Glycinde armigera

Proboscis worm

Phylum: Annelida

Class: Polychaeta, Errantia

Order: Phyllodocida, Glyceriformia

Family: Goniadidae

Description

Size: Individuals reaches lengths up to 118 mm and widths of 3 mm (Hilbig 1997). The illustrated specimen 30 mm in length.

Color: Pale orange, slightly iridescent, often with transverse pigment bands on each segment. Alcohol preserved specimens are pale yellow (Hilbig 1997).

General Morphology: Small, slender worms are recognizable by a long, conical annulated prostomium (Goniadidae, Blake and Ruff 2007).

Body: The body of goniadids is divided into three distinct regions (Blake and Ruff 2007). There are 100–144 total body segments in *G. armigera* which are broken up as follows: 1) anterior region, devoid of gametes, comprising 27–30 segments with uniramous parapodia (Fig. 4a); 2) a transitional area of 47+ segments where notopodia gradually develop; 3) a posterior area, where gametes can be observed with 25–60 segments having biramous parapodia (Fig. 4a) (Hilbig 1997).

Anterior: Prostomium is fused with peristomium and is much longer than wide, cone-shaped and annular with eight to nine annulations (rings) (Fig 2).

Trunk:

Posterior: Pygidium bears a pair of anal cirri that can be very long and filiform (Hilbig 1997), but were rather short and stubby in the illustrated specimen.

Parapodia: Uniramous in anterior setigers, but biramous from setiger 30. Parapodia are long and conspicuous. Both dorsal and ventral cirri are conical to fingerlike and are larger than neuropodial lobes anteriorly (Hilbig 1997). Dorsal cirri are not incised. Pre-setal lobes of twenty-fifth parapodia are heart-shaped (Fig. 4a).

Setae (chaetae): Neurosetae are slender and compound spinigers have shafts that are smooth and with serrated blades. Notosetae are small, long, and serrated distally (see Hilbig 1997 Fig. 7.1P-Q).

Eyes/Eyespots: A pair of eyes exists at the base of prostomial annulations (*Glycinde*, Hilbig 1997).

Anterior Appendages: Four small and biarticulate antennae occur at the anteriormost tip of prostomium.

Branchiae:

Burrow/Tube:

Pharynx: Pharynx bears a very long proboscis (reaching to setiger 50) which is large and powerful when everted (*Glycinde,* Blake 1975; Hilbig 1997). The everted proboscis surface is densely covered in proboscideal organs, and large, chitinized spines, a circle of denticles and two large toothed jaws with three to four teeth each (Hilbig 1997; Smith et al. 1995) (Fig. 3). The arrangement of the various proboscideal organs is taxonomically significant and their distribution is divided into five regions along the proboscis (Hartman and Reish 1950; Fig. 1, Smith et al. 1995).

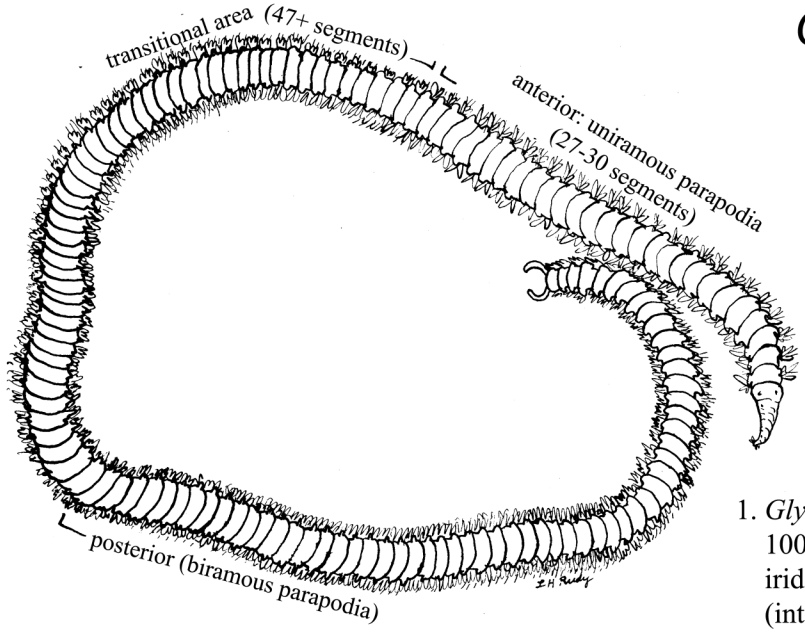
Genitalia:

Nephridia:

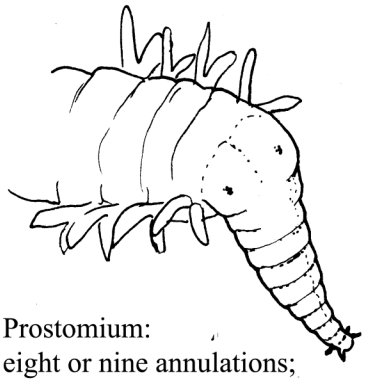
Possible Misidentifications

Members of the family Goniadidae are distinguished from those of the similar family Glyceridae by the lack of distinct body regions in glycerids and species that more readily evert their proboscis among the later family. Further examination of proboscis armature is

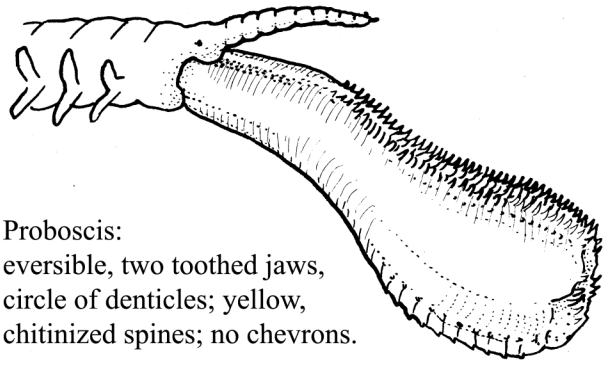
Glycinde armigera



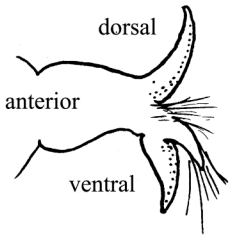
1. *Glycinde armigera* (L:3cm) x15:
100-144 segments; pale orange, slightly iridescent, darker under parapodia (interior blood).



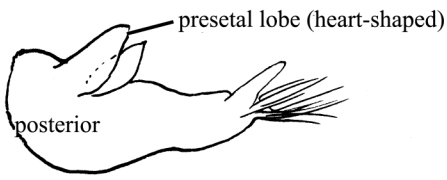
2. Prostomium:
eight or nine annulations;
basal eyes (distal not shown).



3. Proboscis:
eversible, two toothed jaws,
circle of denticles; yellow,
chitinized spines; no chevrons.



4a. Parapodia:
dorsal and ventral cirri conical,
dorsal cirri not incised.



4b. Doral cirrus:
G. polygnatha, anterior,
dorsal incised.

Hiebert, T.C. 2014. *Glycinde armigera. In:* Oregon Estuarine Invertebrates: Rudys' Illustrated Guide to Common Species, 3rd ed. T.C. Hiebert, B.A. Butler and A.L. Shanks (eds.). University of Oregon Libraries and Oregon Institute of Marine Biology, Charleston, OR.

necessary to differentiate species in these families (Blake and Ruff 2007). The genus *Glycinde* is characterized by a pointed and annulated prostomium, four small anterior antennae, a pair of eyes, and a large proboscis that is armed with a circlet of jaws (Hilbig 1997).

There is only one other co-occurring species in this genus reported from central California to Oregon, *G. picta* (=*G. polygnatha*) (Blake and Ruff 2007). The proboscis armature forms a ventral arc in this species that is lacking in *G. armigera* (Hilbig 1997). Furthermore, the anterior dorsal cirri of *G. picta* are incised (Fig. 4b), and the shape of the papillae differs between the two species (in region five, see plate 154 Blake and Ruff 2007), duck-foot shaped in *G. picta* and conical in *G. armigera*. *Glycinde picta*, from British Columbia, Canada has pre-setal lobes which narrow distally (after the 25th parapodia), but are not heart-shaped. Another similar goniadid polychaete is *Goniada brunnea*, a large (up to 160 mm in length), dark brown species, with distinct chevrons on the sides of the proboscis (Hilbig 1997).

Ecological Information

Range: Type locality is southern California. Known range includes western Canada to Panama and the Galapagos Islands (Hilbig 1997).

Local Distribution: Coos Bay sites include South Slough, both intertidally and dredged from stations 1–6 (see Porch 1970). Oregon distribution includes sites in Reedsport and Depoe Bay to depths up to 135 m (Hartman and Reish 1950).

Habitat: Intertidal in muddy and mixed sand flats and amongst eelgrass (Hartman 1968).

Salinity:

Temperature:

Tidal Level: Low intertidal to 1100 m (Hilbig 1997).

Associates: Other polychaetes, amphipods, grass shrimp, barnacles.

Abundance: Widespread distribution, but low abundance in Coos Bay (Porch 1970).

Life-History Information

Reproduction: Epitokous from October through February (Hilbig 1997) and, although sexually mature adults have not been observed, larvae were most abundant in plankton samples taken in Tomales Bay, CA from February through April (in 1972, Blake 1975).

Larva: The larvae of *G. armigera* were described from wild-caught individuals by Blake (1975). Trochophore larvae are nearly as wide as they are long (330 µm in length and 270 µm in width), they have a prototroch with long and short cilia and a neurotroch, extending from the mouth to the anal pore. Additionally, trochophore larvae can be recognized by green pigment near the prototroch and anal regions (Fig. 24A-B, Blake 1975). This green pigment is also apparent in the metatrochophore stage, but is distributed more generally throughout the entire body, with concentrated regions near the prototroch, lateral edges of segments and pygidium. Eventually, a deep red pigment develops in the intestine (Crumrine 2001). Metatrochophores bear setae, have a broad prostomium, distinct prototroch of long cilia with two red eyes anterior to the prototroch. The pygidium at this stage has a pair of anal cirri (Fig. 24C, Blake 1975). By the nectochaete stage, the prostomium resembles the pointed shape with annulations seen in adult *G. armigera* and has four frontal antennae. As the larva grows into a late nectochaete stage, the pharynx, proboscis and proboscis armature become fully developed when the larva is approximately 1200 µm in length (Fig. 24D, Blake 1975).

Juvenile: Post-larval settlement densities were highest in April through May reaching 513 individuals/m^2 in April. Rates of post-larval settlement ranged from 20.4–24.5 individuals/m^2/day (Kudenov 1979).

Longevity:
Growth Rate:
Food:
Predators:
Behavior: A very active species where the large proboscis is used in burrowing and feeding.

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Updated 2015
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Hiebert, T.C. 2014. *Glycinde armigera. In:* Oregon Estuarine Invertebrates: Rudys' Illustrated Guide to Common Species, 3rd ed. T.C. Hiebert, B.A. Butler and A.L. Shanks (eds.). University of Oregon Libraries and Oregon Institute of Marine Biology, Charleston, OR.