conical, with or without palpode; eyespots present or absent; peristomium achaetous, clearly distinct from the prostomium. Thorax with 11 chaetigers; *achaetous segment absent*; first chaetiger complete or incomplete; chaetigers 1-10 with capillary chaetae in both rami; chaetiger 11 with capillary chaetae in both rami or with capillary notochaetae and neuropodial hooded hooks. Thorax clearly demarked from abdomen. Abdominal chaetigers with hooded hooks only. Branchiae present or absent. Genital pores present or absent. Lateral organs present on thorax and abdomen. Pygidium without cirri, but unknown for many species.
- **Thoracic Formula:** $^{(11c)}/_{(10c+1e)}$ or $^{(11c)}/_{(0+10c)}$ or $^{(11c)}/_{(0+9c+1e)}$
- ** Leslie states that abdominal stain patterns of some species of *Notomastus* are dependent on reproductive status **

• 45 accepted species

- *Notomastus (Notomastus) hedlandica* Hartmann-Schröder, 1979; Australia
- *Notomastus (Notomastus) sonora* Kudenov, 1975; Sonora, Mexico; intertidal
- *Notomastus aberans* Day, 1957; South Africa
- *Notomastus abyssalis* Fauchald, 1972; Baja California Sur, Mexico
- *Notomastus agassizii* McIntosh, 1885
- *Notomastus angelicae* Hernández-Alcántara & Solís-Weiss, 1998; Sinaloa, Mexico; 28.6 m
- *Notomastus annulus* Hutchings & Murray, 1984; New South Wales, Australia
- *Notomastus bermejoi* Hernández-Alcántara, García-Garza & Solís-Weiss, 2022; Gulf of California, Mexico
- *Notomastus brasiliensis* Grube, 1867; Brazil
- *Notomastus ceylonicus* Pillai, 1961; Tambalagam Bay, Sri Lanka; 1.8-7.3 m
- *Notomastus chilensis* Hartmann-Schröder, 1965; Punta Tortuga, Chile
- *Notomastus chrysosetus* Hutchings & Murray, 1984; Australia, 4-9 m
- *Notomastus cinctus* Fauchald, 1972; Baja California Sur, Mexico; 2652-3475 m
- *Notomastus daueri* Ewing, 1982; Gulf of Mexico
- *Notomastus estuarius* Hutchings & Murray, 1984; Australia; 4-20 m
- *Notomastus exsertilis* Saint-Joseph, 1906; France
- *Notomastus fauchaldi* García-Garza & de León-González, 2015; Baja California Sur, Mexico; 20 m
- *Notomastus fauvelii* Day, 1955; Knysna Estuary, South Africa; intertidal
- *Notomastus formianus* Eisig, 1887; Mediterranean Sea
- *Notomastus giganteus* Moore, 1906; Alaska, USA & British Columbia, Canada
- *Notomastus hemipodus* Hartman, 1945; Beaufort, North Carolina, USA
- *Notomastus koreanus* Jeong, Soh Wi & Suh, 2018; Busan, South Korea
- *Notomastus landini* García-Garza & de León-González, 2015; Baja California Sur, Mexico

Notomastus

- *Notomastus latericeus* Sars, 1851; Cobscook Bay, New Brunswick, Canada
- *Notomastus lineatus* Claparède, 1869; Gulf of Naples, Italy
- *Notomastus lobulatus* García-Garza & de León-González, 2015; Sinaloa, Mexico;
- *Notomastus magnus* Hartman, 1947; Tomales Bay, California, USA; intertidal
- *Notomastus mazatlanensis* García-Garza *et al.*, 2019; Sinaloa, Mexico; 6 m
- *Notomastus mossambicus* (Thomassin, 1970); Tulear, Madagascar
- *Notomastus ouanaryensis* (Gravier, 1901); French Guiana
- *Notomastus parvus* Berkeley, 1929; Departure Bay, British Columbia, Canada
- *Notomastus polyodon* Gallardo, 1968; Bay of Nha Trang, Vietnam
- *Notomastus precocis* Hartman, 1960; southern California, USA
- *Notomastus profundus* Eisig, 1887; Mediterranean Sea
- *Notomastus sinosus* Grube, 1877; China
- *Notomastus sunae* Lin *et al.*, 2020; Xiamen, China; 6 m
- *Notomastus tenuis* Moore, 1909; San Diego, California
- *Notomastus teres* Hartman, 1965; New England, USA
- *Notomastus variegatus* Berkeley & Berkeley, 1950; British Columbia, Canada
- *Notomastus zeylanicus* Willey, 1905; Gulf of Mannar, India
- *Notomastus (Clistomastus) annenkowae* Zachs, 1933; northern Sea of Japan
- *Notomastus (Clistomastus) anoculatus* Hartmann-Schröder, 1965; Hawaii
- *Notomastus (Clistomastus) broomensis* Hartmann-Schröder, 1979; Western Australia
- *Notomastus (Clistomastus) luridus* (Verrill, 1873); Connecticut, USA
- *Notomastus (Clistomastus) torquatus* Hutchings & Rainer, 1979; Australia

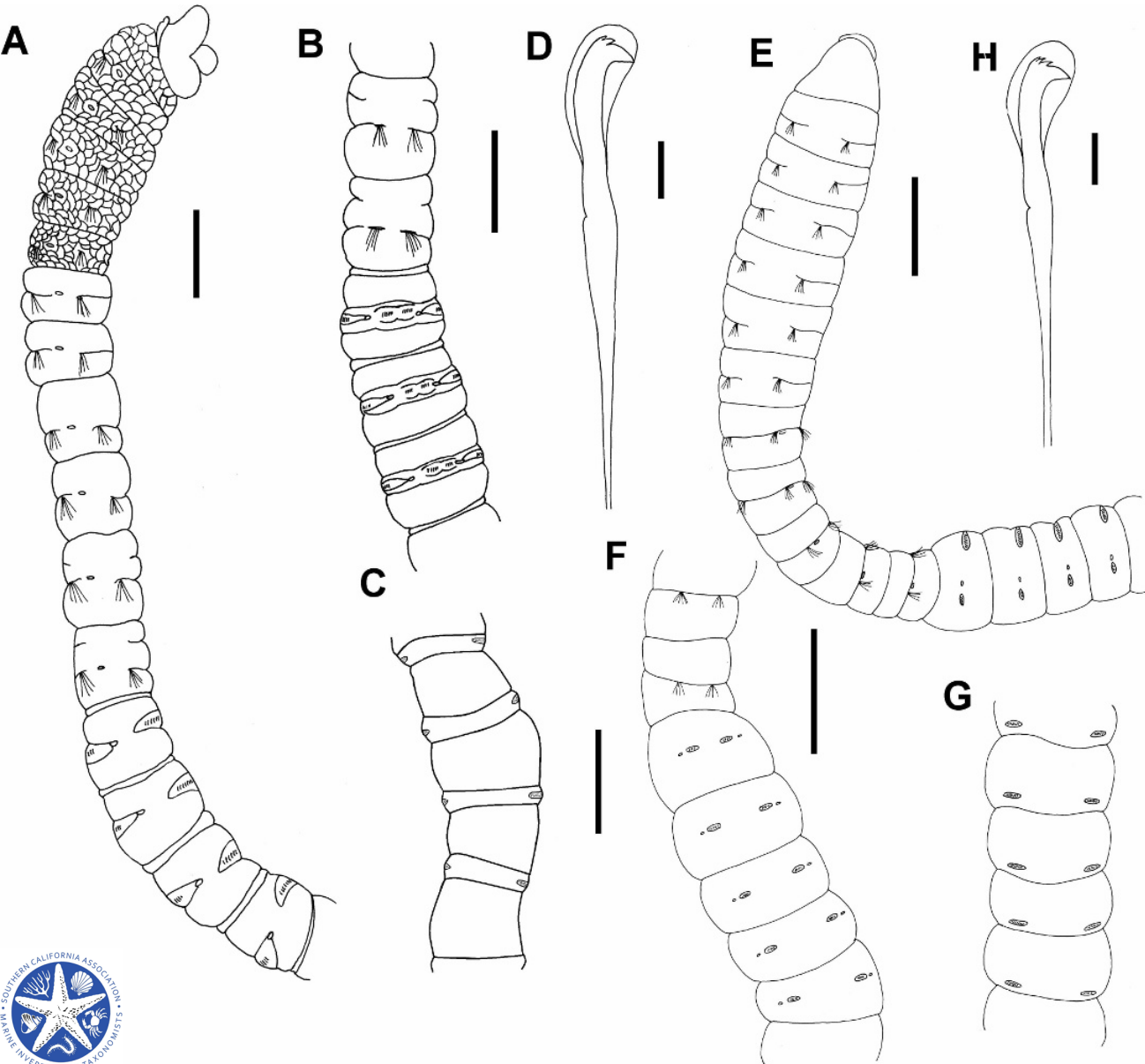
Notomastus

- 7 provisional species, 3 on SCAMIT Ed. 14
 - *Notomastus* sp E Harris, 2021 §
 - *Notomastus* sp LA3 Haggin, 2023 §
 - *Notomastus* sp LA4 Haggin, 2023 § **
 - *Notomastus* sp LA5 Haggin, 2023 § **
 - *Notomastus* sp SD2 Rowe, 1999 §
 - *Notomastus* sp SD3 Rowe, 2004 §
 - *Notomastus* sp SF1 Norris, 2008 §
 - *Notomastus* sp D Harris, 2015 §

Notomastus hemipodus Hartman, 1945

Notomastus sp A SCAMIT, 2001 §

Notomastus tenuis of authors NEP, not Moore, 1909



- **Key Characters** (from Garcíá-Garza *et al.*, 2012 [redescription])

- Prostomium triangular; palpode present; eyes present, covered by peristomium
- Thorax with 11 chaetigers, chaetiger 1 uniramous; all capillaries
- Branchiae absent or not observed

- Thoracic Formula $^{(11c)}/_{(0+10c)}$

- Reported by all agencies from 1-1023m

Image from Garcíá-Garza *et al.*, 2012

Notomastus hemipodus Hartman, 1945

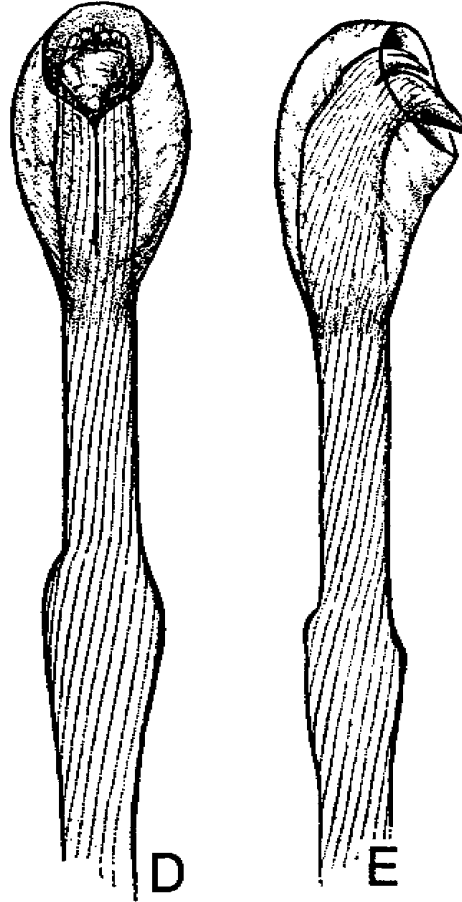
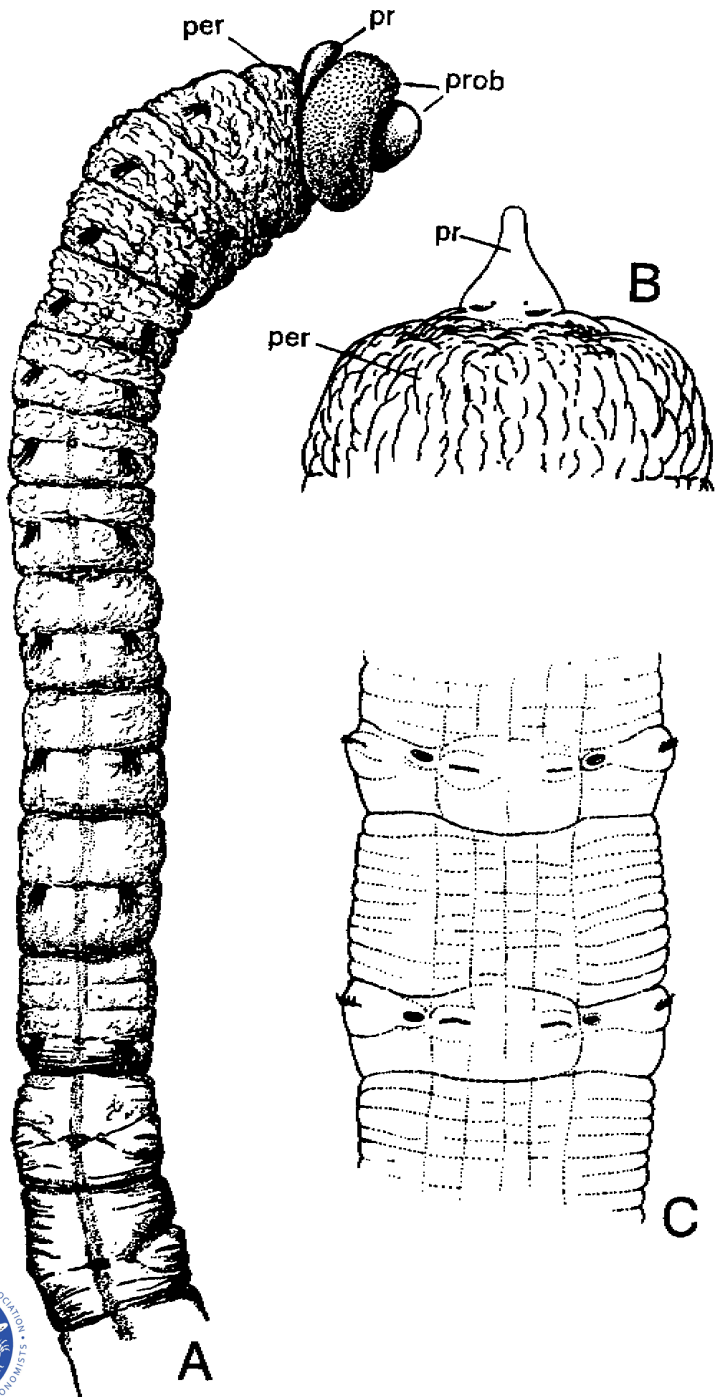
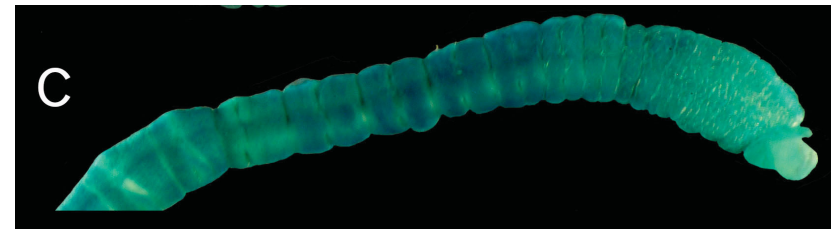


Image from Blake, 2000

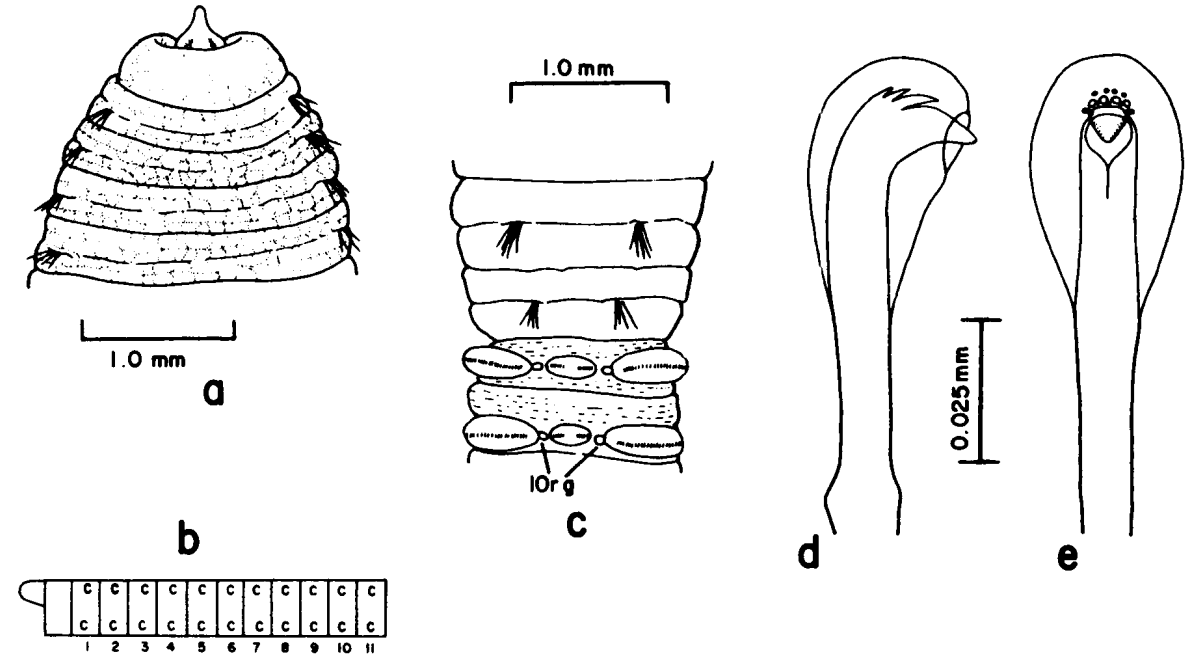
Notomastus hemipodus Hartman, 1945

- Methyl Green Stain (from Garcíá-Garza *et al.*, 2012 [redescription])
 - Prostomium, peristomium and 1st 6 chaetigers staining uniformly
 - Chaetigers 7 thru 10 staining darkly
 - Ventrum of abdomen with paired longitudinal bands to end of body (“racing stripes”)



Notomastus latericeus Sars, 1851

- **Key Characters** (from Ewing, 1984 – based on material from the Gulf of Mexico)
 - Prostomium conical; ocular patches present
 - Thoracic epithelium distinctly areolated thru chaetiger 6-8
 - Thorax with 11 chaetigers, chaetiger 1 biramous; all capillaries
 - Branchiae rudimentary, as small dorsolateral swellings of notopodia and large triangular extensions of neuropodia
- Thoracic Formula $^{(11c)}/_{(11c)}$
- Reported by all agencies from 1-1023m

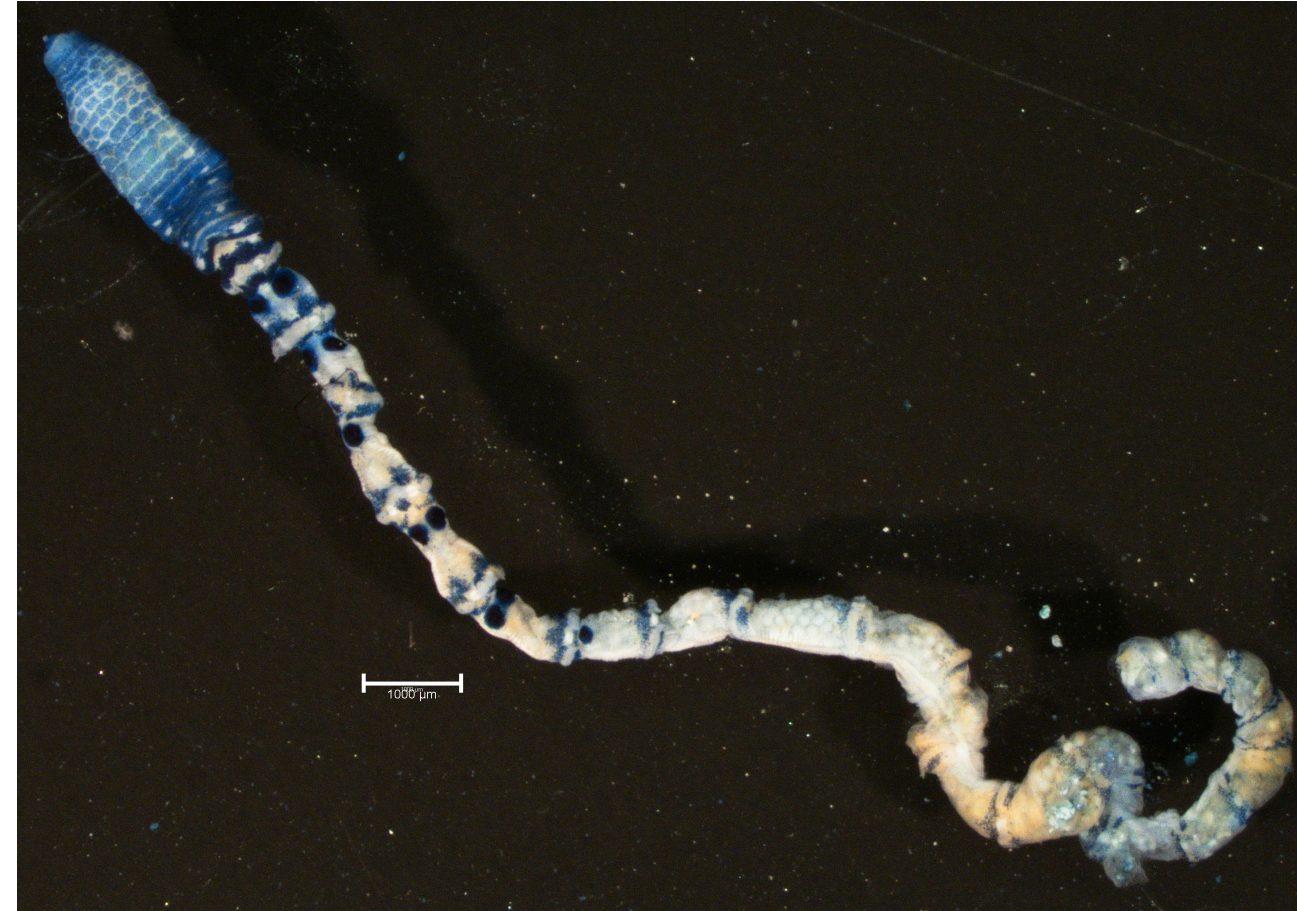


- Type Locality unsure –
 - WoRMS lists as Cobscook Bay, New Brunswick, Canada
 - García-Garza *et al.* 2019 lists it as Norwegian Sea, Norway
- Intertidal – 4360 m
 - Likely not found locally and local species should be given a provisional designation

Notomastus sp LA4 Haggin, 2023 §

Notomastus latericeus of authors NEP, not Sars, 1851

- Key Characters (from observations of NEP material)
 - Prostomium conical; ocular patches present
 - Thoracic epithelium distinctly areolated thru chaetiger 6-8
 - Thorax with 11 chaetigers, chaetiger 1 biramous; all capillaries
 - Branchiae rudimentary, as small dorsolateral swellings of notopodia and large triangular extensions of neuropodia



- Thoracic Formula $^{(11c)}/_{(11c)}$

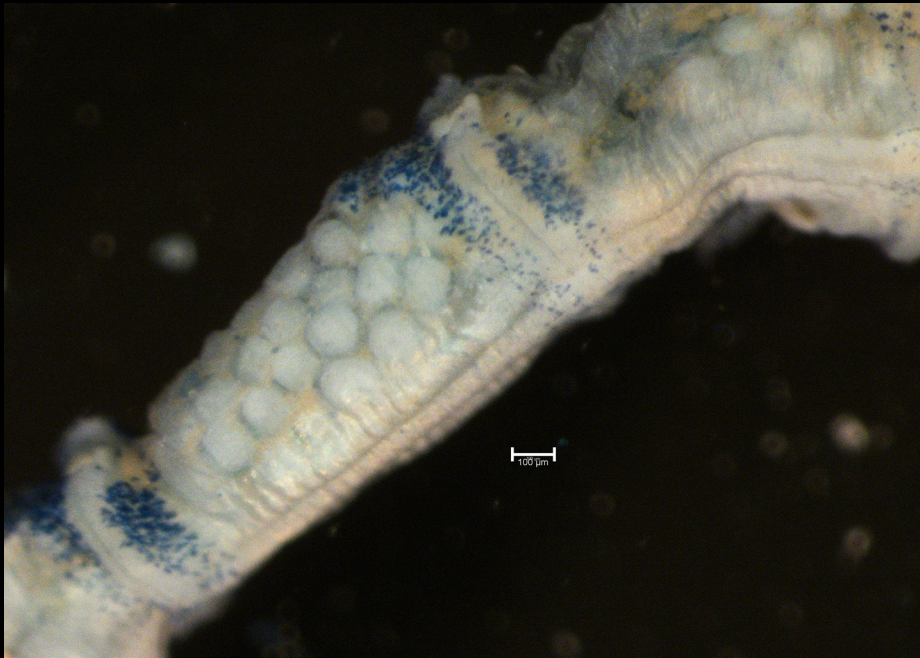
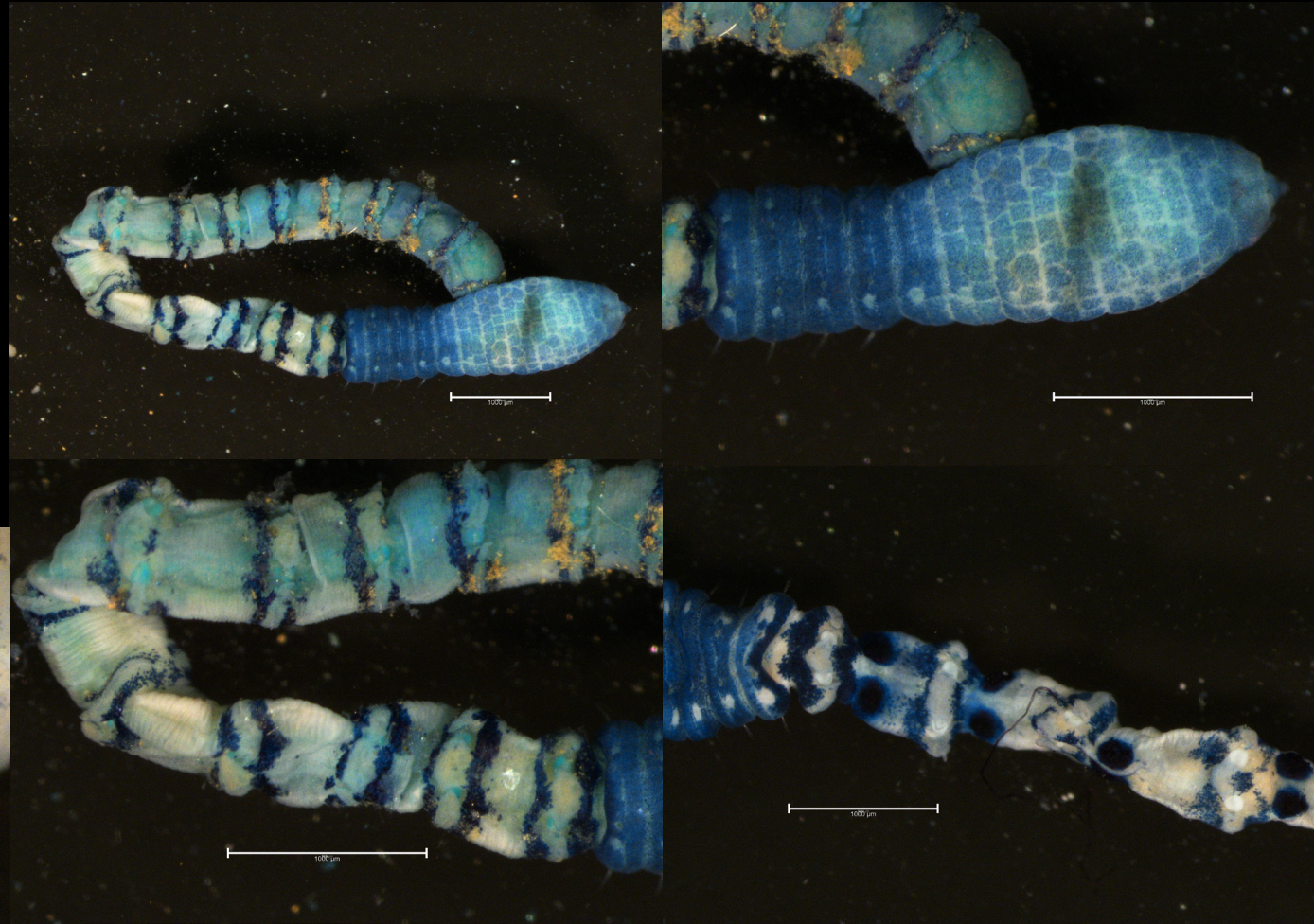
- Reported by LACSD from 31m (initial review)

Notomastus sp LA4 Haggin, 2023 §

Notomastus latericeus of authors NEP, not Sars, 1851

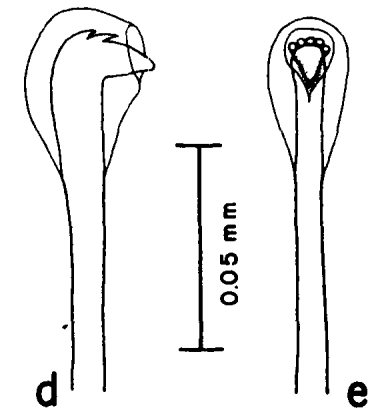
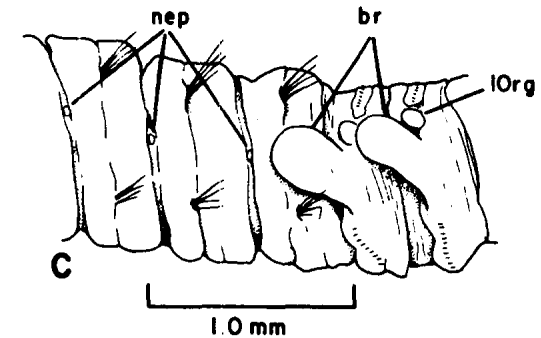
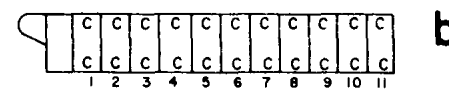
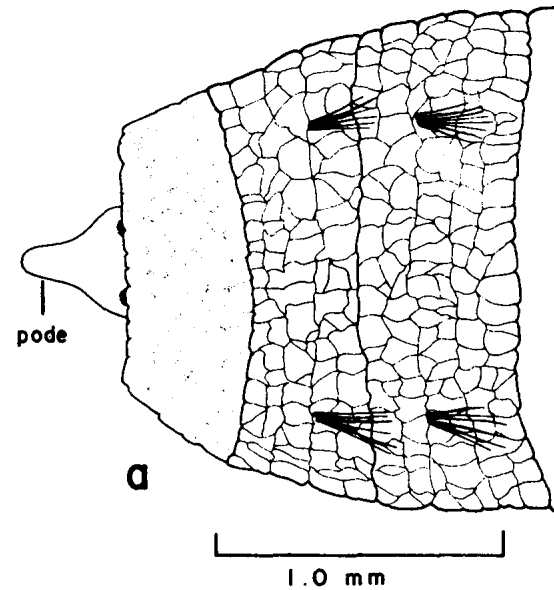
- Methyl Green Stain

- Thorax staining uniformly, chaetigers 7-11 darkest
- Abdomen with paired stain bands, pre & postchaetal
- Genital pores staining intensely as paired dorsal stain spots



Notomastus lineatus Claparède, 1869

- **Key Characters** (from Ewing, 1984 – based on material from the Gulf of Mexico)
 - Prostomium broad, tapering to cylindrical palpode; ocular patches present
 - Thoracic epithelium strongly areolated thru chaetiger 6-7
 - Thorax with 11 chaetigers, chaetiger 1 biramous; all capillaries
 - Branchiae foliaceous, neuropodial in nature
 - Abdominal hooded hooks with main fang surmounted by 1 row of 4-5 teeth



• Thoracic Formula $^{(11c)}/_{(11c)}$

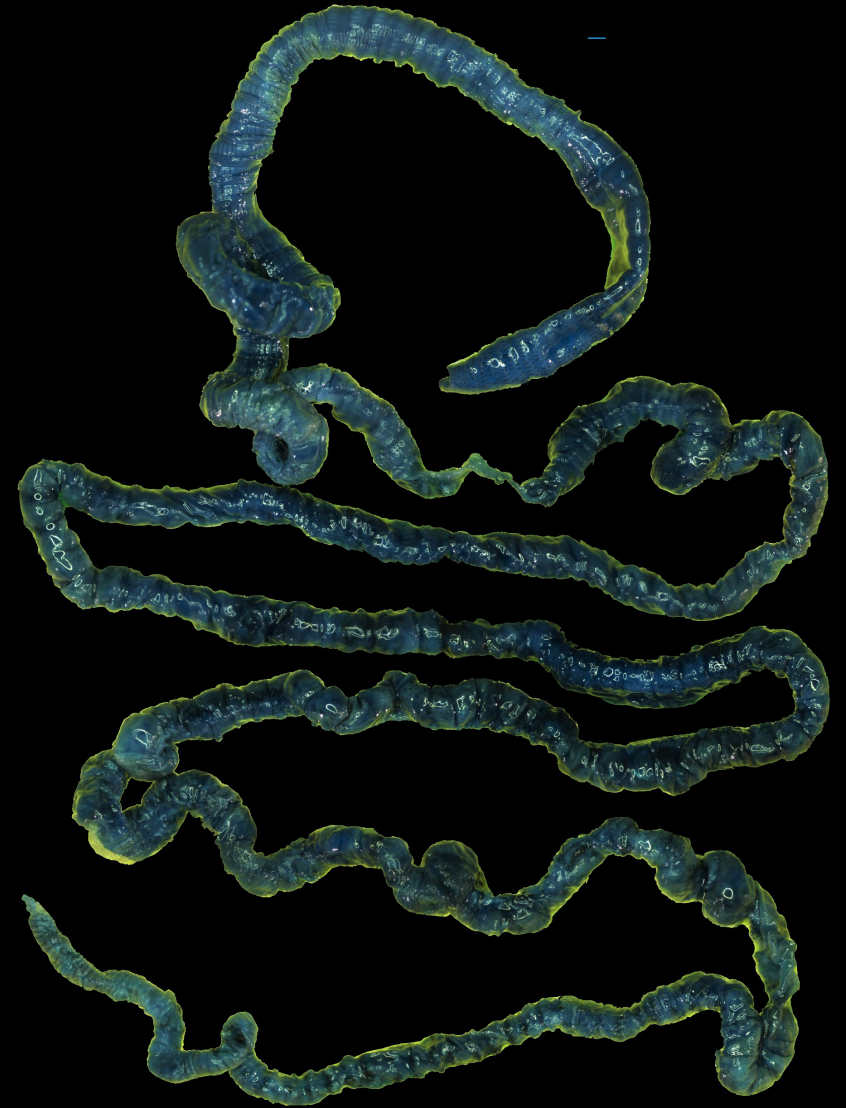
- Reported by all agencies from 17 – 152 m

- Type Locality – Mediterranean Sea, Gulf of Naples, Italy
- Shallow subtidal – 298 m
- Reported from British Columbia by Berkeley & Berkeley (1932) and from Newport Bay by Hartman (1947)
 - Likely not found locally and local species should be given a provisional designation

Notomastus sp LA5 Haggin, 2023 §

Notomastus lineatus of authors NEP, not Claparède, 1869

- **Key Characters** (from observations of NEP material)
 - Prostomium broad, tapering to cylindrical palpode; ocular patches not observed
 - Thoracic epithelium strongly areolated thru chaetiger 8, then less so
 - Thorax with 11 chaetigers, chaetiger 1 biramous; all capillaries
 - Branchiae simple lobes
 - Abdominal neuropodia fleshy, triangular lobes
- Thoracic Formula $\frac{(11c)}{(11c)}$
- Reported by LACSD from 31m (initial review)

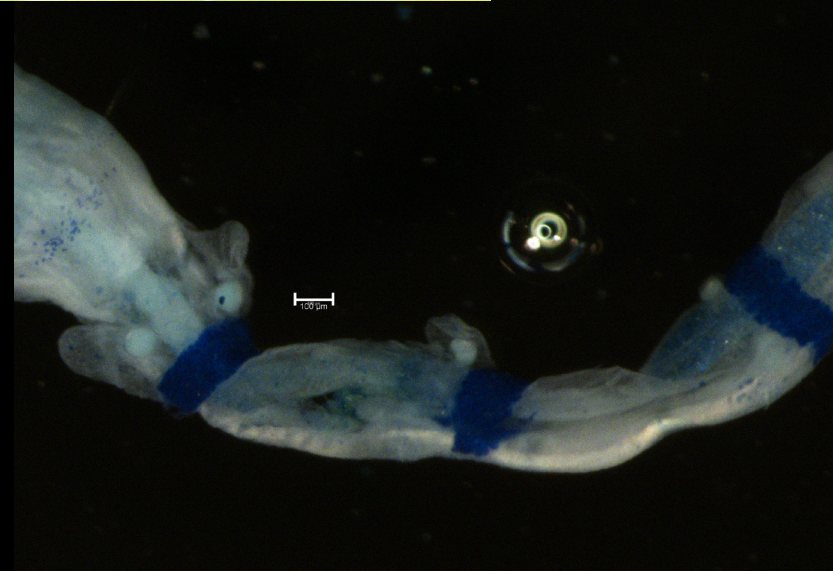
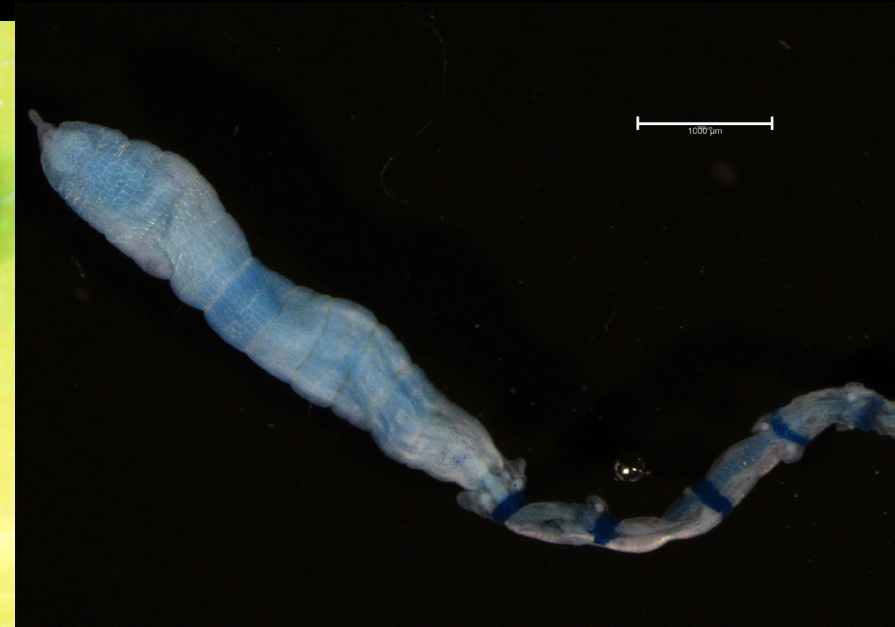


Notomastus sp LA5 Haggin, 2023 §

Notomastus lineatus of authors NEP, not Claparède, 1869

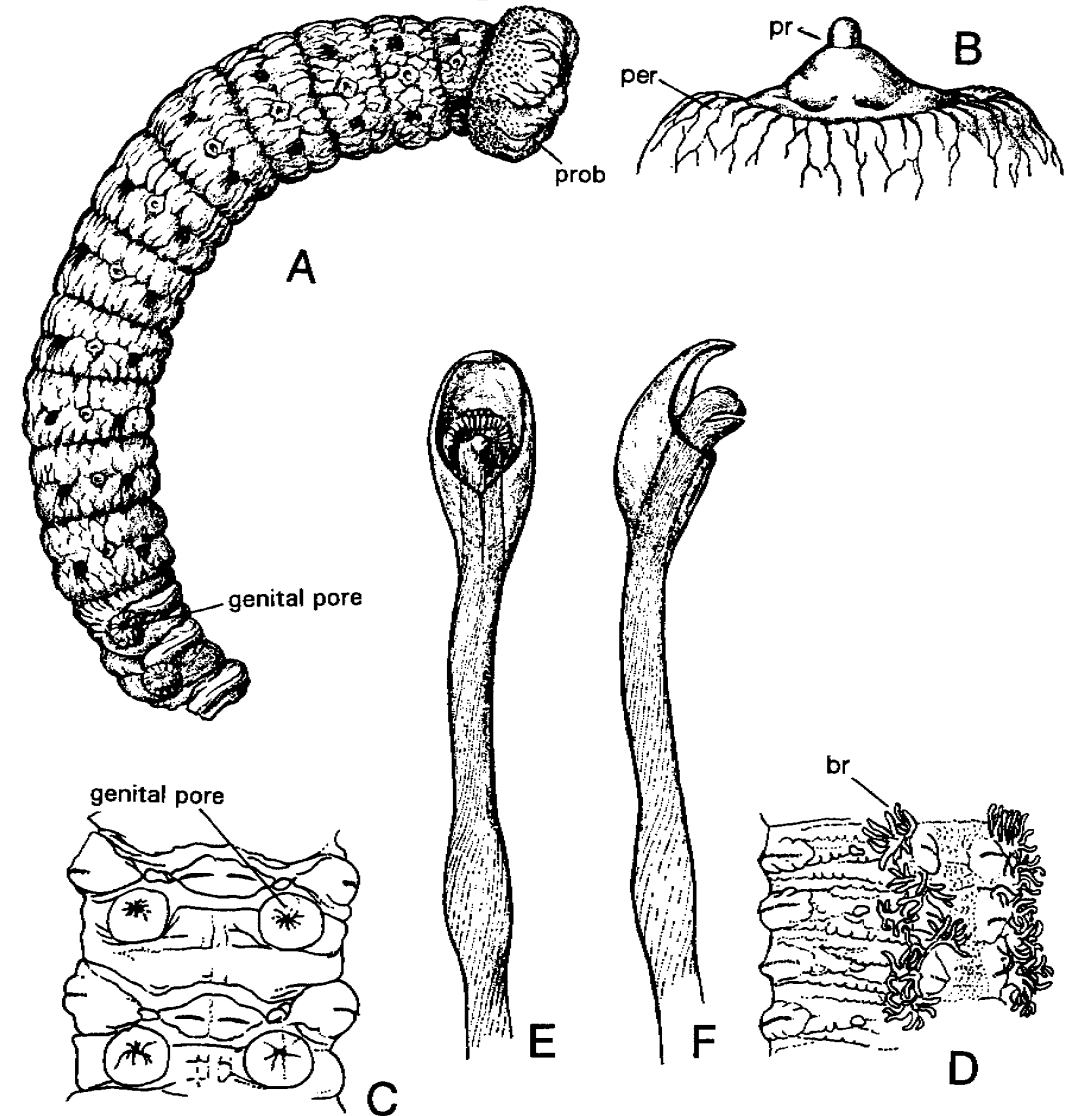
- Methyl Green Stain

- Palpode unstained
- Prostomium, peristomium & chaetigers 1-3 staining moderately
- Chaetigers 4-5 light
- Chaetiger 6 dark
- Chaetiger 7-11 moderate with dark band on chaetiger 10
- Abdomen with banding in intersegmental furrow only (does not connect ventrally), without prechaetal band or paired dorsal stain spots



Notomastus magnus Hartman, 1947

- Key Characters (from Blake, 2000; Hartman, 1947)
 - Large, robust species
 - Prostomium short, flattened, with rounded palpode; eyes absent
 - Thoracic epithelium strongly areolated
 - Lateral organs conspicuous on all segments
 - Thorax with 11 chaetigers, chaetiger 1 biramous; all capillaries
 - Branchiae retractile, from anterior abdominal chaetigers
 - Arising posterior to notopodium
 - Abdominal hooded hooks long handled with short, flattened main fang surmounted by 1 row of numerous small teeth & crenulations; hood high, broad
- Thoracic Formula $\frac{(11c)}{(11c)}$
- Reported by all agencies from 0 – 396 m



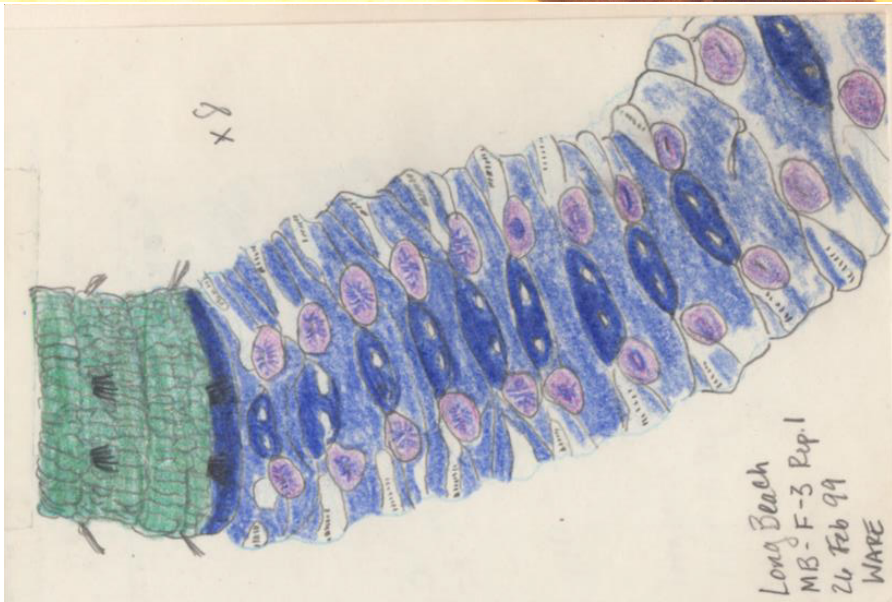
Notomastus magnus Hartman, 1947





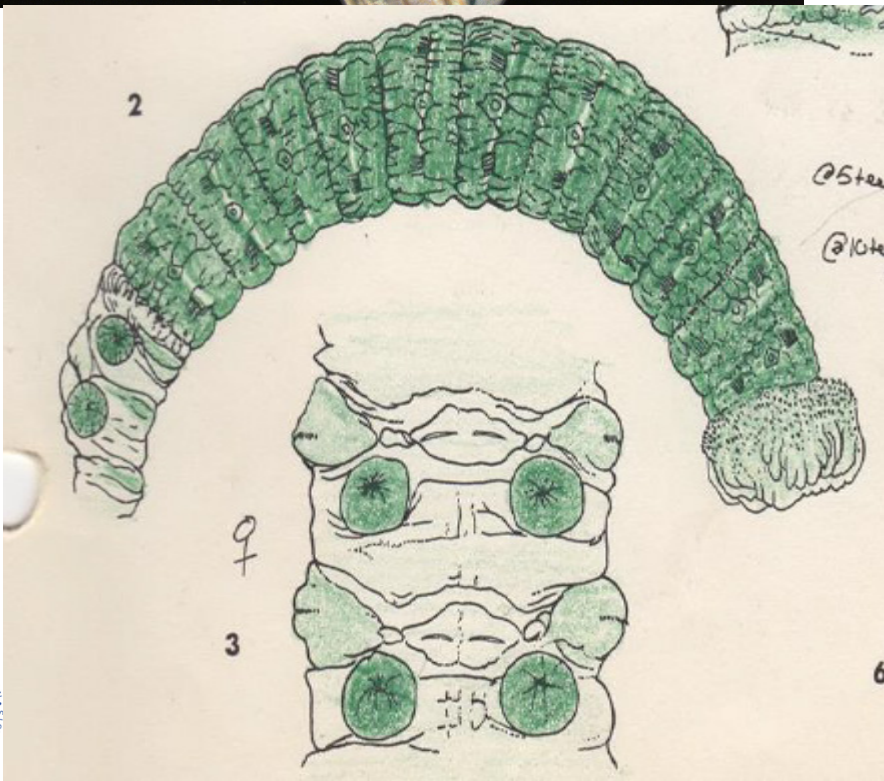
Notomastus magnus Hartman, 1947

- **Methyl Green Stain** (from Blake, 2000)
 - Prostomium, peristomium and thoracic chaetigers staining uniformly
 - Areolation grooves unstaining
 - Last thoracic chaetiger with band on posterior half
 - Abdomen staining lightly on dorsum
 - Nephridial pores staining intensely
 - Appearing as paired mounds on dorsum
- Type Locality – Tomales Bay, CA
- Intertidal – 900 m
- Reported from Northern California to San Diego Bay (Blake, 2000; Hartman, 1947, 1961, 1963, 1969)
- Reported from Baja California, Mexico & Gulf of California (García-Garza & de León-González, 2011, 2015, 2019)



Notomastus magnus Hartman, 1947

- Methyl Green Stain (from Blake, 2000)
 - Prostomium, peristomium and thoracic chaetigers staining uniformly
 - Areolation grooves unstaining
 - Last thoracic chaetiger with band on posterior half
 - Abdomen staining lightly on dorsum
 - Nephridial pores staining intensely
 - Appearing as paired mounds on dorsum



Notomastus tenuis Moore, 1909

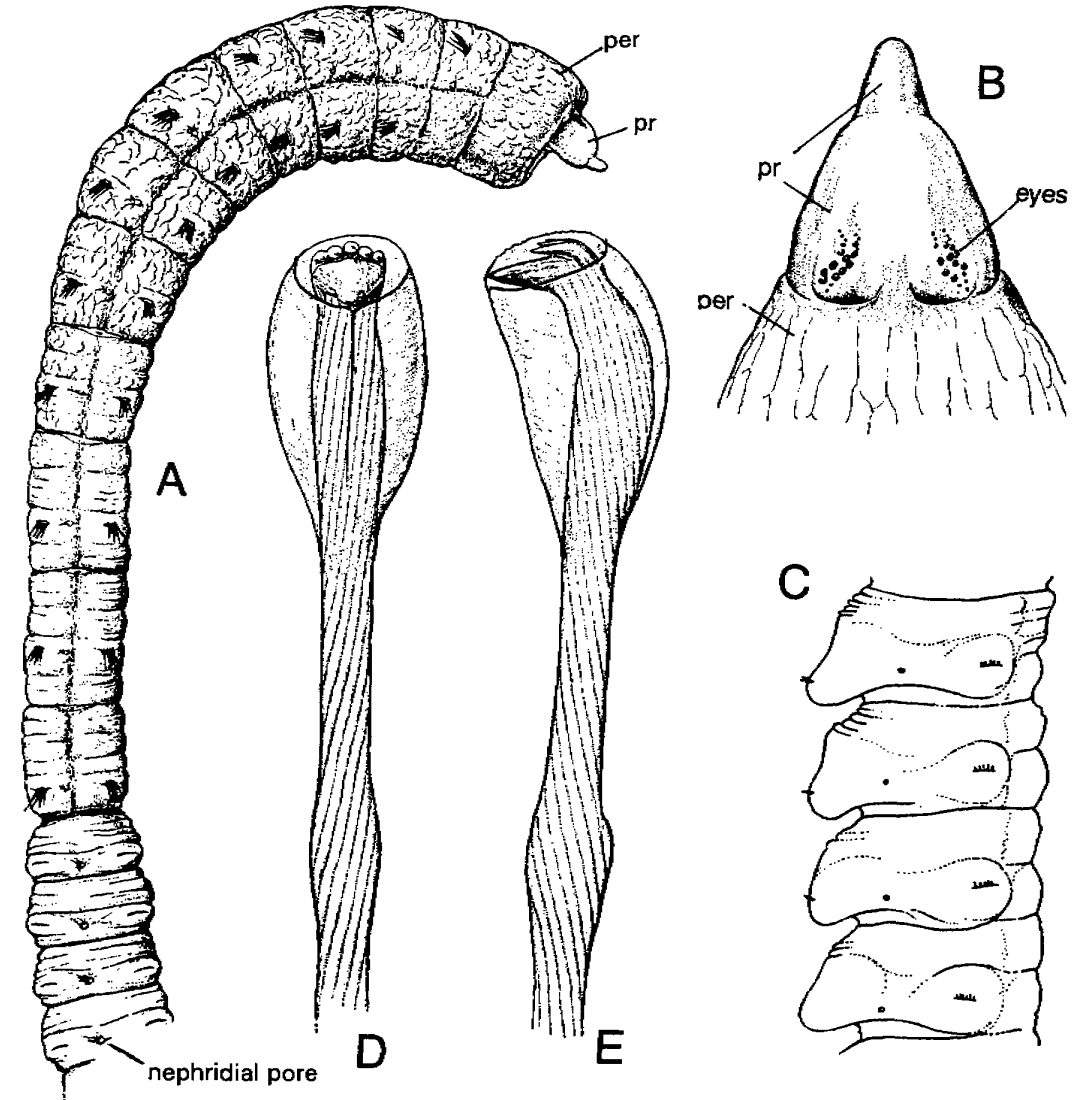
Notomastus hemipodus of authors NEP, not Hartman, 1945

- **Key Characters** (from Garcíá-Garza *et al.*, 2012 [redescription], Blake, 2000)

- Prostomium depressed, conical; palpode absent; eyes present
- Thoracic epithelium smooth
 - Lateral organs present on all segments, genital pores present in posterior thorax
- Thorax with 11 chaetigers, chaetiger 1 uniramous; all capillaries
- Abdominal hooded hooks long handled with main fang surmounted by 4-5 rows of multidentate teeth
- Branchiae absent
- Pygidium simple, without cirri

- **Thoracic Formula** $(11c) / (0+10c)$

- Reported by
 - LACSD from 4 – 30 m
 - CLAEMD from 3.5 m



Images from Blake, 2000

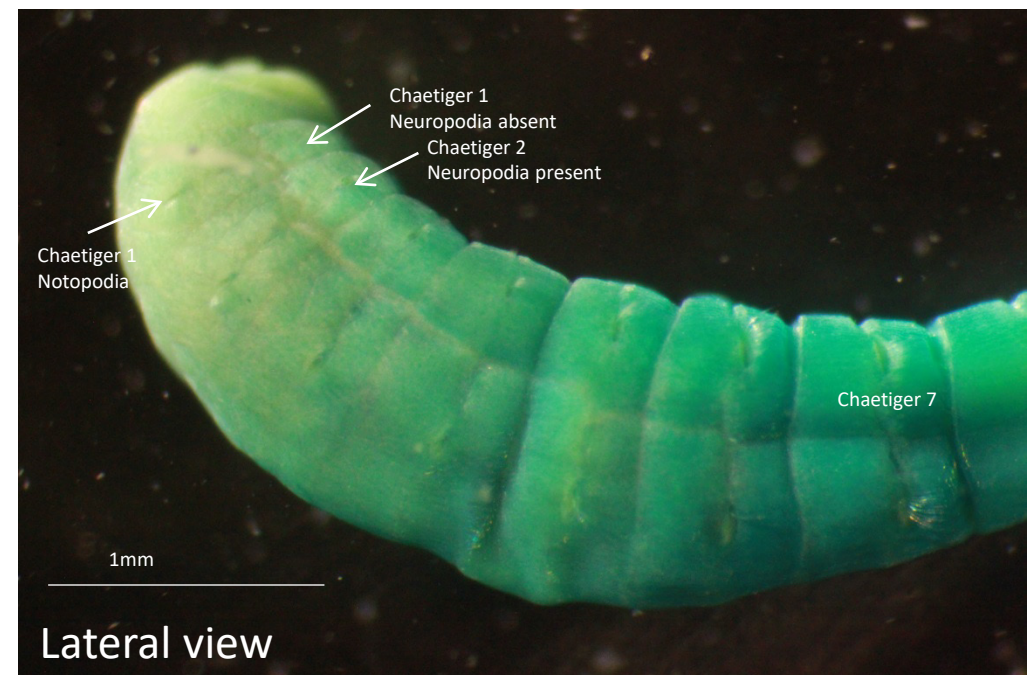


Notomastus tenuis Moore, 1909

- Type Locality – San Diego Bay, CA
- Intertidal – 900 m
- Reported from Washington to southern California, intertidal – shelf depths (Blake, 2000)
- Range restricted to intertidal – shallow subtidal (García-Garza *et al.*, 2012)

- **Methyl Green Stain** (from García-Garza *et al.*, 2012 [redescription], Blake, 2000)
 - Prostomium, peristomium, thoracic & abdominal chaetigers staining uniformly
 - Occasionally, slightly darker banding in posterior thorax
 - Far posterior abdomen sometimes staining intensely

**** Stain pattern historically confused with *Notomastus hemipodus* locally****



Notomastus sp E Harris, 2021 §

- Key Characters (from Harris, 2021)
 - Prostomium and palpode not described; eyes present, red
 - Thoracic chaetigers strongly areolated, distinctly inflated thru chaetiger 6
 - Lateral organs present on all segments
 - simple, inconspicuous in thorax; ovoid, conspicuous in abdomen
 - Nephridial pores present in thorax only, visible in last 3 thoracic chaetigers
 - Thorax with 11 chaetigers, chaetiger 1 biramous; all capillaries
 - Abdominal hooded hooks with main fang surmounted by 1 row of many small teeth
 - Branchiae present, inside superior abdominal neuropodial lobe
 - Pygidium unknown
- Thoracic Formula $(^{11c}) / (_{11c})$
- Reported from northern San Diego Bay, CA; 3m



Notomastus sp SD2 Rowe, 1999 §

- Key Characters

- Eyes absent
- Thoracic epithelium very rugose
 - Nephridial pores difficult to discern, possibly present in last 6 thoracic chaetigers
- Thorax with 11 chaetigers, chaetiger 1 biramous; all capillaries
- Abdominal hooded hooks with tightly adhering hood
- Abdominal notopodial tori short; neuropodial tori with rounded superior lobe, lateral
- Branchiae unknown
- Pygidium unknown

- Thoracic Formula $^{(11c)}/_{(11c)}$

- Reported from Bight '98, STN 2479; 84m & OCSD Stn 7356 (T. Phillips, 2023 [per. Comm.])



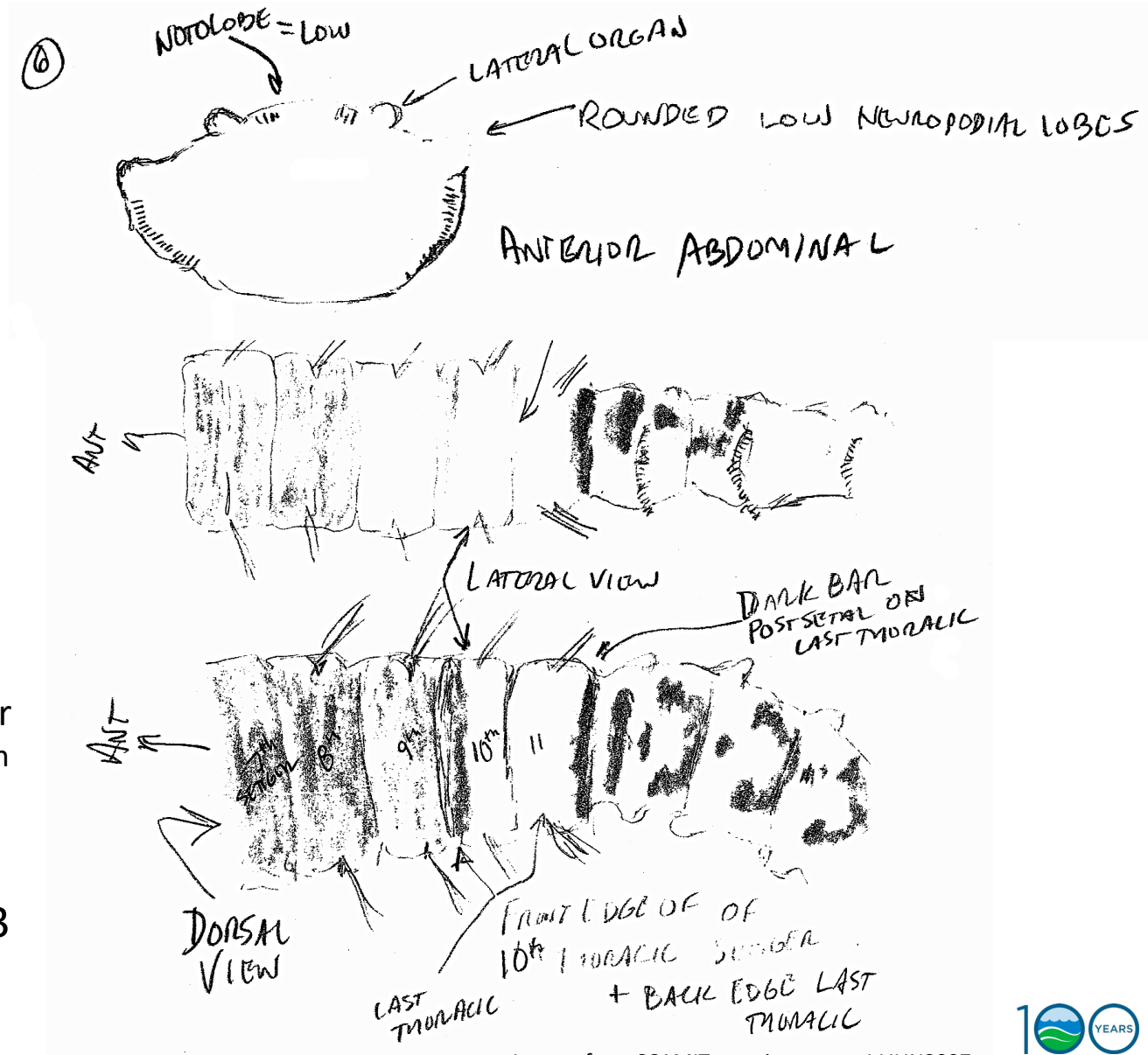
Notomastus sp SD2 Rowe, 1999 §

- MGS
 - Thoracic chaetigers staining evenly
 - Abdominal chaetigers with an encircling stain band anterior to chaetal fascicle, fading from ventrum by 6th abdominal chaetiger
 - Dorsally with a postchaetal stain band and a broad posterior patch that becomes speckled by the 18th abdominal chaetiger



Notomastus sp SD3 Rowe, 2004 §

- Key Characters (from SCAMIT meeting notes, 11JUN2007)
 - Thorax with 11 chaetigers, chaetiger 1 biramous; all capillaries
 - Abdominal hooded hooks few in notopodia, short tori; numerous in neuropodia, long tori
 - Hoods tightly adhering
 - Branchiae unknown
 - Pygidium unknown
- Thoracic Formula $(11c)/(11c)$
- MGS
 - Thorax staining thru anterior half of chaetiger 10, non-staining band on posterior of 10 and anterior of 11, staining on posterior of 11
 - Abdomen staining on anterior of 1st abdominal chaetiger
 - Remaining abdominal chaetigers with a “smiling cyclops” stain dorsally
 - Abdomen unstained ventrally
- Reported from NE end of Anacapa Island in Bight ‘03
 - 75m
 - With small *Aphelochaeta*, *Questa*, Acrocirridae and Oligochaetes



Notomastus sp SF1 Norris, 2008 §

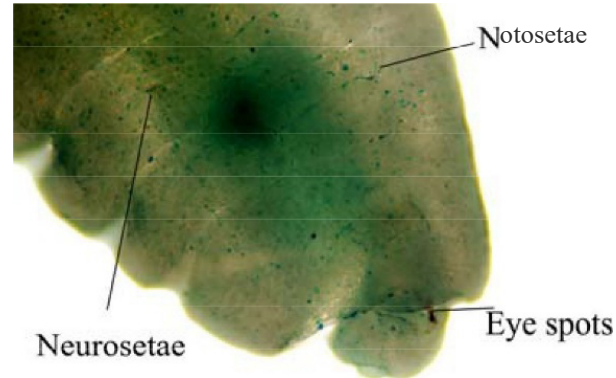
- Key Characters (Norris, 2008)

- Prostomium blunt; palpode present; eyes present, red
- Thorax with 11 chaetigers, chaetiger 1 uniramous; all capillaries
- Abdominal hooded hooks with main fang surmounted by many small teeth
- Branchiae unknown
- Pygidium unknown

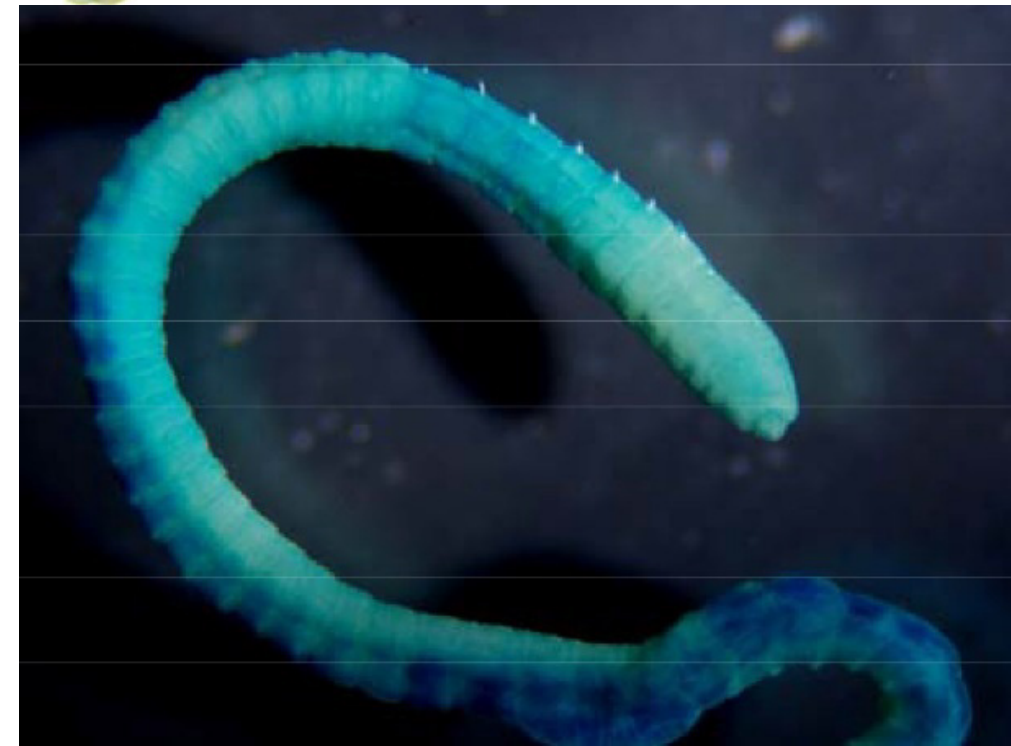
- Thoracic Formula $(^{11c}) / (0+10c)$

- MGS

- Stains in bands around chaetae in chaetigers 9-11
- Stains dorsally in abdominal chaetigers 19-45
 - May continue farther posteriorly but specimen was regenerating
- Abdominal ventrum unstained



Notomastus sp D Harris, 2011 §



Notomastus sp SF1 Norris, 2008 §

Notomastus sp D Harris, 2011 §.

** Also seen in Washington **

- Key Characters

- Thorax with 11 chaetigers, chaetiger 1 uniramous; all capillaries

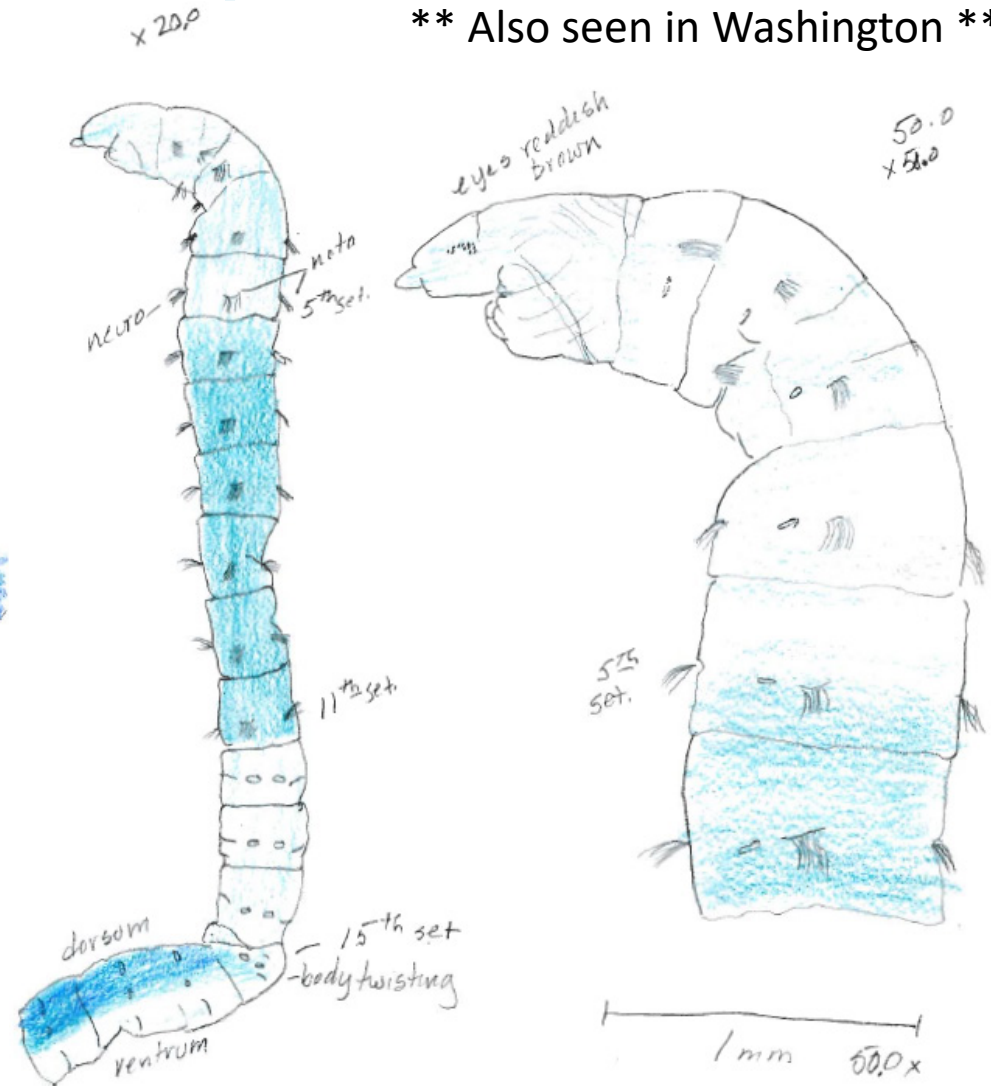
- Thoracic Formula

(11c) / (0+10c)

- MGS

- Thorax staining darker from chaetiger 5
- Abdomen with dorsal strip, ventrum unstained

Hyperon - LARWMP
LAREST-2
4.5m 16 Sept 2011
by QueensWay



Notomastus sp LA3 Haggin, 2023 §

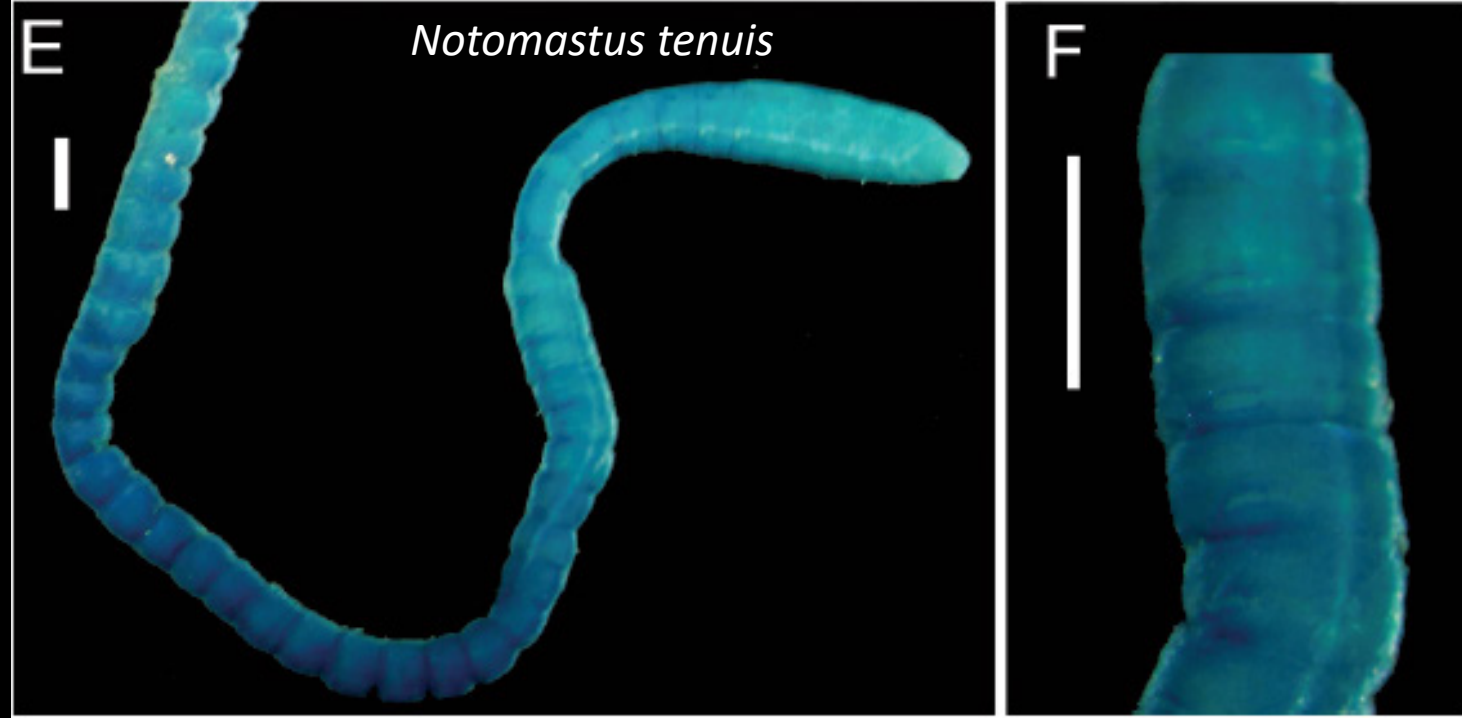
- **Key Characters** (specimen review [LACM-AHF Poly# 12392, LACM-AHF Poly# 12394])
 - Prostomium minute; palpode present; eyes not observed
 - Thoracic epithelium smooth, not noticeably inflated
 - Thorax with 11 chaetigers, chaetiger 1 biramous; all capillaries
 - Abdomen pinches laterally near branchial insertion, giving the appearance of a dorsal ridge in posterior abdomen
 - Branchiae present, palmate; arising from posterior notopodia
 - Pygidium detail not observed due to caudal regen
- **MGS**
 - Thorax stains uniformly
 - Abdomen with dorso-lateral stain, becoming more dorsal-only from branchial insertion, concentrating along dorsal ridge in branchial region
 - Branchiae unstaining, giving the appearance of two unstained spots dorsally in posterior abdomen
 - Abdomen unstained ventrally
- **Thoracic Formula** $^{(11c)}/_{(11c)}$
 - Found during review of DISCO specimens during June 2023 SCAMIT meeting at NHMLAC.
 - Redondo Canyon, Santa Monica Bay, CA; 320 m



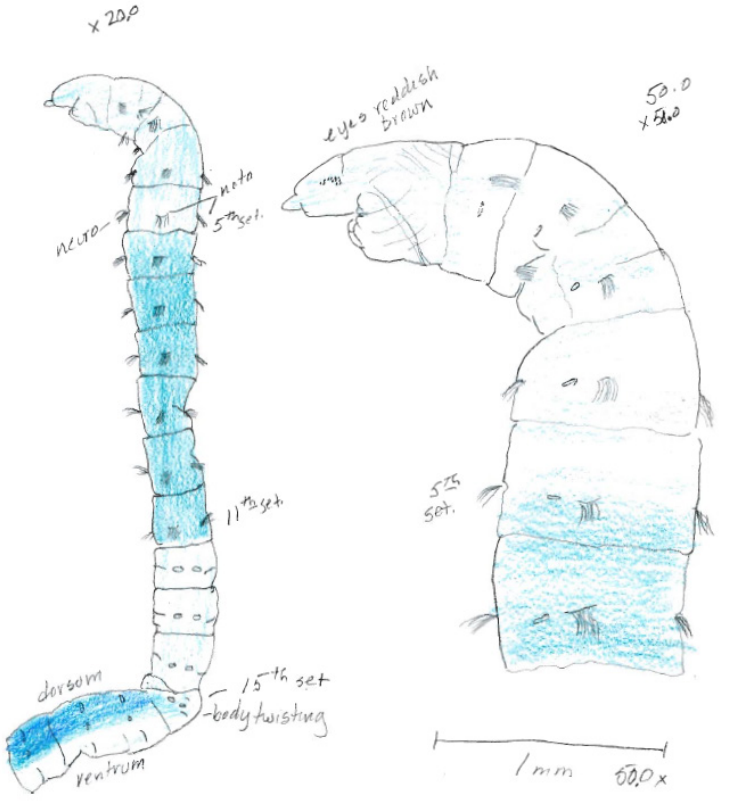
Notomastus stain comparison (with incomplete 1st chaetiger)



Notomastus hemipodus



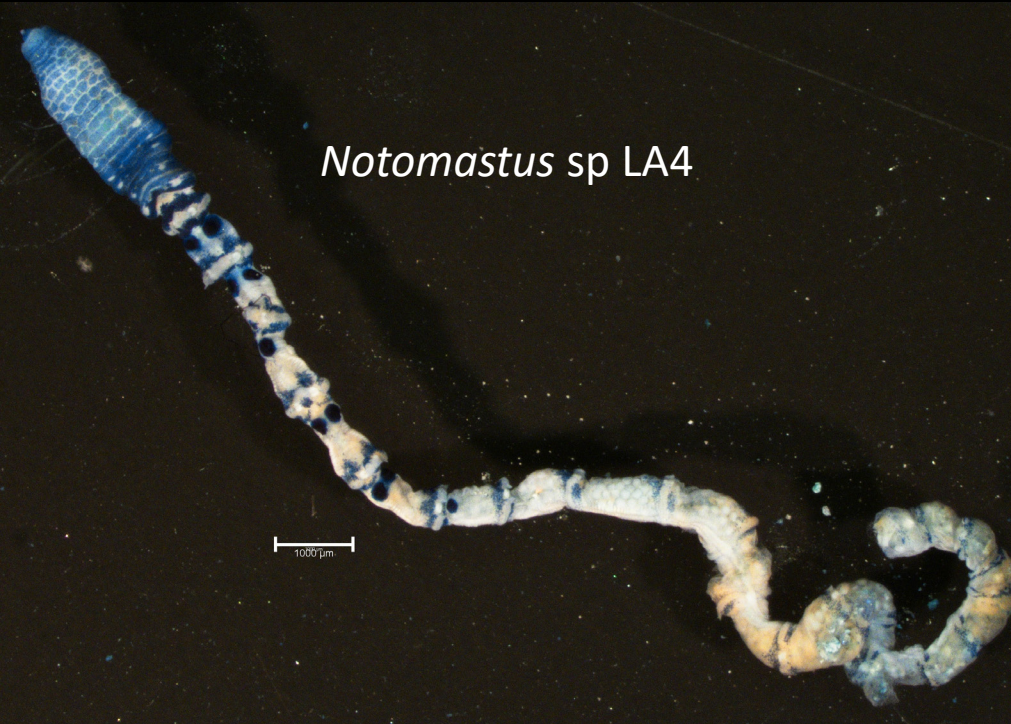
Notomastus stain comparison (with incomplete 1st chaetiger)



Notomastus sp SF1

Notomastus sp SF1

Notomastus stain comparison (with complete 1st chaetiger)

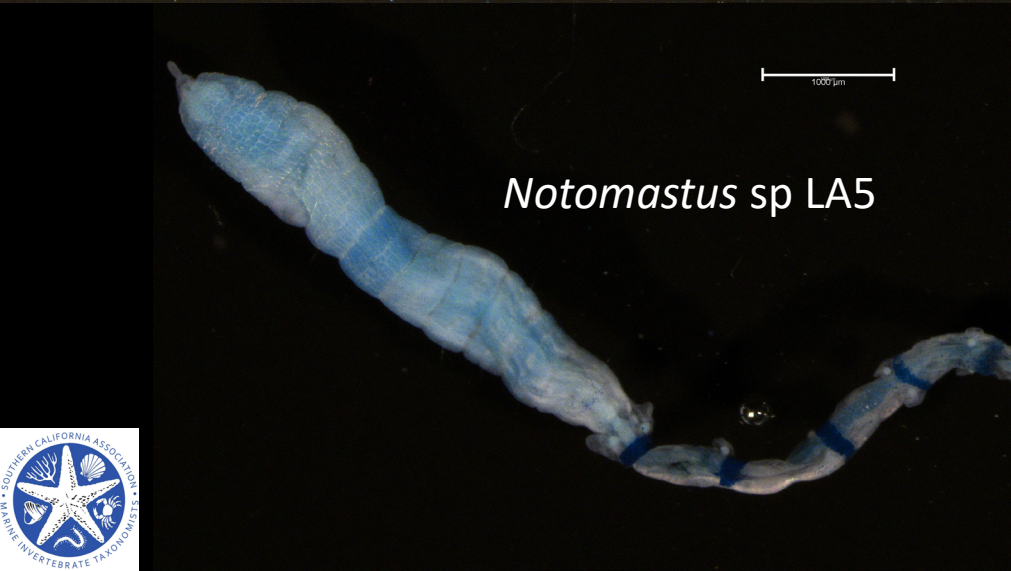


Notomastus sp LA4

1000 μm

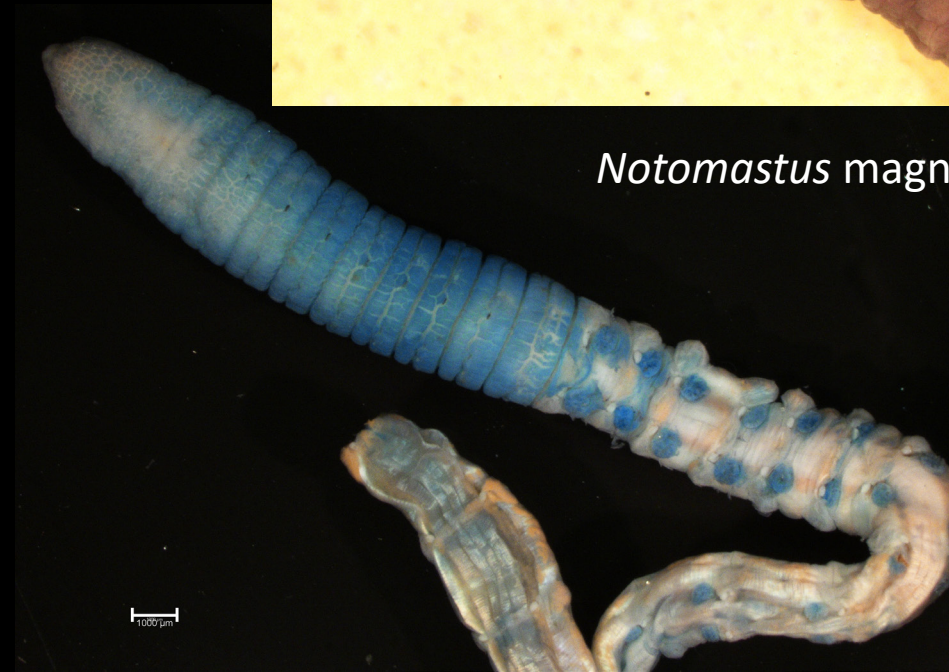


1000 μm



Notomastus sp LA5

1000 μm



Notomastus magnus

1000 μm

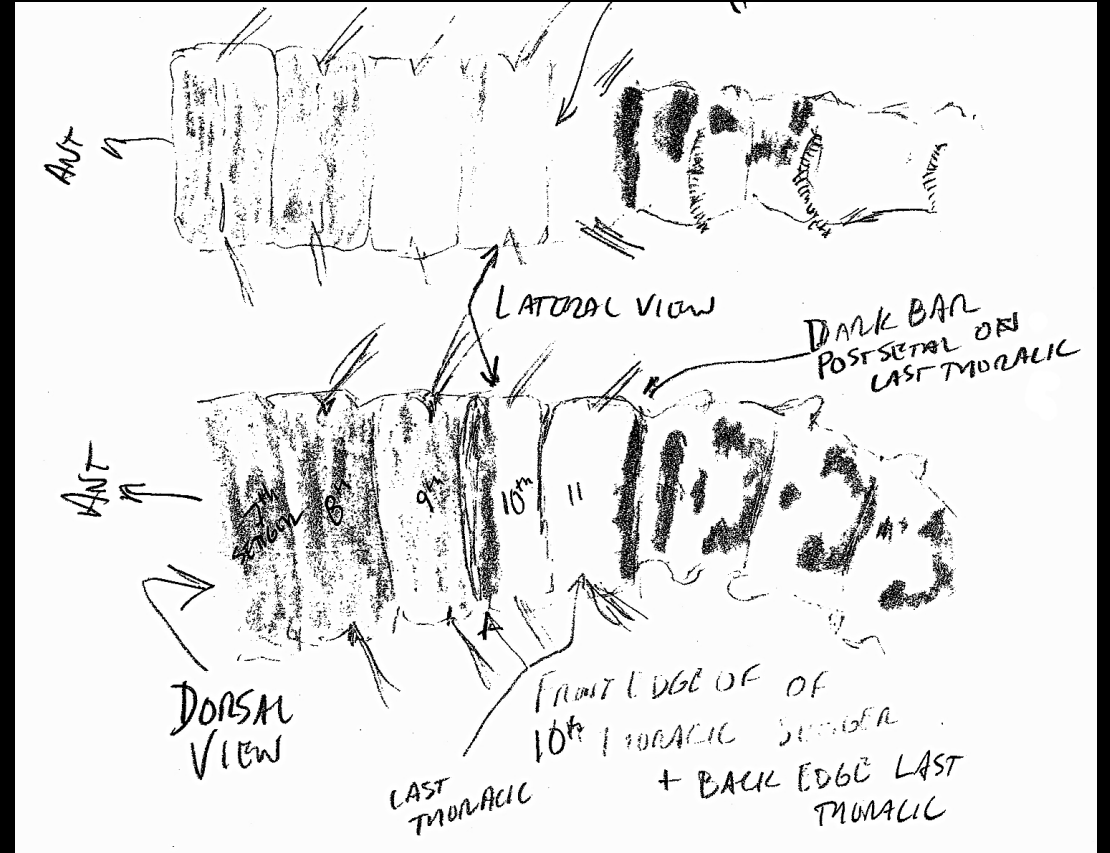
Notomastus stain comparison (with complete 1st chaetiger) continued



Notomastus sp SD2



Notomastus sp E



Notomastus sp SD3

Scyphoproctus

- **Generic Diagnosis** — (emended after da Silva & Amaral, 2019). Rounded prostomium without palpode; peristomium achaetous; intersegmental groove between peristomium and achaetous segment may be complete or incomplete. *Thorax with 9-14 chaetigers; achaetous segment with lateral organ present; last thoracic chaetiger with capillaries in both rami or with capillary notochaetae and neuropodial hooded hooks, all other thoracic chaetigers with capillary chaetae in both rami.* Abdomen with hooded hooks throughout or with one or more pre-anal chaetigers with acicular spines in the notopodia. Pygidium expanded as a poorly or well-developed anal plaque with a pair of ventral digitiform cirri; with or without a median membrane. Anal plaque with embedded or protruding acicular spines.
- **Thoracic Formula:** $(-) + {}^{(9-14c)}/_{(8-13c+1e)}$

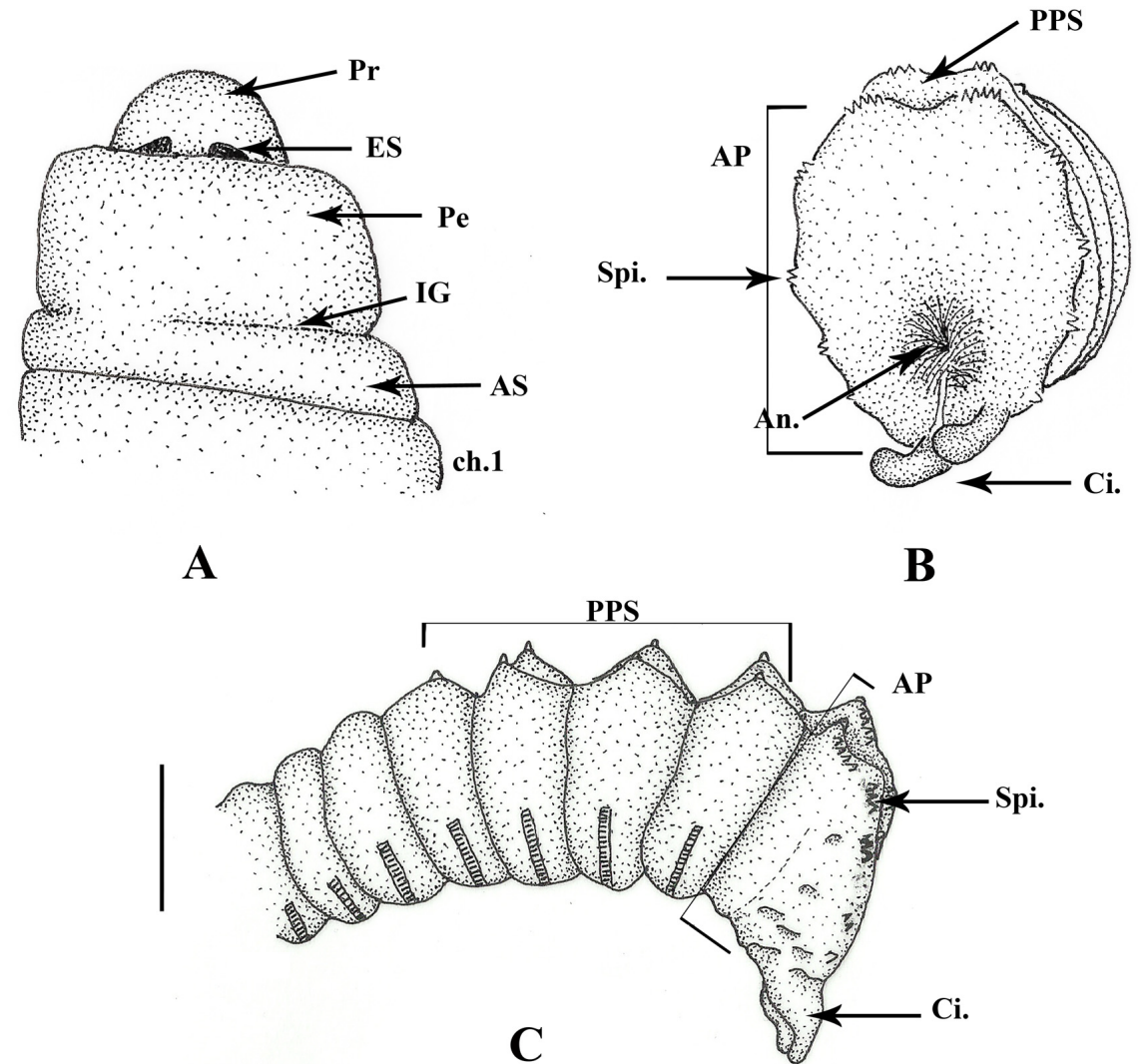
Scyphoproctus

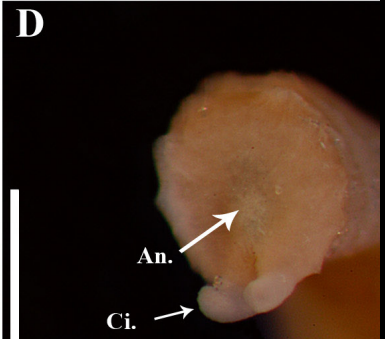
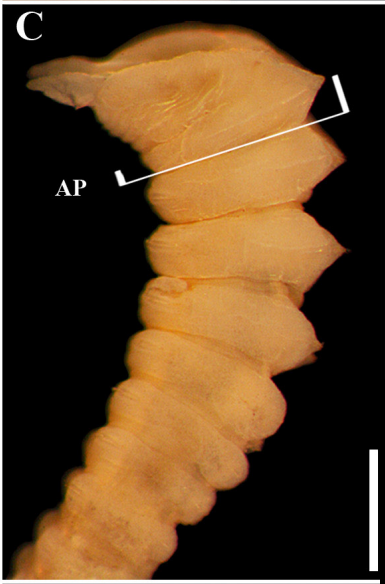
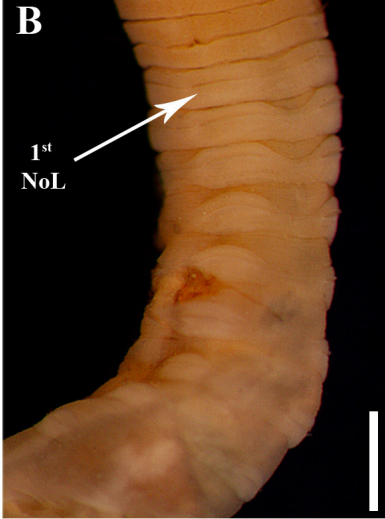
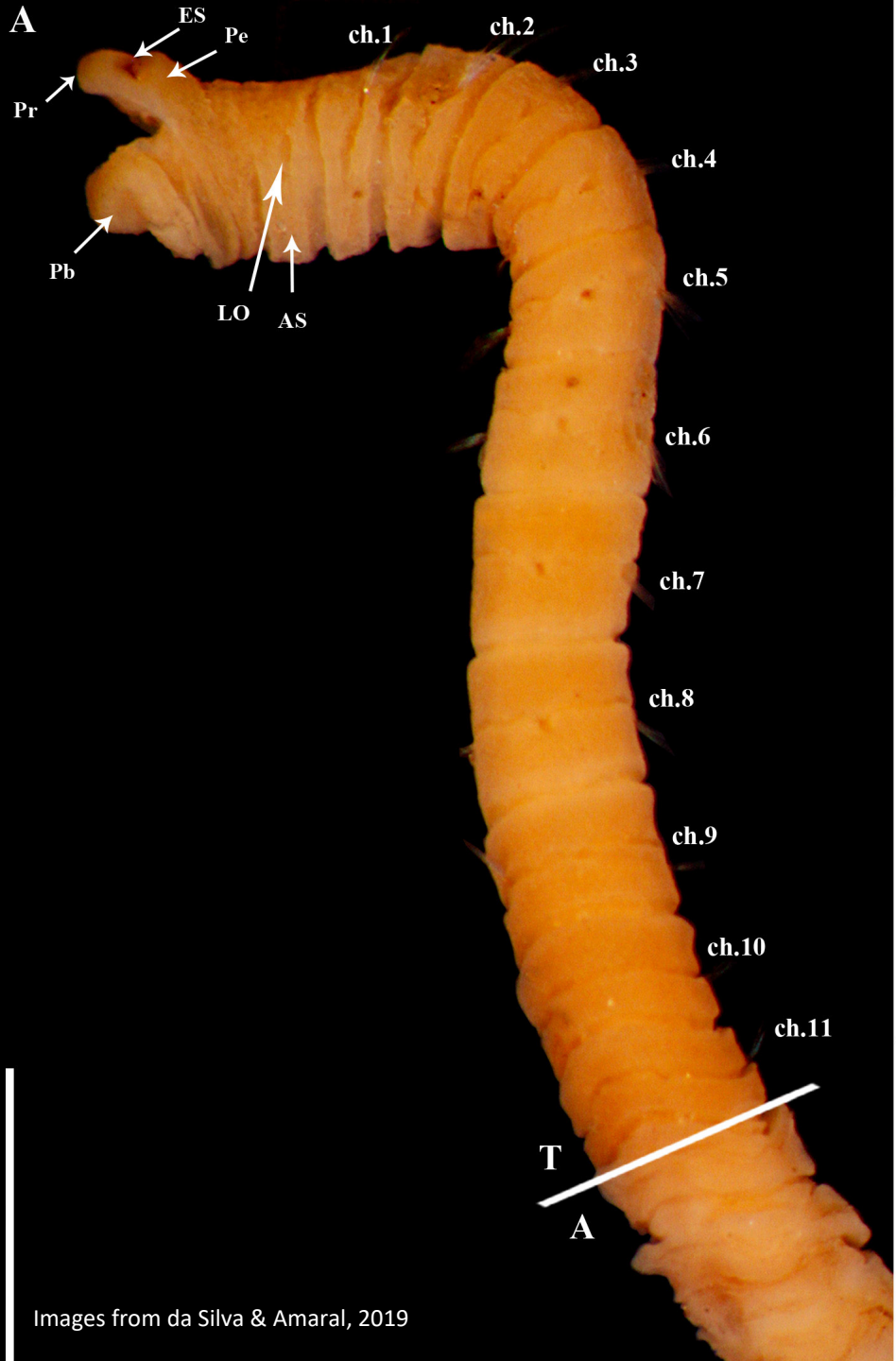
- **22 accepted species**

- *Scyphoproctus aciculatus* Mohammad, 1980; Kuwait; intertidal
- *Scyphoproctus armatus* (Fauvel, 1929); Gulf of Mannar, India
- *Scyphoproctus bifidus* (Augener, 1914); Australia; 3 m
- *Scyphoproctus djiboutiensis* Gravier, 1904; Red Sea
- *Scyphoproctus edmondsoni* Magalhães & Bailey-Brock, 2012; Hawaii
- *Scyphoproctus fasciculatus* Green, 2002; Andaman Sea, Thailand
- *Scyphoproctus glabrus* Green, 2002; Andaman Sea, Thailand; 19-61 m
- *Scyphoproctus guadalupensis* Gillet, 1986
- *Scyphoproctus lumenalis* Green, 2002; Andaman Sea, Thailand; 21-49 m
- *Scyphoproctus oculatus* Reish, 1959; Newport Bay, California, USA
- *Scyphoproctus ornatus* Hartmann-Schröder, 1979; Australia; eulittoral
- *Scyphoproctus paivai* da Silva & Amaral, 2019; Brazil; rocky intertidal
- *Scyphoproctus platyproctus* Jones, 1961; Florida; 30.5 m
- *Scyphoproctus profundus* da Silva & Amaral, 2019; Campos Basin, Brazil; 49 m
- *Scyphoproctus pseudoarmatus* (De Silva, 1965); Sri Lanka
- *Scyphoproctus pullielloides* Hartmann-Schröder, 1965; Palmyra Atoll, equatorial North Pacific Ocean
- *Scyphoproctus robustus* da Silva & Amaral, 2019; São Paulo, Brazil; intertidal
- *Scyphoproctus somalus* Cantone, 1976; Indian Ocean
- *Scyphoproctus steinitzii* Day, 1965; Red Sea; intertidal
- *Scyphoproctus telesphorei* da Silva & Amaral, 2019; Sri Lanka
- *Scyphoproctus towraiensis* Doyle, 1991; New South Wales, Australia
- *Scyphoproctus variabilis* Rangarajan, 1963; Gulf of Mannar, India

Scyphoproctus oculatus Reish, 1959

- **Key Characters** (from da Silva & Amaral, 2019 [redescription])
 - Prostomium broadly rounded, conical; palpode absent; eyes present, elliptical-shaped
 - Peristomium ~1.5X wider than achaetous segment; achaetous segment ~ to chaetigerous segments
 - Thoracic epithelium smooth, segments strongly biannulate
 - Lateral organs present from achaetous segment, genital pores present in posterior thorax
 - Thorax with 11 chaetigers, chaetiger 1 uniramous; all capillaries
 - Abdominal chaetigers with hooded hooks only; with large, triangular main fang surmounted by 10 teeth in 3 rows
 - Branchiae not described or absent
 - Four pre-pygidial segments with neuropodial hooks and notopodial spines
 - 3, 3, 2, 2
 - Pygidium with anal plaque well-developed, circle-shaped; with 5 sets of spines on each side
 - 5, 3, 2, 2, 1
 - 1 pair stout anal cirri
- Thoracic Formula (-) + ^(11c)/_(11c)





Scyphoproctus oculatus Reish, 1959

- Type Locality – Newport Bay, CA
- Reported by CLAEMD from Ballona Lagoon – 70m
- Reported by LACSD from San Gabriel River
- Reported by DCE in Bight '18
 - 121 individuals
 - 3 estuary sites
 - 2.2 - 3.2m
- Reported by OCSD in Bight '18 from a 7m bay site



Images from da Silva & Amaral, 2019

Image by L. Harris

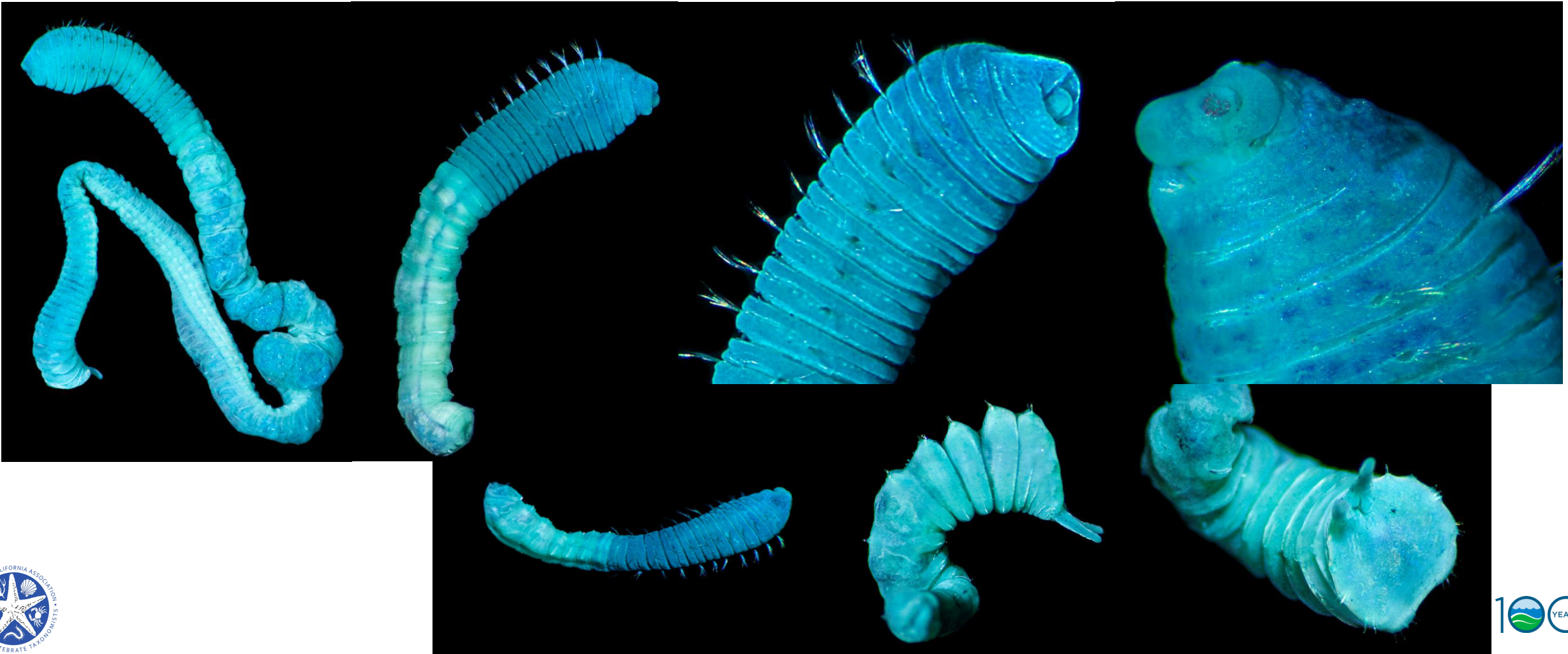


- **Methyl Green Stain** (from Harris, 2021)

(images by L. Harris, San Diego Bay, Merkel st. NB-ES, Rep. 3; 3m; 27MAY2020)

- Prostomium, Peristomium and thorax staining uniformly dark
 - Vento-lateral white dots are glands or sensory organs, they sometimes stain blue
- Abdomen staining uniformly light

Scyphoproctus oculatus Reish, 1959



Capitellidae

- Other species reported from the region
 - *Dasybranchethus pacifica* García-Garza & de León-González, 2009; Bahía Concepción, Baja California Sur, Mexico
 - *Neoheteromastus lineus* Hartman, 1960; San Nicolas Basin, southern California; 900-2000m
 - (from Blake, 2000; remarks for *Neomediomastus glabrus*)...As noted in the discussion for *Neoheteromastus lineus*, specimens from the Guaymas Basin exhibit overlap with *Neomediomastus glabrus*. Although the setal patterns in the material examined in this study do not overlap in a sample, the methyl green staining patterns are nearly identical, including a distinct band on the anterior half of setiger 5. I suspect, therefore, that the two species are the same. Final resolution must await study of the types of both species.
 - *Neonotomastus glabrus* Fauchald, 1972; western Mexico; TF $(10c)/(0+9c) + (1c+1m)/(1m+1h)$

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