

## Puget Sound Polychaetes: Family Polynoidae



### Family Polynoidae

#### General characters (from Ruff, 1995)

- Body dorso-ventrally flattened; scales (elytra) beginning on setiger 2 and alternating with dorsal cirri down most of the body length; elytra often detach from dorsum.
- Prostomium usually bilobed; anterolateral corners more or less produced into cephalic peaks; with one median and 2 lateral antennae and a pair of ventrally attached palps.
- Eyes usually present, consisting of two pairs arranged in a trapezoid. Placement of eyes can be important. Sometimes the anterior pair will be under prostomial peaks, and this can distinguish the species.
- Eversible pharynx with 2 pairs of keratinized jaws.
- Parapodia usually biramous (rarely subbiramous = notopodium with an acicula, but without notosetae); all setae simple. Setae usually have some type of structure or ornamentation that is distinctive for the species.
- Often commensal with other animals, found in tubes of other animals.
- Most species with fewer than 50 segments, but a few are long, over 100 setigers.

#### Common species of Polynoidae found in Puget Sound

##### *Harmothoe imbricata* (Linnaeus, 1767)

(from Ruff, 1995, pg. 132)

- Body dorsoventrally flattened, usually with some pigmentation on dorsum and around parapodia; with fewer than 50 segments.
- Prostomial peaks prominent.
- Anterior pair of eyes situated beneath prostomial peaks (may be visible dorsally through prostomium).
- Lateral antennae inserted ventrally beneath anterior margin of prostomium.
- Fifteen pairs of large, thick elytra, covering dorsum, but easily detached; elytra surface with numerous bluntly conical microtubercles and scattered surface and marginal papillae; larger specimens with globular macrotubercles near posterior margin of elytra; with a variety of pigment patterns and coloration.
- All notosetae with blunt tips; with spinules arranged in transverse rows.
- Some neurosetae bidentate, without capillary tips.

## Family Polynoidae

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Whole body, dorsum (l); anterior end, dorsum (r)

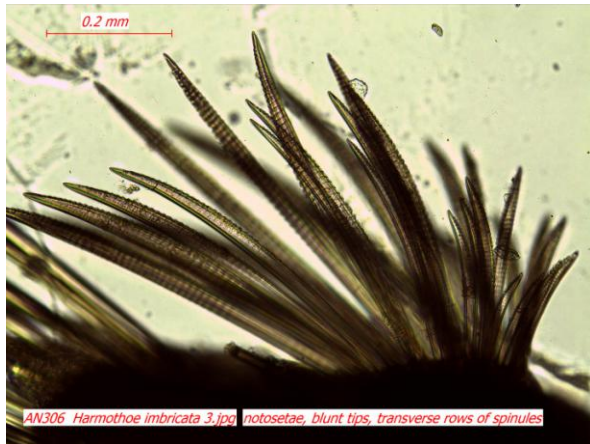


Anterior end, dorsum (l); eyes beneath prostomial peaks (r)

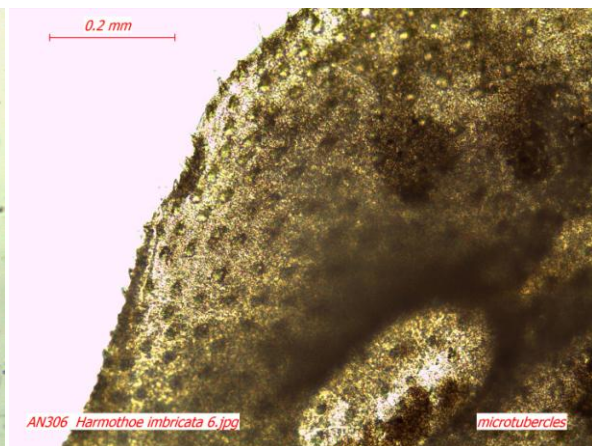


Anterior end, ventrum, antennae inserted ventrally (l); median parapodium (ventral cirrus at bottom) (r)

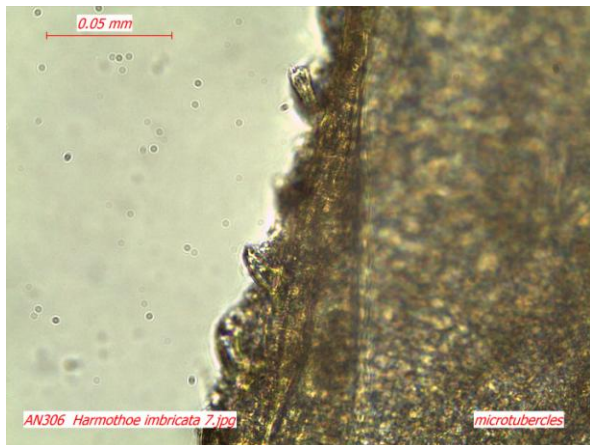
## Family Polynoidae



Notosetae are blunt-tipped, with transverse rows of spinules (l); neurosetae bidentate, wo capillary tips (r)



Elytrum with marginal papillae (l), elytrum with microtubercles (r)



Elytral microtubercles

*Gattyana cirrhosa* (Passas, 1766)

(from Banse & Hobson)

- Body dorsoventrally flattened; with fewer than 50 segments.
- Prostomial peaks prominent; anterior pair of eyes situated beneath prostomial peaks (may be visible dorsally through prostomium).
- Lateral antennae inserted ventrally beneath anterior margin of prostomium.
- Fifteen pairs of large, thick elytra, covering dorsum, but easily detached; elytra surface without macrotubercles; surface microtubercles with 1 – 4 prongs; elytral margins with heavy fringe of long papillae.
- Notosetae with spinules arranged in transverse rows; upper notosetae with blunt tips; lower notosetae with capillary tips.
- All neurosetae unidentate, without capillary tips; upper neurosetae with relatively short spinous regions; lower neurosetae with bare tips equal to or shorter than spinous regions.



Whole body, dorsum (l,r)



Anterior end, dorsum, pharynx everted (l); ventrum (r)

## Family Polynoidae

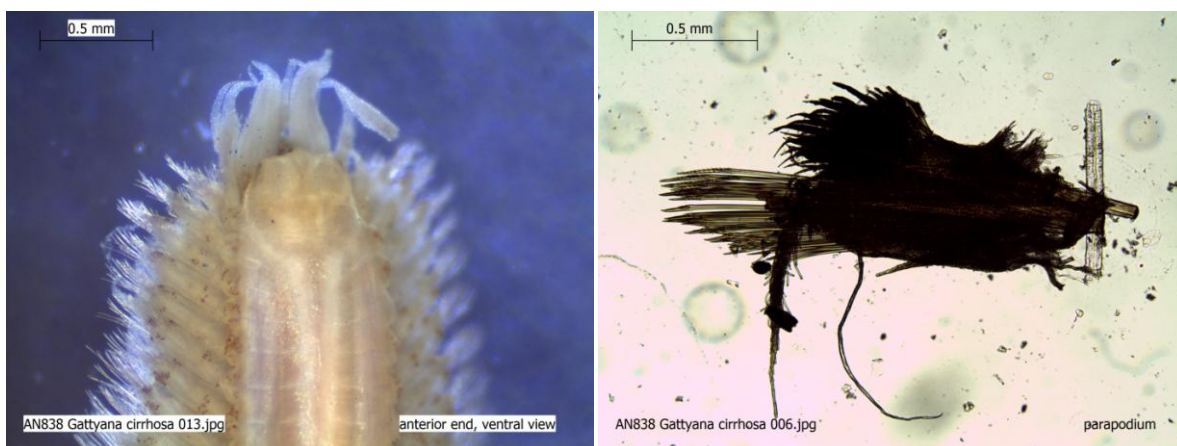
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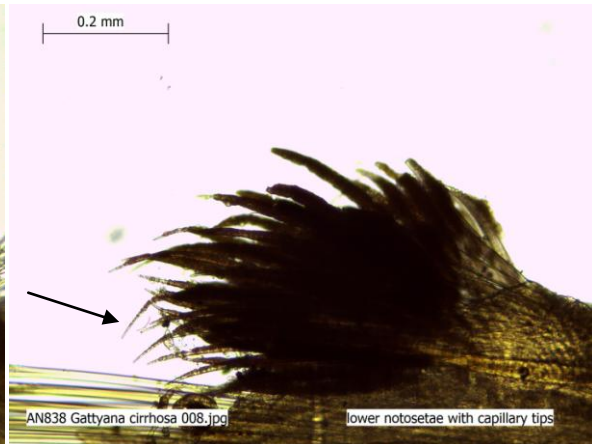
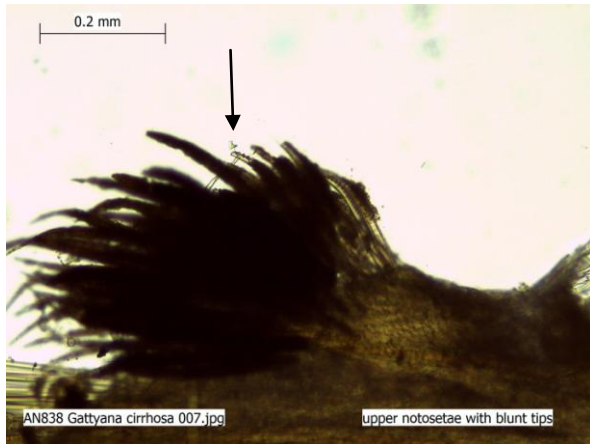
Whole body, ventrum (l); prostomium, dorsum, eyes under prostomial peaks (r)



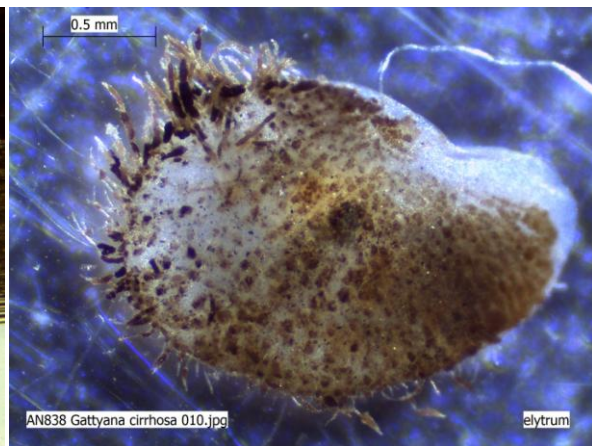
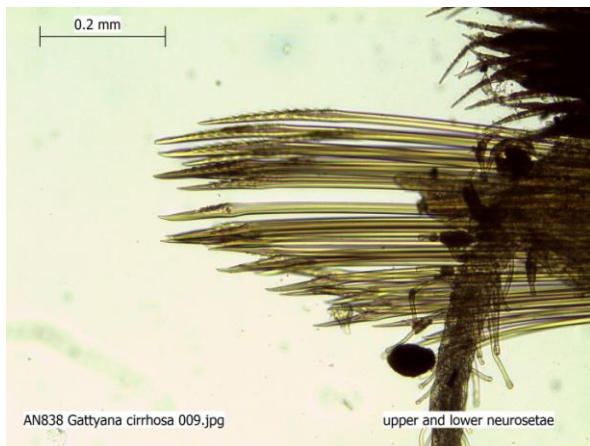
Anterior end, ventrum, note eye under prostomial peak (l,r)



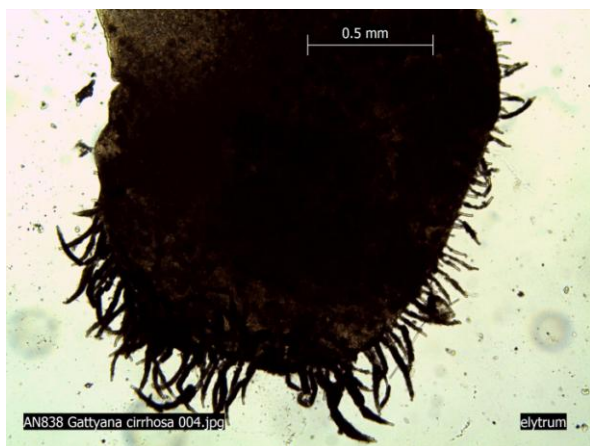
Anterior end, ventrum (l); parapodium (r)



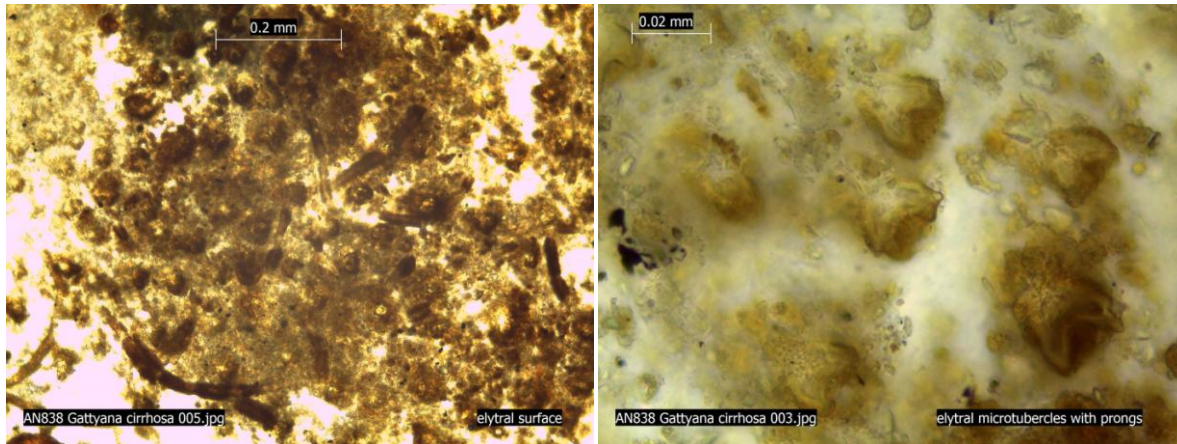
Upper notosetae with blunt tips (l); lower notosetae with capillary tips (l)



Upper and lower neurosetae (l); elytrum (r)



Elytrum

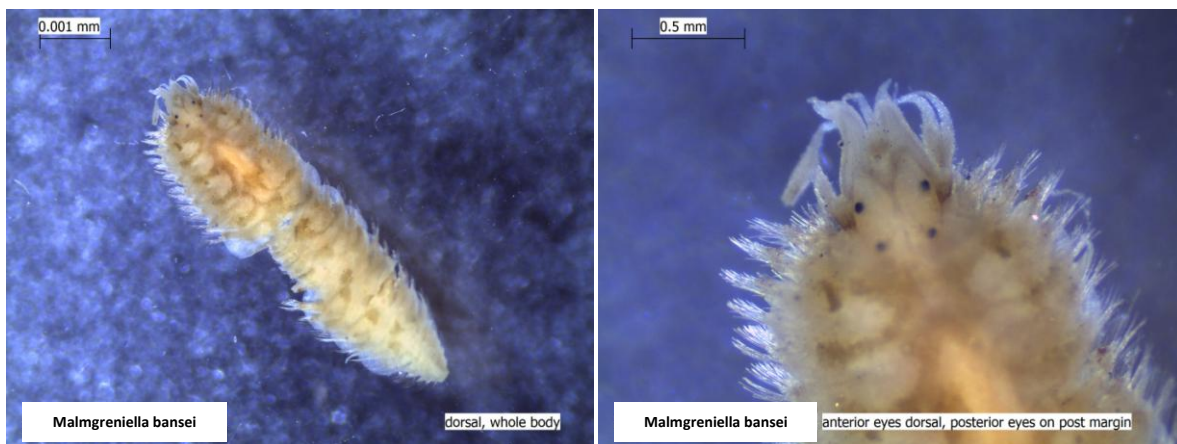


Elytral surface (l); microtubercles with prongs (r)

***Malmgreniella bansei* Pettibone, 1993**

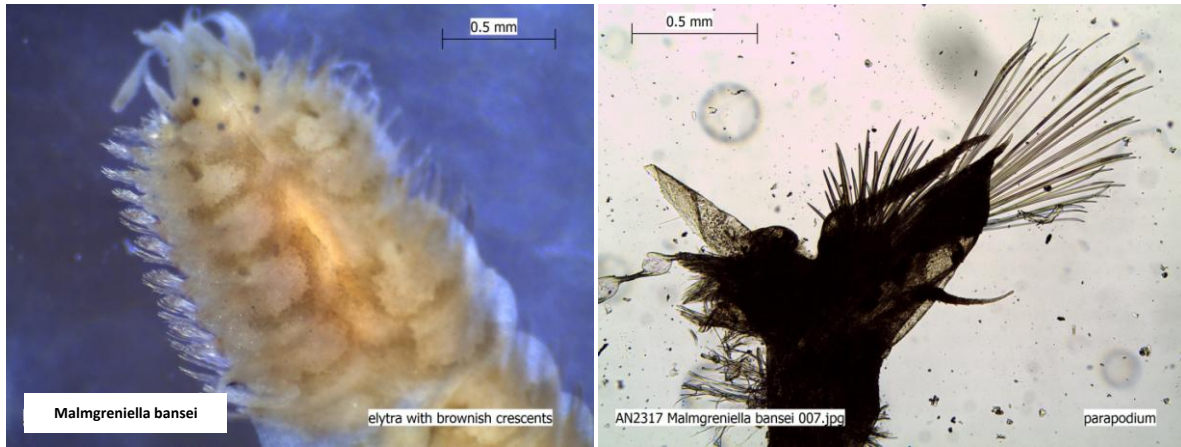
(from Pettibone, 1993)

- Body dorsoventrally flattened, with fewer than 50 segments.
- Prostomial peaks small, slightly pointed; anterior pair of eyes situated dorsally, slightly anterior to widest part of prostomium; posterior pair of eyes located on the posterior margin of prostomium.
- Lateral antennae inserted ventrally beneath anterior margin of prostomium.
- Fifteen pairs of opaque elytra, covering dorsum, with branching “veins” and a large group of microtubercles on anterior part; elytral surface with brownish pigment in spots and crescent shapes.
- Notosetae stout, blunt, with spinules arranged in longitudinal rows.
- Supra-acicular lobe of neuropodia long, tapering, often pointing upward; upper neurosetae with long spinous region; lower neurosetae bifid with slightly hooked tip and short pointed tooth.

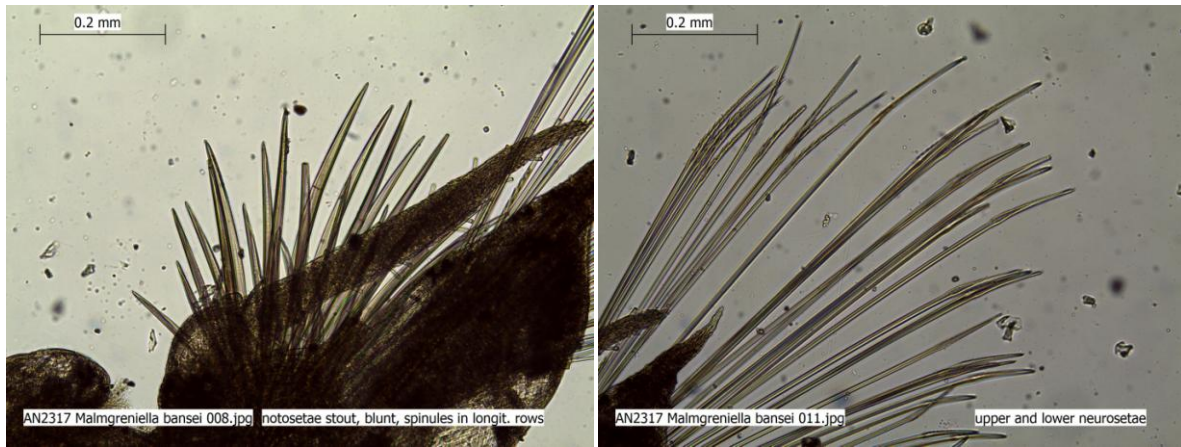


Whole body, dorsal view (l); anterior end, anterior eyes dorsal, posterior eyes on posterior margin or prostomium (r)

# Family Polynoidae



Anterior end, dorsal view, elytra with brownish pigment in crescent (l); parapodium (dorsal to left) (r)

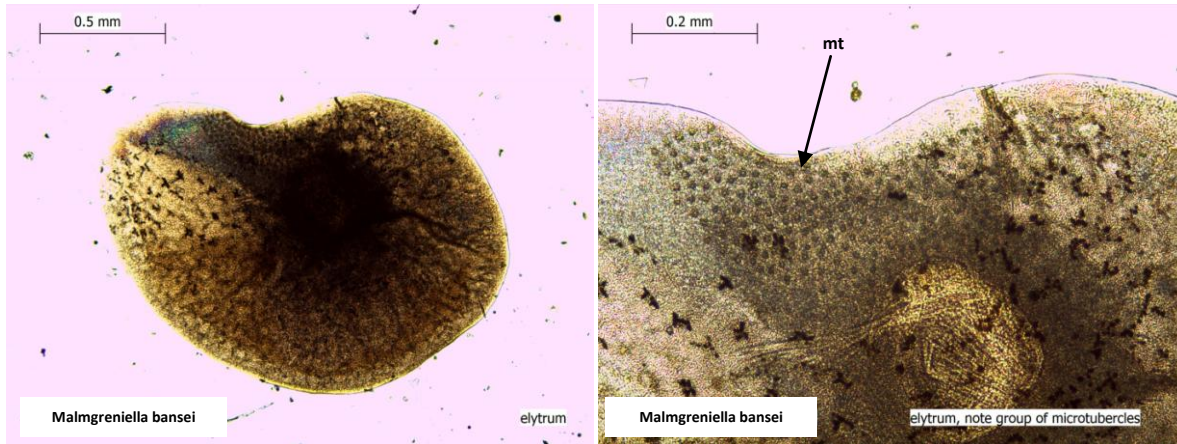


Notosetae stout, blunt, with spinules arranged in longitudinal rows (l); upper neurosetae with long spinous region, lower neurosetae bifid with slightly hooked tip and short pointed tooth (r)



Lower neurosetae bifid with slightly hooked tip and short pointed tooth





Elytrum (l,r); note brownish pigment spots and group of microtubercles (mt) anteriorly (r)

***Tenonia priops* (Hartman, 1961)**

(from Ruff, 1995)

- Body short, dorsoventrally flattened, with about 39 segments; dorsum with distinctive wide bands and narrow intersegmental bands of dark reddish to black pigment.
- Prostomial peaks weakly developed; with 2 pairs of large eyes, the anterior pair situated beneath the prostomial peaks and visible through the prostomium.
- Lateral antennae inserted ventrally beneath anterior margin of prostomium.
- Fifteen pairs of circular elytra, not covering dorsum in anterior segments; thin, translucent, and nearly smooth with a few inconspicuous microtubercles; with brown pigment around attachment scar.
- All notosetae ending in capillary tips.
- Notosetae with both capillary and blunt, bifid tips.



Whole body, dorsal view, note intersegmental bands (l); whole body, ventral view (r)

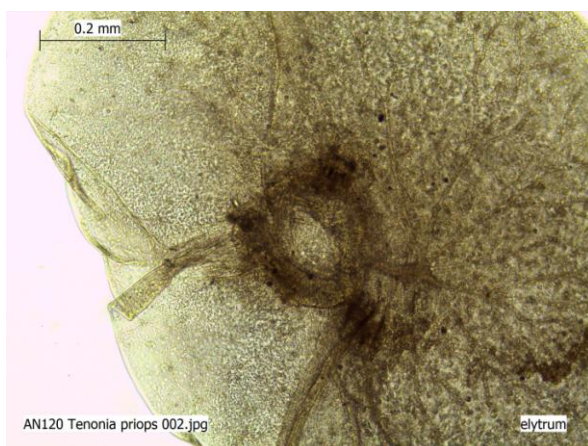
## Family Polynoidae



Parapodium, dorsal at top of photo (l); Notosetae with capillary tips (r)



Neurosetae with capillary and blunt, bifid tips (l); elytrum (r)

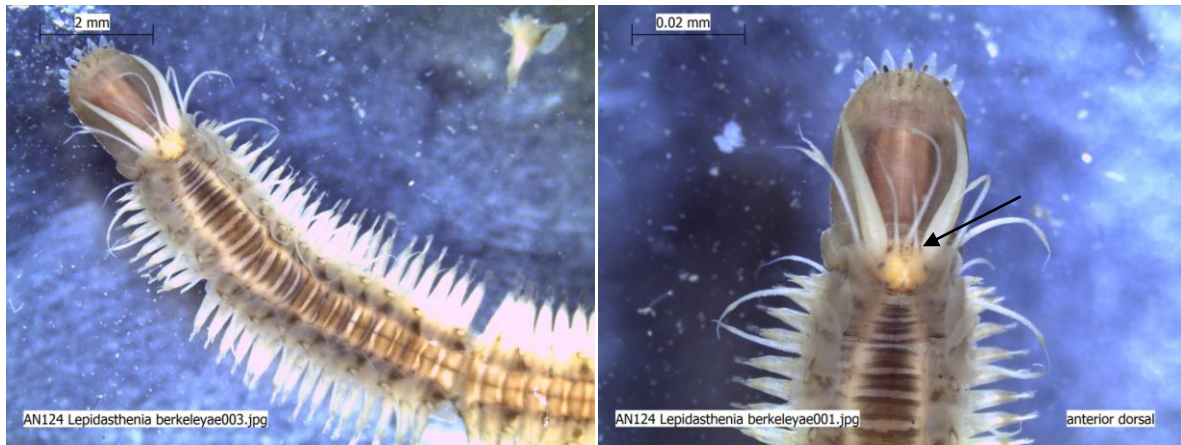


Elytrum, thin, translucent, nearly smooth, brown pigment around attachment scar

*Lepidasthenia berkeleyae* Pettibone, 1948

(from Ruff, 1995)

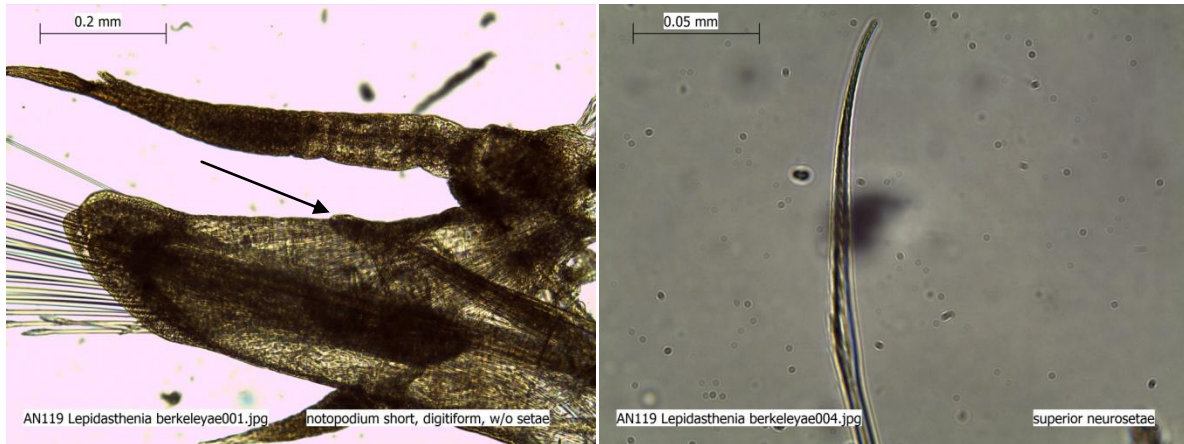
- Body dorsoventrally flattened, with up to 100 segments; dorsum colorless or with transverse bands of brown pigment.
- Prostomium projecting anteriorly into lateral antennae.
- Elytra oval, thin, translucent, surface smooth with dark brown pigment; **not covering median dorsum.**
- Parapodia subbiramous; **notopodium short**, digitiform, without setae.
- Superior neurosetae slender, tapering to a knobbed tip; inferior neurosetae stouter, with **bifid tips.**



Anterior end, dorsal view, transverse bands of brown pigment, elytra - thin, translucent, not covering median dorsum (l); prostomium projecting anteriorly into lateral antennae (r)



Prostomium (l); parapodium (dorsal surface to left in photo) (r)



Notopodium short, digitiform, without setae (l); superior neurosetae slender, tapering to knobbed tip (r)



Inferior neurosetae stout (l,r); with bifid tips (r)

### *Lepidasthenia longicirrata* Berkeley, 1923

(from Ruff, 1995)

- Body dorsoventrally flattened, with up to 118 segments; dorsum with wide bands of dark brown pigment.
- Prostomium projecting anteriorly into lateral antennae.
- Elytra oval, thin, translucent, surface smooth with dark brown pigment; **covering dorsum**.
- Parapodia subbiramous; **notopodium long**, digitiform, reaching nearly to base of neuropodial lobes, without setae.
- Superior neurosetae long, slender, tapering to a fine knobbed tip; inferior neurosetae stouter, with **minutely bidentate tips**.
- Proximal dorsal margin of notopodia and ventral margin of neuropodia with **fringe of short, squat papillae**.

## Family Polynoidae



Anterior end, dorsal view, prostomium projecting anteriorly into lateral antennae, wide bands of dark brown pigment (l,r)

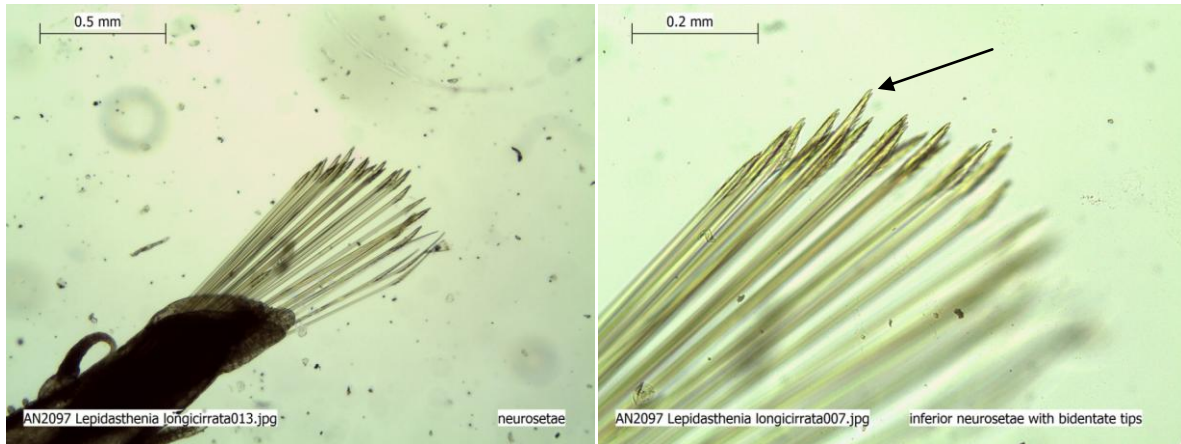


Mid-body, elytra overlapping dorsum (l); posterior end, dorsal view (r)



Parapodium, long, digitiform notopodium (no) (l); papillae on ventral margin of neuropodium (l,r)

## Family Polynoidae



Parapodium, ventrum to left in photo (l); inferior neurosetae with bidentate tips (r)



Superior neurosetae with fine knobbed tip

### Additional species of Polynoidae found in Puget Sound:

*Arctobia cf anticostiensis*  
*Arctonoe pulchra*  
*Arctonoe vittata*  
*Bylgides macrolepidus*  
*Eunoe senta*  
*Eunoe uniseriata*  
*Gattyana ciliata*

*Gattyana treadwelli*  
*Grubeopolynoe tuta*  
*Halosydna brevisetosa*  
*Harmothoe extenuata*  
*Harmothoe fragilis*  
*Harmothoe multisetosa*  
*Hesperonoe complanata*

*Hesperonoe laevis*  
*Lepidonotus spiculus*  
*Malmgreniella berkeleyorum*  
*Malmgreniella liei*  
*Malmgreniella macginitiei*  
*Malmgreniella nigralba*  
*Malmgreniella scriptoria*

## Family Polynoidae

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### Literature

Banse, K. and Hobson, K.D. 1974. Benthic errantiate polychaetes of British Columbia and Washington. Bull. Fish. Res. Board Can. 185, 111 pages.

Pettibone, M.H. 1993. Scaled polychaetes (Polynoidae) associated with ophiuroids and other invertebrates and reviews of species referred to *Malmgrenia* McIntosh and replaced by *Malmgreniella* Hartman, with descriptions of new taxa. Smithsonian Contributions to Zoology 538:1-92.

Ruff, R.E. 1995. Family Polynoidae Malmgren, 1867. Pages 105-166. IN: Blake, J. A., B. Hilbig, and P.H. Valentich-Scott (editors). Taxonomic Atlas of the Benthic Fauna of the Santa Maria Basin and Western Santa Barbara Channel. Volume 5 - The Annelida Part 2. Polychaeta: Phyllodocida (Syllidae and scale-bearing families), Amphinomida, and Eunicida. Santa Barbara Museum of Natural History, Santa Barbara, California. ISBN 0-93649-10-7.

### 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/1403246.html>.

If you need this document in a format for the visually impaired, call (360) 407-6764. Persons with hearing loss can call 711 for Washington Relay Service. Persons with a speech disability can call (877) 833-6341.

These notes were compiled by Kathy Welch and Maggie Dutch after a polychaete workshop held on July 30, 2014 at the Department of Ecology.