



Puget Sound Polychaetes: Family Maldanidae



Family Maldanidae

General characters (from Light, 2007 and Imajima & Shiraki, 1982)

- Body long and cylindrical with 18 to 24 greatly elongated setigers and node-like glandular areas on each segment. Glandular areas stain with methyl green.
- Prostomium small and poorly defined; in combination with the larger peristomium forms a distinctive-looking head region which lacks appendages.
- Eversible pharynx is soft and papillated.
- Branchiae absent.
- Parapodia biramous, reduced, with notopodial capillary setae and neuropodial uncini or hooks; neurosetae on setigers 1-3 may be modified to form spines.
- Pygidium may be conical, truncate, funnel-shaped, or recessed into a funnel.

General notes

- Commonly known as “bamboo worms.”
- Most are head-down deposit feeders that occupy a cylindrical mud or sand tube.
- Good to have both head and tail for identification.
- Family not described in the Santa Barbara Taxonomic Atlas.
- Use Hobson and Banse, 1981, but know that it’s not inclusive. They break out the subfamilies, which is very helpful...distinct characteristics...points you in right direction to genus.
- Parapodia biramous – notosetae capillary, neurosetae are some kind of uncini, hooks, or spines.
- Genus *Asychis* is now *Chirimia*.

Subfamily-level diagnostic characters for Puget Sound species

- Presence/absence of cephalic plate.
- Shape of pygidium and location of anus relative to pygidium.
- Presence/absence and type of modified neurosetae.

Sub-family Maldaninae

(from Hobson & Banse, 1981)

- Cephalic plate with conspicuous rim.
- Anus dorsal to pygidial plate.
- Setiger 1 without neurosetae.

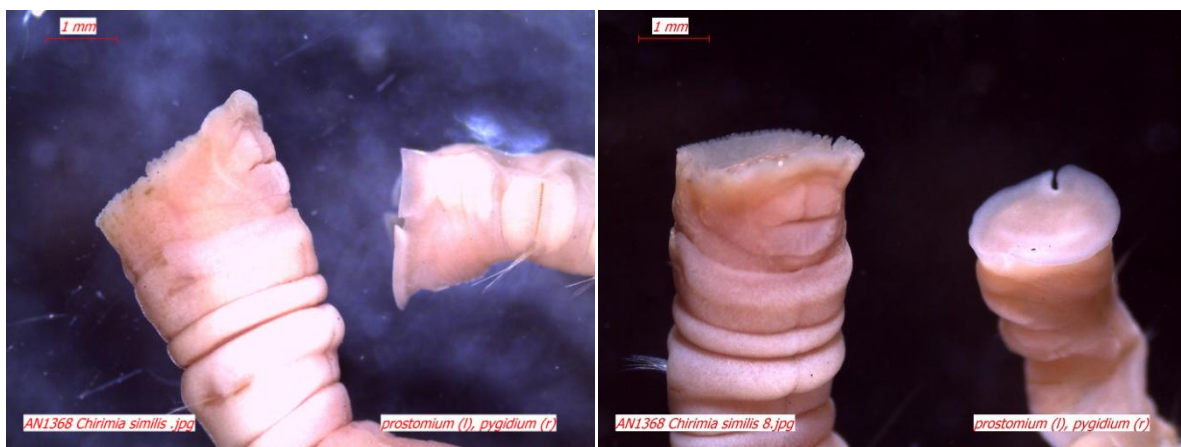
***Chirimia similis* (Moore 1906)**

(from Hobson and Banse, 1981)

- Lateral lobe of cephalic plate with smooth or slightly crenulate margin (see Moore, 1906) description).
- Ventral lobe of pygidial plate low, with slightly undulating margin; dorsal lobe large and flaring.
- Nuchal organs reaching margin of cephalic plate.



Whole body, lateral view (l); prostomium, lateral view (r)



Prostomium (left in each photo) and pygidium (right in each photo), lateral (l) and ventral (r) views



Cephalic plate, lateral view (l); pygidial plate, posterior view (r)

***Chirimia nr biceps* (M. Sars 1861)**

(from Imajima and Shiraki, 1982)

- Lateral lobe of cephalic plate with dentate margin (3-6 large prominent lobes).
- Dorsal lobe of cephalic plate with 12 – 25 teeth.
- Margin of pygidial lobes undulating or with a few weak teeth.



Anterior end, lateral view (l); prostomium and cephalic plate, anterior view (r)



Prostomium, lateral view (l); posterior end, lateral view (r)



Pygidium, lateral view (l)

***Maldane sarsi* Malmgren, 1865**

- Cephalic plate with low smooth rim with lateral incision and a long, high median keel.
- Setiger 1 without anterior collar.
- Pygidial plate with narrow rim, with weak lateral incision.
- *Maldane sarsi* used to be confused with *M. glebifex*, but now all Puget Sound specimens have been found to be *M. sarsi*.
- The two species are distinguished by a dorsal glandular crescent behind tori of setiger 5; *M. sarsi* has it, *M. glebifex* does not; most clearly visible with methyl green stain.

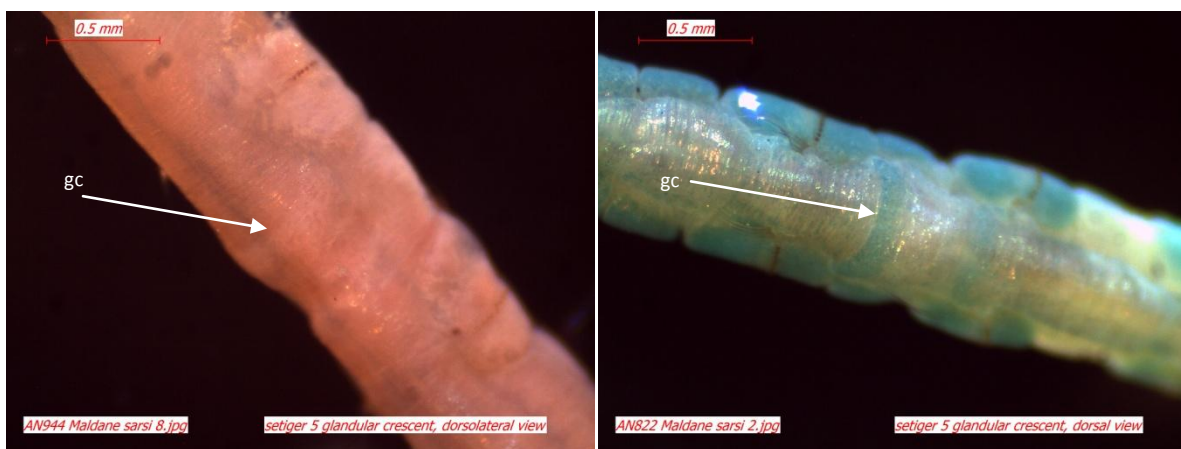
Family Maldanidae



Whole body, lateral view (l); anterior end, dorsolateral view, with long, high median keel (r)



Anterior end, lateral view, note median keel (l); prostomium, dorsal view (r)



Setiger 5 with dorsal glandular crescent (gc), dorsolateral view, unstained (l); dorsal view, stained (r)



Pygidium, dorsal view (l); ventral view (r)

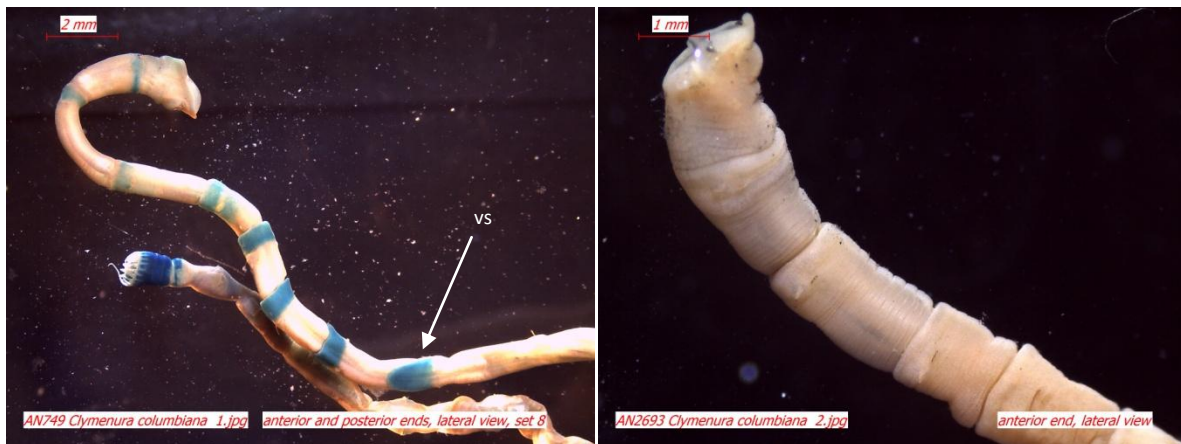
Sub-family Euclymeninae

(from Hobson & Banse, 1981)

- Cephalic plate with conspicuous rim.
- Anus central, either terminal or inside pygidial funnel.
- Setiger 1 usually with neurosetae.
- First 2 or 3 setigers with unmodified or modified uncini or spines.

Clymenura columbiana (E. Berkeley, 1929)

- Rim of cephalic plate conspicuous.
- Setiger 8 with triangular glandular area that extends anteriorly onto setiger 7.
- With low pygidial funnel; pygidial cirri numerous, short, except for long midventral cirrus.

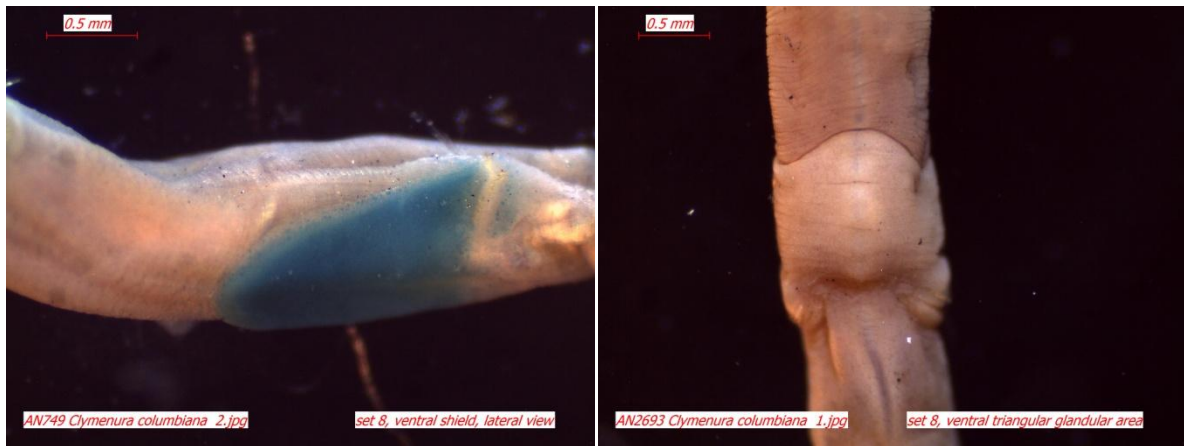


Whole body, lateral view, note ventral shield (vs) on setiger 8, methyl green staining (l); anterior end, lateral view (r)

Family Maldanidae



Anterior end, lateral view, note neuropodia (l); anterior end, lateral view (r)



Ventral shield on setiger 8, lateral view, methyl green staining (l), ventral view, unstained (r)



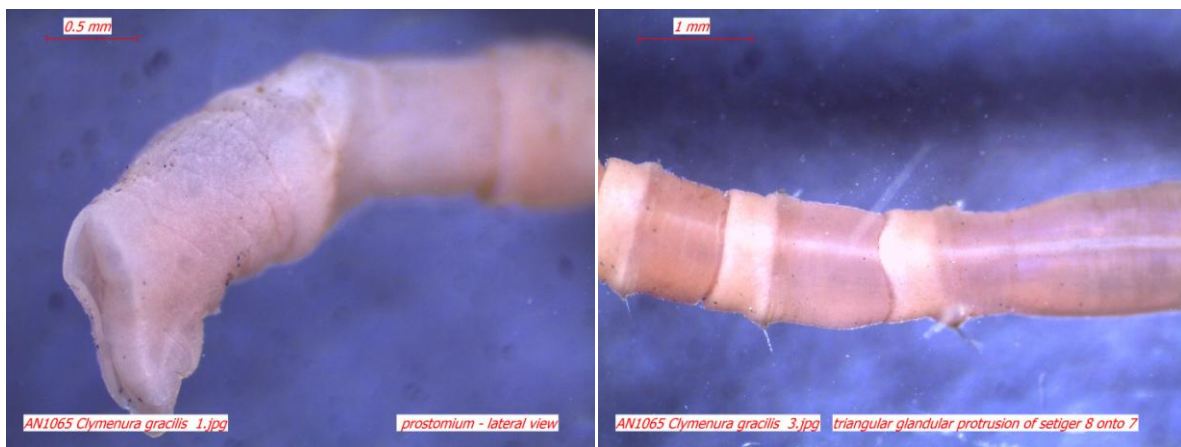
Pygidium, ventral view, methyl green staining - note low pygidial funnel; numerous, short, pygidial cirri; long midventral cirrus

“Clymenura” gracilis Hartman, 1969

- Not a true *Clymenura*; more probably a *Praxillella*; thus this should be treated as a provisional identification.
- Does have a small triangular glandular protrusion of setiger 8 onto setiger 7, but not as obvious as a true *Clymenura*.
- Lateral rim of prostomium very high.
- Prostomium and setigers 1-7 appear iridescent and shiny.
- Creamy glandular bands present on setigers 4-8.
- Pygidial cirri of equal length except for one long midventral cirrus.
- Has 5 asetigerous segments before the pygidium.
- Has a fragile sand tube.



Whole body, lateral view - shiny appearance, creamy glandular bands on sets 4-8, sand tube (l,r)



Prostomium, lateral view – note high lateral rim (l); triangular glandular protrusion of setiger 8 onto 7 (r)



5 asitigerous segments before pygidium (l); pygidium with cirri of equal length except for one long midventral cirrus (r)

Praxillella gracilis (M. Sars, 1861)

- Prostomium with a long fingerlike projection.
- First neuropodia with modified uncini.
- With 3 posterior achaetous segments preceding pygidium.
- Without pygidial funnel (the posterior end, if contracted, simulates a pygidial funnel); with pygidial cirri, ventral cirrus distinctly longer.
- May be quite large.



Whole body, lateral view (l); prostomium, lateral view, with fingerlike projection (r)



First neuropodia with modified uncini (l); pygidium on left and prostomium on right (r)



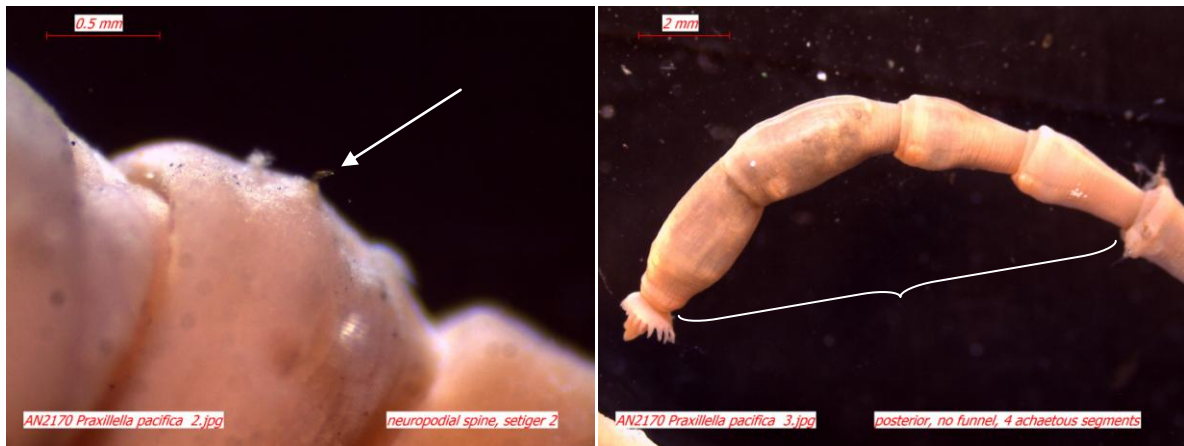
Three posterior achaetous segments preceding the pygidium

Praxillella pacifica E. Berkeley, 1929

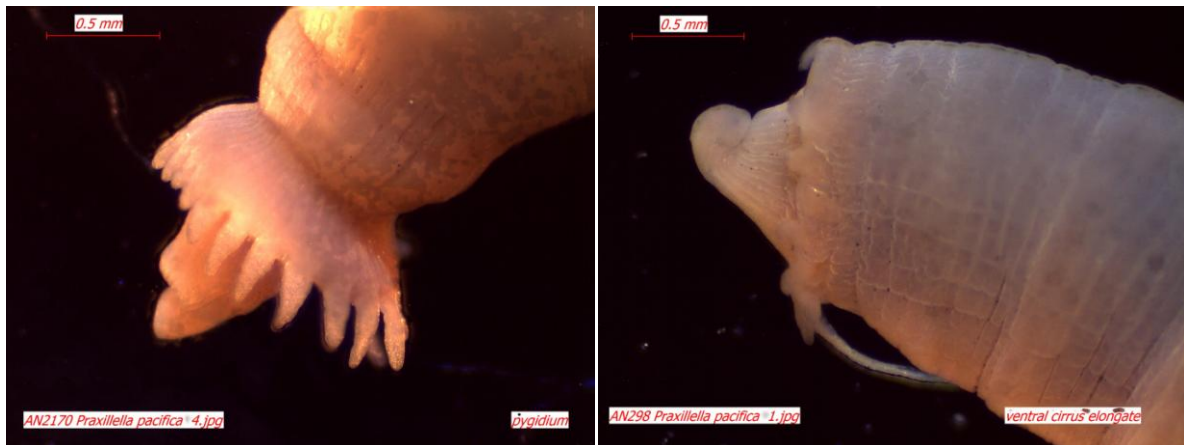
- Prostomium anteriorly obtuse.
- Setigers 1-3 with neuropodial spines.
- With 4 posterior achaetous segments preceding pygidium.
- Without pygidial funnel (the posterior end, if contracted, simulates a pygidial funnel); with pygidial cirri, ventral cirrus distinctly longer.
- May be quite large.



Anterior end, ventrolateral view (l); anterior end, dorsolateral view, setiger 1-3 with neuropodial spines (r)



Neuropodia spine, setiger 2 (l); posterior end with no funnel, 4 achaetous segments (r)



Pygidium, pygidial funnel absent (l); elongate ventral cirrus on pygidium (r)

Isocirrus longiceps (Moore, 1923)

- With 19 setigers.
- Setiger 3 often markedly telescoped into setiger 4, simulating collar; setigers 2 and 4 sometimes telescoped into setigers 3 and 5.
- First neuropodia with single straight spines.
- Glandular rings (may be cream colored) on 5th and following setigers.
- With pygidial funnel; pygidial cirri very short and of equal length.
- May be very large.
- Has a hard sand tube.

Euclymene cf zonalis Banse et al, 1968 not (Verrill, 1874)

- Lateral notches of cephalic rim distinct.
- Numerous small black eyes present on prostomium.
- Setiger 1 with spines, setigers 2 and 3 with modified uncini.
- Glandular rings in weakly pronounced rings on setiger 5 and following segments.
- Pygidial cirri slender, alternating in length; midventral cirrus clearly longest.
- Abdominal segments stain with longitudinal stripes when treated with methyl green.

Axiothella rubrocincta (Johnson, 1901)

- Rim of cephalic plate with middorsal notch.
- Setiger 4 without collar, but segments may be telescoped, resembling a collar.
- With 2 achaetous posterior segments, followed by a welted ring.
- Pygidial cirri filiform, alternating in length, midventral the longest.

Subfamily Rhodininae

- Cephalic plate absent.
- With membranous collars on 2nd and 3rd as well as posterior setigers.

Rhodine bitorquata E. Berkeley, 1929

- Cephalic plate absent.
- With membranous collars on 2nd and 3rd as well as posterior setigers.
- Uncini from setiger 5, in double rows in mid-body.
- Pygidium conical.



Anterior end, ventrolateral view, cephalic plate absent (l); setiger 5 uncini in double row (r)

Subfamily Nicomachinae

- Cephalic plate absent.
- Without membranous collars.
- Uncini always in a single row.
- With long, hair-like, twisted capillary notosetae, often several times longer than width of body, in median and posterior setigers.
- With pygidial funnel or scoop-like fold.

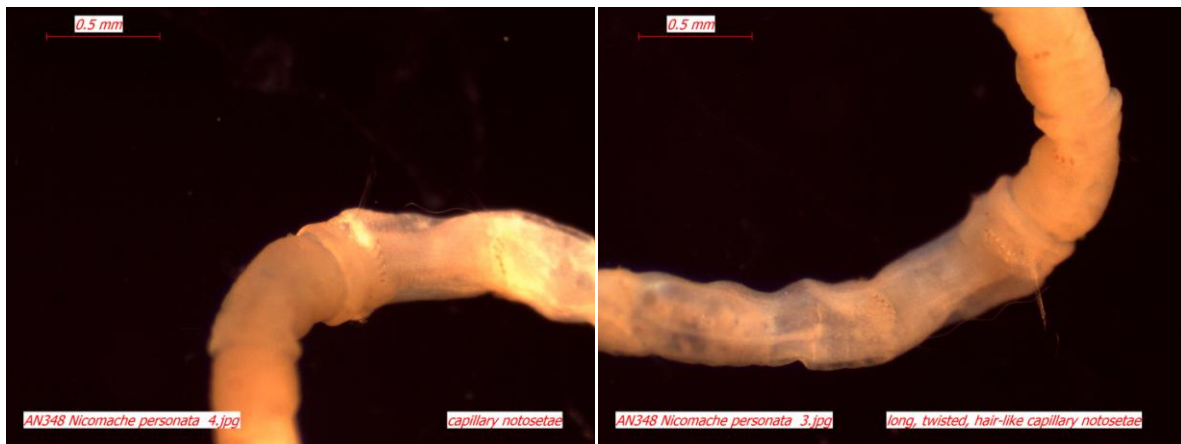
Nicomache personata Johnson 1901

- Cephalic plate absent.
- Anterior end with conspicuous white and brown markings (may fade in alcohol).
- With long, hair-like, twisted capillary notosetae, often several times longer than width of body, in median and posterior setigers.
- With 1 achaetous posterior segment.
- Pygidium with symmetrical funnel and cirri.

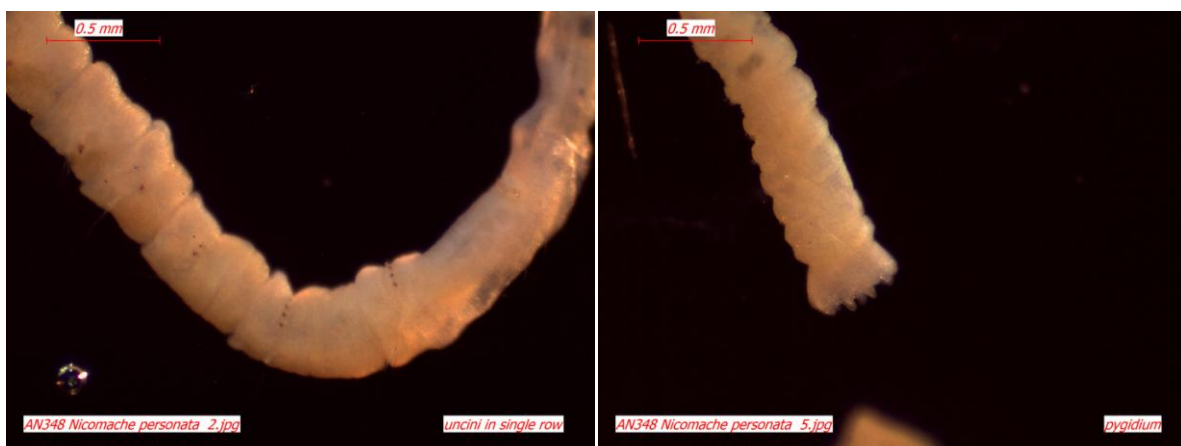
Family Maldanidae



Whole body, lateral view (l); anterior end, lateral view, brown markings, cephalic plate absent (r)



Long, twisted capillary notosetae in median and posterior setigers (l, r)



Uncini in single row (l); pygidium (r)

Nicomache lumbricalis (Fabricius 1780)

- Cephalic plate absent.
- Anterior end without conspicuous white markings
- First 3 setigers with spines; setigers 4 and 5 with modified uncini.
- With long, hair-like, twisted capillary notosetae, often several times longer than width of body, in median and posterior setigers.
- With 2 achaetous posterior segment.
- Pygidium with symmetrical funnel and cirri.

Petaloproctus tenuis (Théel 1879)

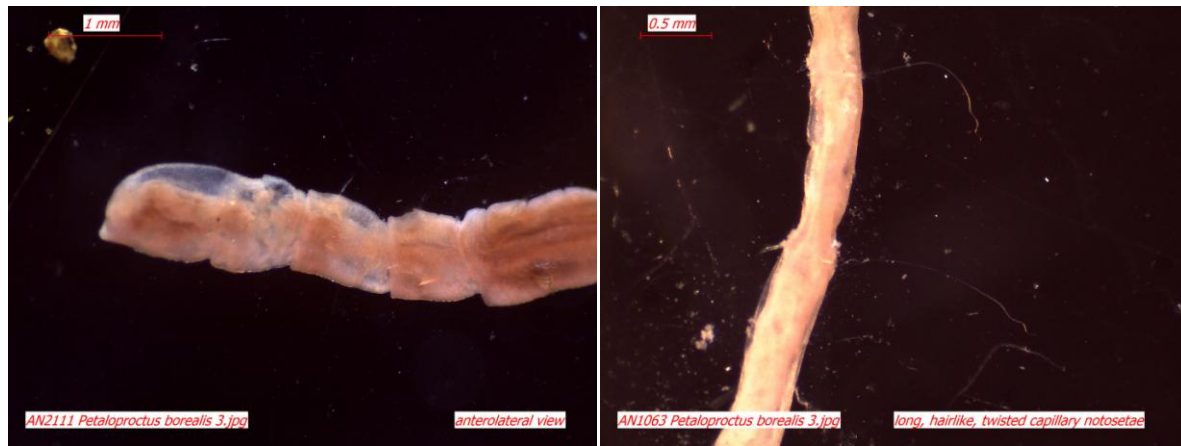
- Cephalic plate absent.
- With 20 setigers.
- With long, hair-like, twisted capillary notosetae, often several times longer than width of body, in median and posterior setigers.
- Pygidial scoop with crenulate or toothed margin.

Petaloproctus borealis Arwidsson 1906

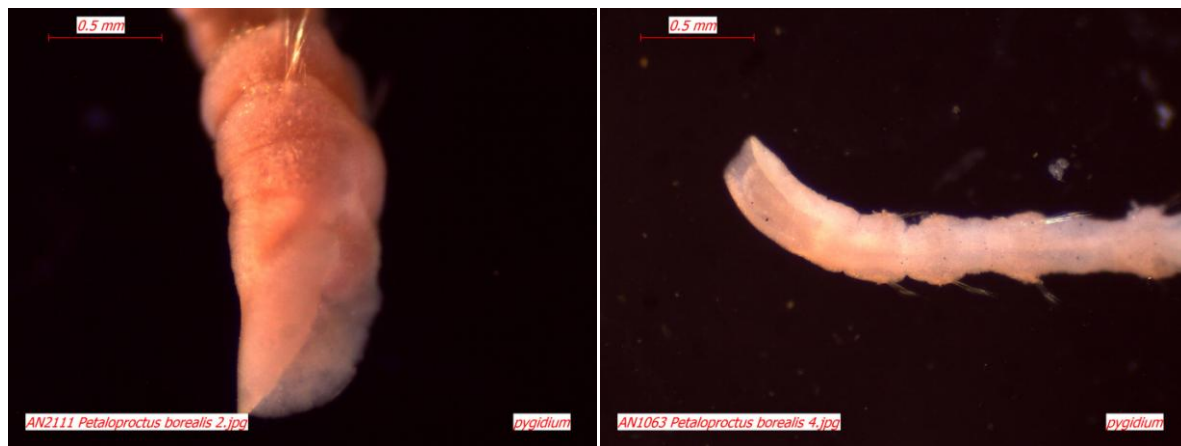
- Cephalic plate absent.
- With 21 setigers.
- With long, hair-like, twisted capillary notosetae, often several times longer than width of body, in median and posterior setigers.
- Pygidial scoop with smooth margin.



Whole body, lateral view, note long twisted capillary notosetae (l); anterior end, ventrolateral view, cephalic plate absent (r)



Prostomium, anterolateral view, cephalic plate absent (l); midbody, note long, hairlike, twisted capillary notosetae (r)



Pygidial scoop with smooth margins, lateral view (l); ventral view (r)

Subfamily Lumbriclymeninae

- Cephalic plate absent.
- Without long, hair-like capillary notosetae.
- Without pygidial funnel; with or without pygidial plate.

Notoproctus pacificus

- Cephalic plate absent.
- First 3 or 4 setigers with acicular spines.
- Without long, hair-like capillary notosetae.
- With squat pygidial plate; anus dorsal.

Family Maldanidae

Additional species of Maldanidae found in Puget Sound

Clymenella complanata

Clymenella torquata

Metasychis disparidentatus

Literature

Green, K. D. 1984. Review of the subfamily Maldaninae (Polychaeta: Maldanidae) and revision of MALDANE-like species. Master Thesis, California State Univ., Long Beach. 202 pp.

Hobson, K. D. and K. Banse. 1981. Sedentariate and archiannelid polychaetes of British Columbia and Washington. Canadian Bulletin of Fisheries and Aquatic Sciences v.209:145.

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Light, S.F. 2007. The Light and Smith manual: intertidal invertebrates from central California to Oregon. 4th edition. J.T. Carlton, ed. University of California Press, Berkeley, California. 1001 pages.

More Information

More information about Puget Sound benthic invertebrates is available at:
<http://www.ecy.wa.gov/programs/eap/sediment/>

This document is available on the Department of Ecology's website at
<https://fortress.wa.gov/ecy/publications/SummaryPages/1403240.html>.

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These notes were compiled by Kathy Welch and Maggie Dutch after a polychaete workshop held on April 23 and May 14, 2014 at the Department of Ecology.