



Puget Sound Polychaetes: Family Phyllodocidae



Family Phyllodocidae Oersted, 1843

Family-level characters (from Blake, 1994)

- Body long, slender, dorsoventrally flattened.
- Prostomium with 4 frontal antennae; some genera have a fifth median antenna and/or nuchal papilla on prostomium.
- Proboscis is eversible and usually covered with soft papillae.
- Two, three, or four pairs of tentacular cirri present on the first one to three segments.
- Parapodia usually uniramous (notopodia reduced to a short stalk to which the dorsal cirri are attached; no aciculae or setae in notopodia); all setae (=neurosetae) compound spinigers, not typically diagnostic...all look alike. Shape, size and placement of dorsal and ventral cirri on parapodium are usually diagnostic for the species.

Genus-level characters

- Presence or absence of median antenna in addition to 4 frontal antennae.
- Number of pairs and arrangement of tentacular cirri.
- Fusion of tentaculate segments, and presence or absence of setae on these segments.
- Presence or absence of elongate dorsal lobe on neuropodium.

Species-level characters

- Shape, size, and orientation of dorsal and ventral cirri.
- Presence, type, and distribution of papillae on proboscis.
- Diagnostic pigment patterns are present, but not dependable; may fade following preservation.

Genus *Eteone* Savigny, 1820

- Two pairs of tentacular cirri on first segment; 4 antennae on prostomium, no median antenna.
- Prostomium wider than long – *Eteone lighti* - we don't get this in Puget Sound.
- We don't know a lot about Puget Sound *Eteone*. We used to call everything *E. longa* (Atlantic species); now we recognize a few described species, but the majority of Puget Sound *Eteone* species remain undescribed.

Family Phyllodocidae

Eteone californica Hartman, 1936

From Blake, 1994

- Prostomium semicircular, dorsoventrally flattened, as long as wide.
- Dorsal cirri as wide as long.
- Body and cirri darkly colored with numerous small pigment granules.
- Body usually chunky in appearance.
- Anal cirri usually 2 times (not 3) as long as wide.

This is the main species we get in Puget Sound, besides *Eteone* spp. (usually the small ones, juvs; or ones that just look different from usual). Most of our Puget Sound species can only be identified to *Eteone* spp.



Dorsal, whole body, robust (chunky) (l); anterior end, dorsal, 2 pair tentacular cirri (tc), 4 frontal antennae (fa) (r); darkly colored with numerous small pigment granules (l,r)



Pygidium with anal cirri 2x as long as wide (l); dorsal cirri (r)

Family Phyllodocidae



Lateral view of parapodium

Eteone leptotes Blake, 1992

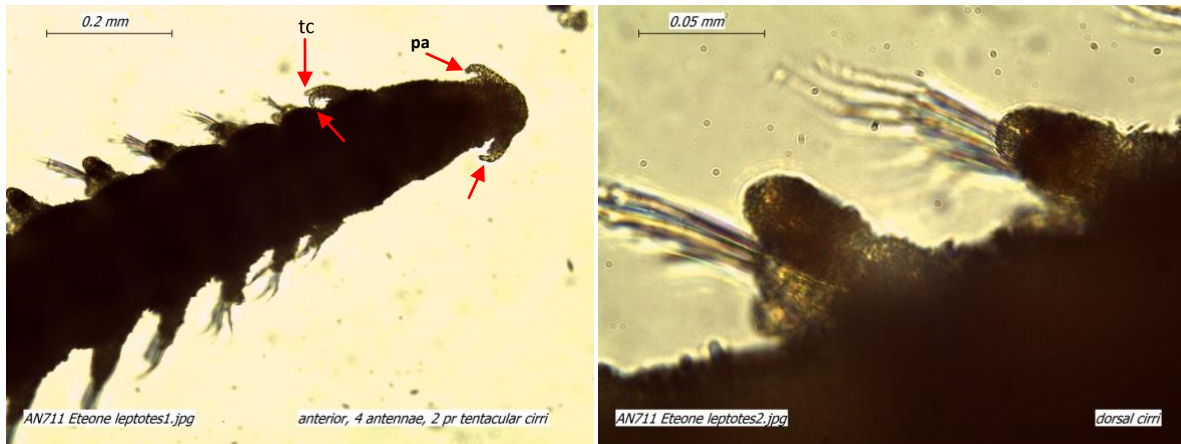
From Blake, 1994

- Thin, threadlike species; body with dark brown pigment in spots on dorsum, ventrum, and dorsal cirri.
- Prostomium and first segment fused; tentacular cirri appear to be coming off the prostomium.
- Dorsal cirri present from third segment (second setiger); thickened, rounded distally but becoming elongate and more lanceolate in middle and posterior setigers; shorter than or about the length of the podial lobes.
- Ventral cirri short, without pigment, never longer than podial lobes.



Whole body, threadlike (l); anterior end, dorsal, with dark brown pigment spots (r)

Family Phyllodocidae

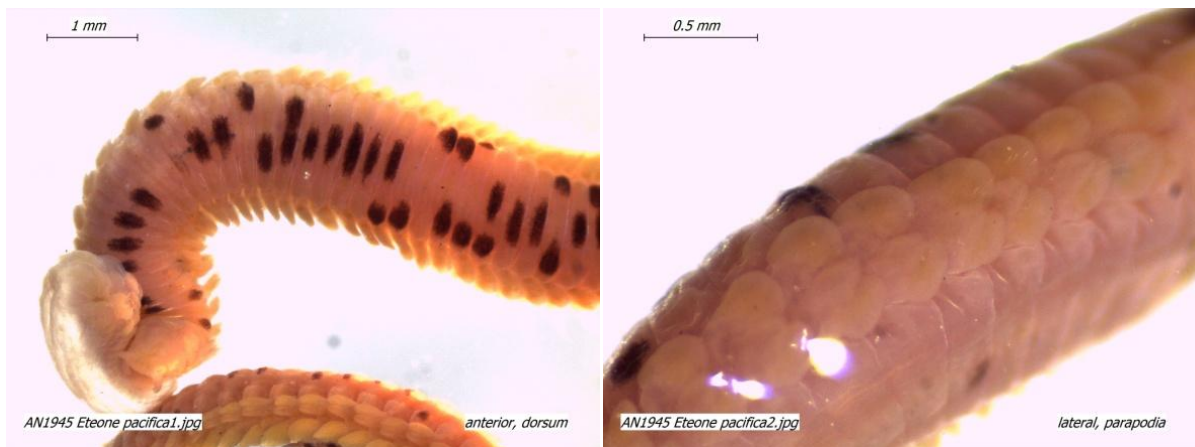


Anterior end, dorsal, 2 pair tentacular cirri (tc), 4 prostomial antennae (pa) (l); dorsal cirri thick and rounded (r)

Eteone pacifica Hartman, 1936

From City and County of San Francisco Voucher Sheet (Dot Norris)

- Prostomium longer than wide.
- Dorsal cirri wider than long and broadly rounded.
- Body bright yellow in life, pale when preserved, with irregularly spaced large black spots.
- A large species, to more than 100 mm. Occurs in intertidal and shallow subtidal from British Columbia to central California in silty mud.



Anterior, dorsum (l); parapodia, lateral (r)

Family Phyllodocidae

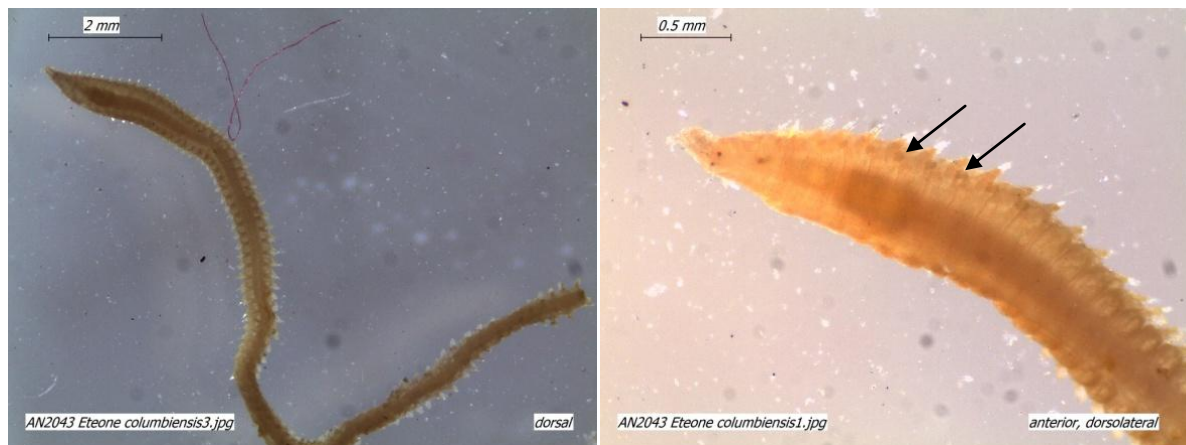


Posterior, dorsal view (l); posterior, lateral view (r)

Eteone columbiensis Kravitz & Jones, 1979

From Kravitz and Jones, 1979

- Not known from Puget Sound; occurs at the mouth of the Columbia River in sand and silty sand.
- Prostomium elongate and abruptly tapered.
- Anterior margin of prostomium one third as wide as posterior margin.
- Dorsal cirri symmetrical, subrectangular and inflated; very small in anterior setigers.
- Ventral cirri small, same length as neuropodia.



Whole body, dorsum (l); anterior, dorsum, elongate and tapered prostomium, very small dorsal cirri (r)

Family Phyllodocidae



Anterior end, dorsum

Genus *Lugia*, Genus *Mystides*

- Not known from Puget Sound.

Genus *Hesionura* Hartman-Schröder, 1958

***Hesionura coineaui difficilis* (Banse, 1963)**

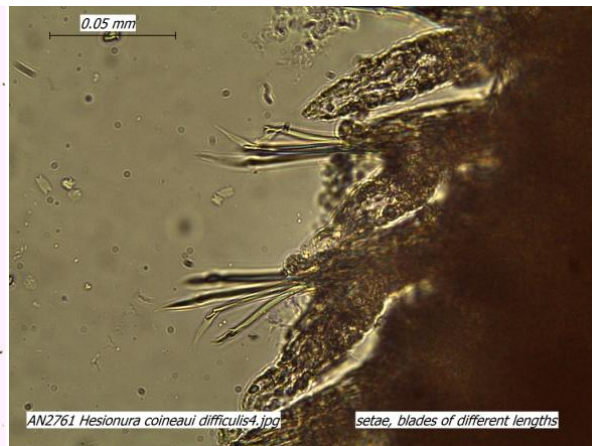
From Blake, 1994

- Three pairs of tentacular cirri on first two segments; setae from segment 3.
- Prostomium longer than wide.
- Pigment limited to ventral cirri.
- Setae with ribbed blades, the 2 innermost setae of the fascicle with blades twice the length of the blades of the other setae.
- Interstitial species, very tiny, usually go through screen so we don't get them often.

Family Phyllodocidae



Anterior, whole body (l); anterior dorsum (r)



Anterior, dorsum (l); mid-body setiger, setal blades of different lengths - 2 innermost setae of the fascicle with blades twice the length of the blades of the other setae (r)



Mid-body setiger, setal blades of different lengths - 2 innermost setae of the fascicle with blades twice the length of the blades of the other setae

Family Phyllodocidae

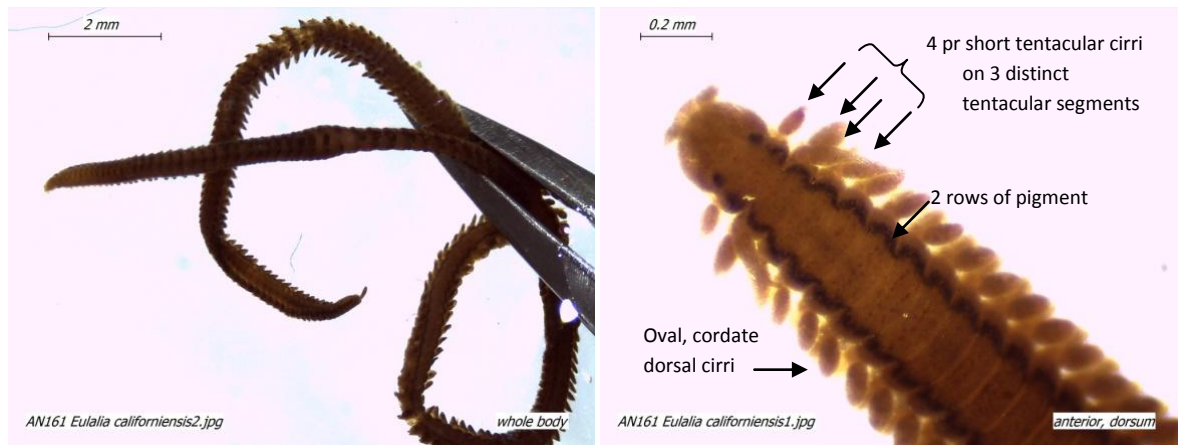
Genus *Eulalia* Savigny, 1817

- 4 pairs of tentacular cirri on the first 3 segments.
- All 3 tentacular segments distinct dorsally.
- Four frontal and one median antennae present.
- Antennae and tentacular cirri cirriform, not flattened.

Eulalia californiensis (Hartman, 1936)

From Blake, 1994

- Dorsal cirri of middle parapodia oval or cordate.
- All tentacular cirri short, none extending more than 3 segments in length (or one-quarter the length of the prostomium).
- Ventral cirri elongate with narrow base.
- Body with 2 longitudinal rows of pigment.



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

Family Phyllodocidae



Prostomium, lateral view with median antennae (l); dorsal view with 4 prostomial antennae (r)



Anterior, dorsal view, mid (l); anterior dorsal view, everted pharynx (r)



Whole body, pharynx everted (l); lateral view prostomium with pharynx everted (r)

Family Phyllodocidae

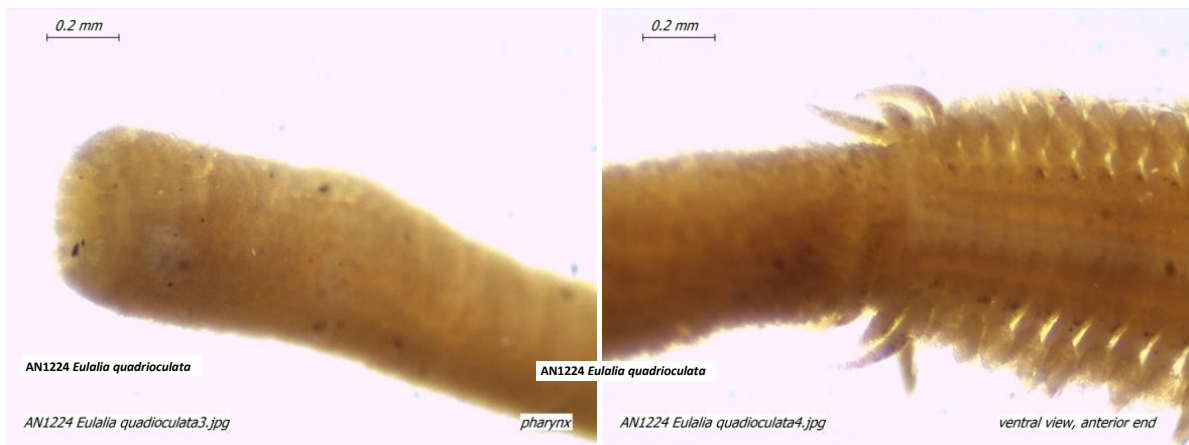
Eulalia quadrioculata Moore, 1906

From Blake, 1994

- Prostomium bearing two eyes, plus two faint pigment spots resembling eyes (may fade in preservative).
- Proboscis elongate and heavily papillated.
- Dorsal cirri of middle parapodia elongate, lanceolate.
- Body greenish with black transverse stripes in intersegmental grooves (may be faded).
- Ventral cirri small, oval to elliptical, oriented in same direction as aciculae.

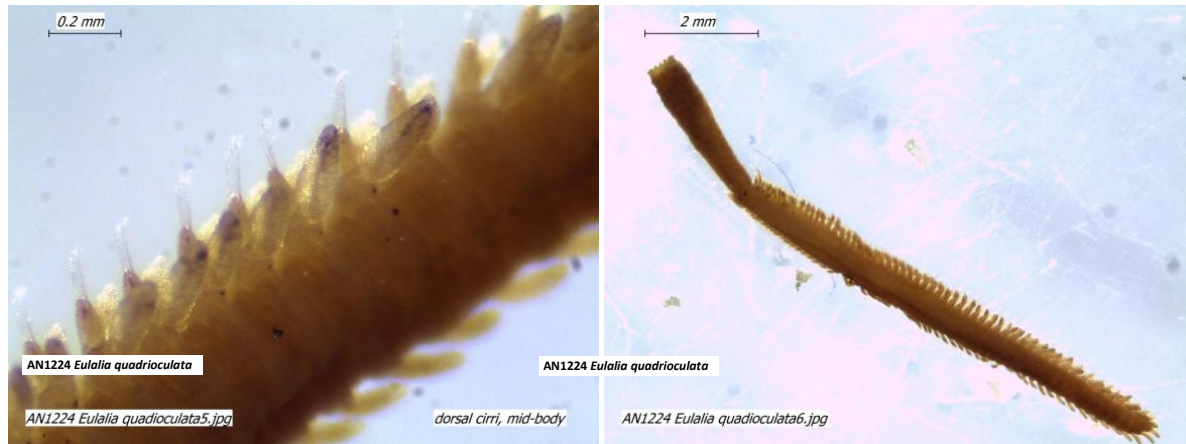


Whole body, dorsal view, pharynx everted (l); anterior dorsal view, transverse stripes (r)



Everted pharynx (l); anterior, ventral, everted pharynx (r)

Family Phyllodocidae



Lanceolate dorsal cirri, mid-body (l); whole body, dorsal view, pharynx everted (r)



Dorsal prostomium (l); distal end of everted pharynx, terminal papillae (r)

Genus *Sige* Malmgren, 1865

- Four frontal and 1 median antennae present.
- First tentacular segment reduced with first pair of tentacular cirri lateral to prostomium.
- Differs from all other described phyllodocids with five antennae by having a neuropodia with elongate superior dorsal lobe.

Sige montereyensis Hartman, 1936

From Light, 2007

- Prostomium pentagonal, wider than long, with posterior nuchal projections.
 - Two large dark eyes present, each with prominent lens.
 - Four frontal and 1 median antennae present.
-

Family Phyllodocidae

- Neuropodium with elongate superior dorsal lobe.
- Dorsal cirri long, pointed, and foliaceous.



Anterior, dorsal view (l, r)



Anterior, dorsolateral view, large eyes (l, r)

Family Phyllodocidae



Midbody, ventrolateral aspect – elongate superior dorsal lobe (l); whole body, dorsal view (r)



Prostomium, dorsal view, large eyes

Genus *Eumida* Malmgren, 1865

- Four frontal and 1 median antennae present.
- Segment 1 dorsally reduced, fused to segment 2.
- 4 pairs of tentacular cirri, all of the same form.
- Surface of proboscis with minute papillae, with larger terminal papillae.
- Parapodia lack neuropodial superior dorsal lobe.

Family Phyllodocidae

Eumida longicornuta (Moore, 1906)

From Blake, 1994

- Prostomium about as long as wide, rounded anteriorly, tapered posteriorly, with two large black eyes in posterior half.
- Dorsal cirri heart-shaped and slightly longer than wide; ventral cirri small, distally pointed, shorter than the neuropodial lobe.
- Body pigmented, with dark transverse stripes; dorsal cirri with dark pigmentation.



Anterior, dorsal view, dark eyes and transverse stripes, segments 1&2 fused (l); whole body, pharynx everted (r)



Heart-shaped dorsal cirri (l, r)

Family Phyllodocidae

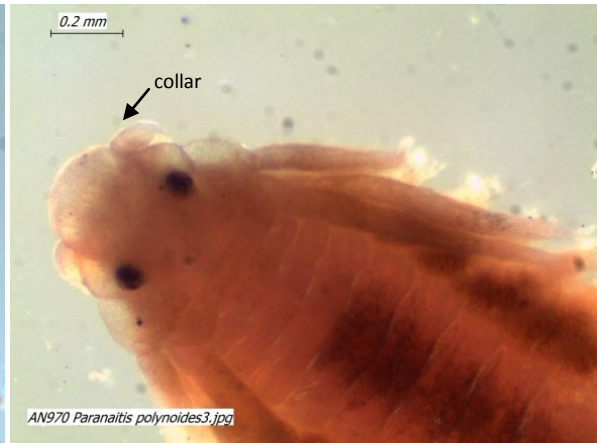
Genus *Paranaitis* Southern, 1914

- Four frontal antennae present; tentacular cirri elongate.

Paranaitis polynoides (Moore, 1909)

From Blake, 1994

- Prostomium pentagonal, as wide as long, narrowing posteriorly, extending into first segment; with large knoblike nuchal papilla at posterior of prostomium.
- Segments 1 to 2 well-developed, forming distinct collar around tapering posterior half of prostomium.
- Body light or dark tan with dark or chestnut-colored spots mid-dorsally and in the center of the dorsal cirri; without ventral pigment.

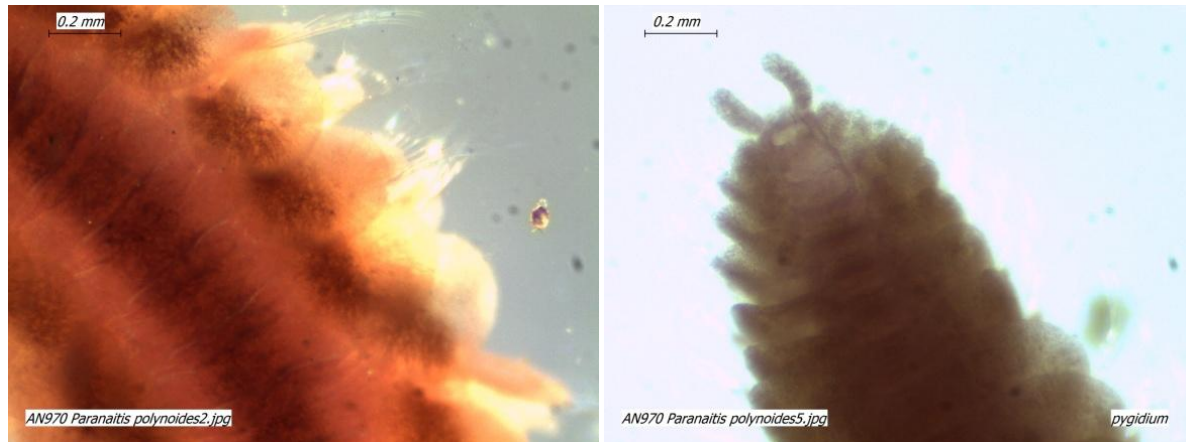


Anterior, dorsal view, pigment spots mid-dorsal and on dorsal cirri (l); segments 1&2 “collar” (r)



Anterior, dorsal view, note pigmentation (l); lateral view, pigmentation faded (r)

Family Phyllodocidae



Anterior, mid-body, dorsal cirri (l); pygidium and pygidial cirri (r)

Genus *Nereiphylla* Blainville, 1828

- Prostomium rounded with four frontal antennae.
- Segments 1 and 2 fused dorsally and reduced.
- Four pairs of tentacular cirri, 1 pair on segment 1, 2 pairs on segment 2, and 1 pair and normal ventral cirrus on segment 3.
- Setae first present from segment 2.

Nereiphylla castanea (Marenzeller, 1879)

From Blake, 1994

- Prostomium elongated, rounded anteriorly.
- 2 very large black eyes present.
- Frontal antennae large and thickened.
- Tentacular cirri weakly flattened in cross-section.
- Dorsal tentacular cirri of segment 2 longest, extending posteriorly about 6 segments.
- Dorsal cirri heart-shaped, sometimes concealing dorsum.
- Ventral cirri broadly oval, larger than podial lobe.
- Color in alcohol dark red or orange, with dark-orange-brown pigment on dorsum, dorsal cirri, podial lobes, and ventral cirri.

Family Phyllodocidae



Anterior, dorsal view, setiger 2 with long tentacular cirri (l); heart-shaped dorsal cirri (r)



Whole body (l); anterior, dorsum, segments 1 and 2 fused dorsally and reduced (r)



Anterior, dorsal view, proboscis everted

Family Phyllodoceidae

Genus *Phyllodoce* Lamarck, 1818

From Blake, 1994

- Prostomium with four cirriform frontal antennae, cordate (heart-shaped) with posterior lobes variously developed, posterior notch with small nuchal papilla for all four of our most common Puget Sound species.
- 2 small eyes present on posterior half of prostomium.
- Proboscis with proximal and distal parts, proximal section with soft papillae arranged in rows or scattered diffusely, distal part with 6 longitudinal divisions, sometimes with papillae. Distribution and size of papillae are diagnostic for the species.
- Four pairs tentacular cirri, 1 pair on segment 1, 2 pairs on segment 2, 1 pair and normal ventral cirri on segment 3.
- Four species found commonly in Puget Sound, a few others are rare.

Phyllodoce hartmanae Blake and Walton, 1977

- Body pale with intersegmental mid-dorsal black pigment and similar smaller ventral markings; additional dark pigment on anterior of prostomium around bases of tentacular cirri, and near insertion of dorsal cirri.
- Proboscis with proximal part bearing numerous rows of small papillae arranged in **oblique rows**; distal portion with 6 thickened ridged sections, each with indistinct lobes.
- Parapodia bearing enlarged, thin, irregularly shaped dorsal cirri.
- This species may be distinguished from other *Phyllodoce* species due to the dorsal cirri usually retaining red rose bengal stain.
- This species is smaller, not as beefy as *P. cuspidata* and *P. groenlandica*.
- Setae present from segment 4 (*P. cuspidata* and *P. groenlandica* from segment 3).



Dorsal view, whole body (l); anterior dorsal, oblique rows of papillae on everted proboscis (r)

Family Phyllodoceidae



Anterior parapodium, note rose bengal stain in dorsal cirrus (l); dorsal view (r)



Dorsal, anterior, mid-dorsal black pigment, proboscis papillae (l); dorsal cirri – rose bengal stains (r)

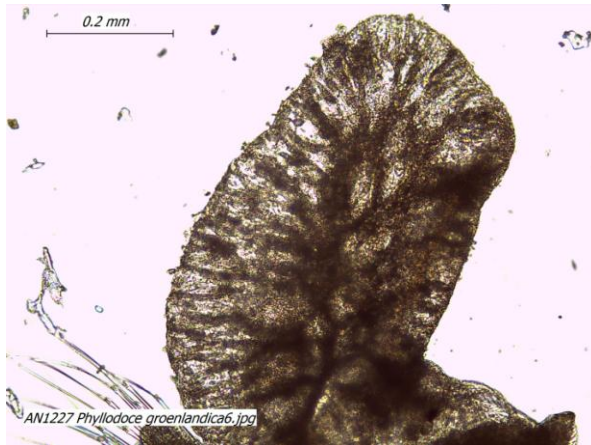
Phyllodoce groenlandica Oersted, 1843

- Body light tan to brown with dorsal **segments from segment 1 bearing dark, often iridescent green, transverse bands of pigment**; dark pigment on anterior half of prostomium; dorsal cirri with dark spots. Pigmentation starts right after the prostomium, can fade in alcohol, smaller individuals appear striped, rather than solid pigment. Individuals can grow to large size.
- **Proboscis with 6 longitudinal rows of 13-16 papillae on each side of proximal half, leaving dorsum and ventrum smooth, without papillae**; distal half with 6 longitudinal rows of large tubercles or folds.
- Dorsal tentacular cirri of segments 2 and 3 longest, extending posteriorly for 10 or more segments.
- Dorsal cirri large, foliaceous, rectangular in shape, longer than wide anteriorly, becoming wider posteriorly; **ventral cirri longer than neuropodial lobe, pointed apically, with distinctly ventrally directed tip.**

Family Phyllodocidae



Dorsal ant., note pigmentation, proboscis papillae (l); 6 longitudinal rows of proboscis papillae (r)



Dorsal cirrus large, foliaceous, rectangular (l); mid-body parapodium, lateral view (r)

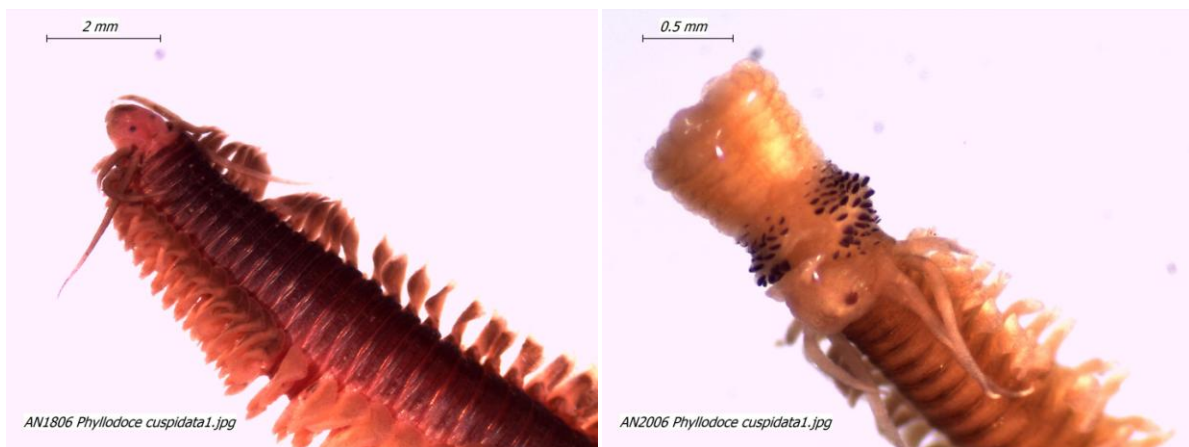


Ventral cirri longer than neuropodial lobe, with distinctly ventrally-directed tip (l); pygidium (r)

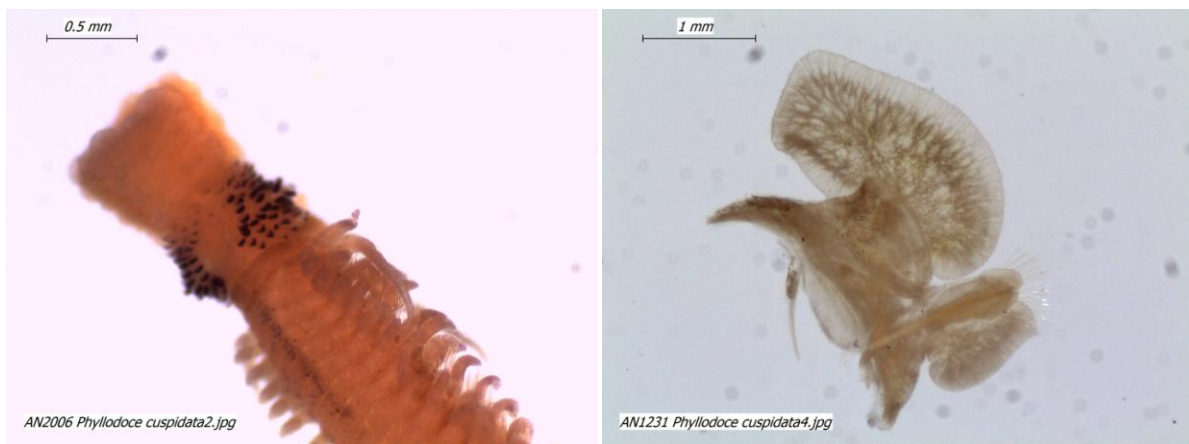
Family Phyllodoceidae

Phyllodoce cuspidata McCammon and Montagne, 1979

- Similar to *Phyllodoce groenlandica* - large, with dark pigmentation; differences are in **bold**.
- Body light tan with brown pigment on anterior half of prostomium and dorsum of individual segments from segment 5 (setiger 2); dorsum of posterior half of prostomium and **segments 1 to 4 not pigmented**.
- **Proboscis with proximal region bearing 6 rows of flattened plate-like papillae on either side; these papillae becoming smaller and irregularly scattered distally**, gap between rows of papillae; distal region of proboscis with 6 rows of large, rugose papillae.
- Dorsal tentacular cirri of segments 1 and 2 shortest, only 2 to 4 segments long.
- Dorsal cirri large, foliaceous; **ventral cirri as long as, or slightly shorter than, neuropodial lobe**.

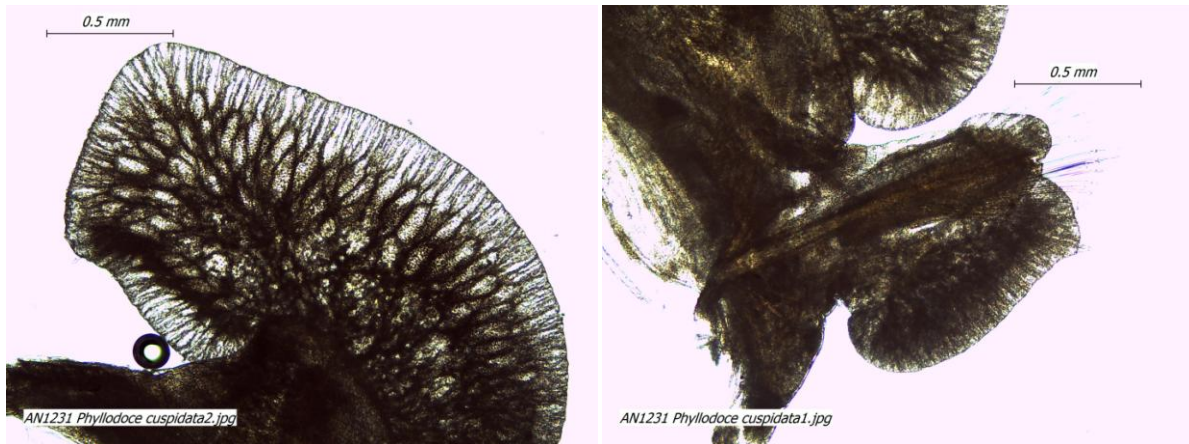


Dorsal, anterior, note pigmentation (l); dorsal everted proboscis with six rows of papillae becoming scattered distally (r) (note: they are not usually darkly colored)



Ventral everted proboscis with six rows of papillae becoming scattered distally (r) (note: they are not usually darkly colored); mid-body parapodium - dorsal cirri large, foliaceous, ventral cirri as long as, or slightly shorter than, neuropodial lobe.

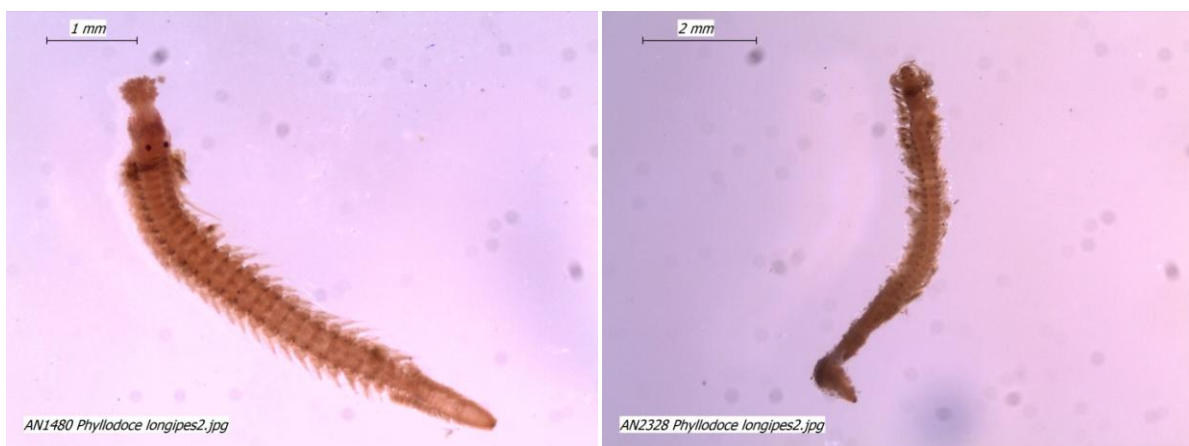
Family Phyllodoceidae



Mid-body parapodium - dorsal cirri large, foliaceous (l); ventral cirri as long as, or slightly shorter than, neuropodial lobe (r).

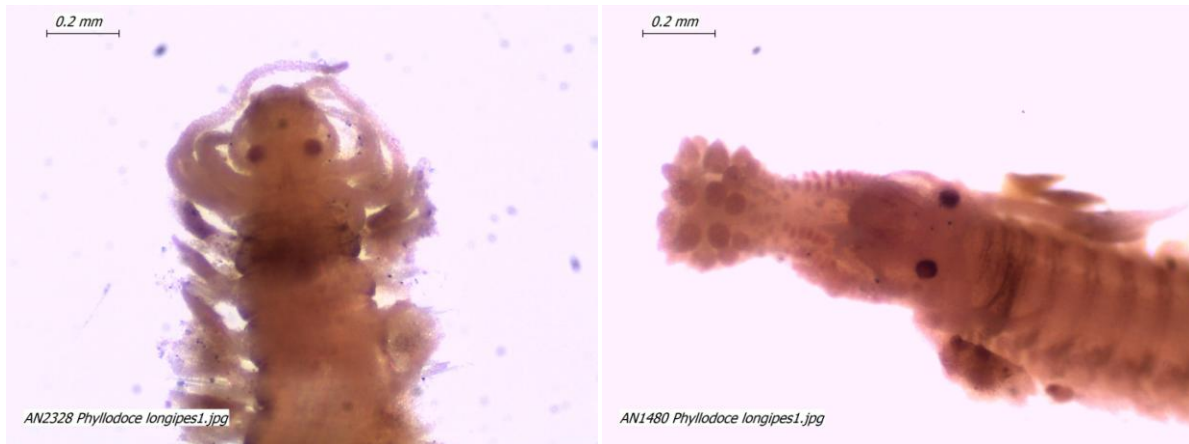
Phyllodoce longipes Kinberg, 1866

- Body light tan with brown pigment lightly scattered on prostomium, borders of body segments, dorsal and ventral cirri, and concentrated across dorsum of segments 1 to 2 (looks like a dark band just posterior to the prostomium).
- Dorsum of the prostomium with an unusual elevated crest that forms a transverse anterior edge in the middle of the prostomium, and which bears 2 large eyes.
- Proboscis with proximal and distal sections, each bearing papillae; proximal part with 6 rows of small papillae on each side; distal part with larger conical papillae of different sizes, diffusely arranged.
- Dorsal cirri broad, leaf-like; ventral cirri elongated, pointed, as long as neuropodial lobe.
- Neuropodium elongate, with short superior lobe.

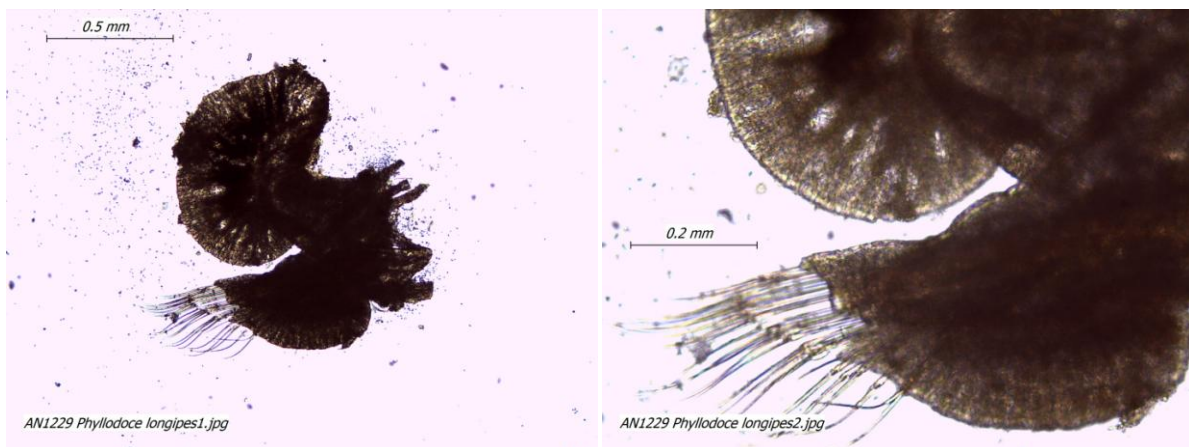


Anterior, dorsal, whole body, note dark pigment band and everted proboscis (l); anterior, whole body (r)

Family Phyllodoceidae



Anterior, dorsal, note dark pigment band (l); anterior, dark pigment band, everted proboscis (r)



Mid-body parapodium with broad, leaf-like dorsal cirrus; ventral cirri elongated, pointed, as long as neuropodial lobe.

Additional species of Phyllodoceidae found in Puget Sound

Clavadoce nigrimaculata
Eteone californica
Eteone columbiensis
Eteone leptotes
Eteone pacifica
Eteone spilotus
Eulalia californiensis
Eulalia levicornuta Cmplx
Eulalia sp N1
Eulalia quadrioculata

Eumida longicornuta
Eumida tubiformis
Hesionura coineau
difficilis
Hypereteone fauchaldi
Nereiphylla castanea
Notophyllum sp
Paranaitis sp N1
Paranaitis polynoides
Phyllodoce citrina

Phyllodoce cuspidata
Phyllodoce groenlandica
Phyllodoce hartmanae
Phyllodoce longipes
Phyllodoce maculata
Phyllodoce medipapillata
Phyllodoce mucosa
Phyllodoce williamsi
Sige bifoliata
Sige montereyensis

Family Phyllodocidae

Literature

- Blake, J.A. 1994. Chapter 4. Family Phyllodocidae Oersted, 1843. Pages 109-177. IN: Blake, J.A., B. Hilbig, and P.H. Valentich-Scott (editors). 1994. Taxonomic Atlas of the Benthic Fauna of the Santa Maria Basin and Western Santa Barbara Channel. Volume 4 - The Annelida Part 1. Oligochaeta and Polychaeta: Phyllodocida (Phyllodocidae to Paralacydoniidae). Santa Barbara Museum of Natural History. Santa Barbara, California. ISBN 0-93649-09-03.
- Kravitz, M.J. and H.R. Jones. 1979. Systematics and Ecology of Benthic Phyllodocidae (Annelida: Polychaeta) off the Columbia River, U.S.A. Bull. Southern California Acad. Sci. 78(1):1-19. (description of *Eteone columbiensis*).
- 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/1403245.html>.

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These notes were compiled by Kathy Welch and Maggie Dutch after a polychaete workshop held on December 11 and 18, 2013, and January 15, 2014 at the Department of Ecology.