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# *Halosydna brevisetosa*

Phylum: Annelida  
Class: Polychaeta  
Order: Phyllodocida  
Family: Polynoidae

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**Taxonomy:** Eastern Pacific polynoids are often reported with wide distributions resulting in numerous synonymies. Although other synonyms are reported, the most common and recent for *H. brevisetosa* is *H. johnsoni*. These two species have overlapping ranges centrally, but the range of *H. brevisetosa* extends more northerly into colder waters while *H. johnsoni* is more common in warmer, southern regions. The variation in setal morphology between them was once believed to be temperature-induced and they were synonymized (Gaffney 1973). However, after analyzing type material from both species, Salazar-Silva (2013) determined that the two are different species based on the morphology of neurosetae and re-described them.

## Description

**Size:** Average size range is 40 to 100 mm in length (Hartman 1968). The illustrated specimen was 22 mm in length. Most scale worms are less than a few centimeters long, however, commensal specimens can be larger than free-living (Haderlie 1980; Ruff 1993).

**Color:** Variable body color. This specimen had mottled brown scales, with black and white spots.

**General Morphology:** Short worms, dorso-ventrally flattened with scale-like plates (see **Elytra**) dorsally (Polynoidae, Ruff 1993).

**Body:** Thin body that is sub-rectangular with 36 total segments (Salazar-Silva 2013). Body widest medially, tapering at both anterior and posterior ends (Fig. 1).

**Anterior:** Prostomium bilobed and most broad at posterior (Fig. 2).

**Trunk:**

**Posterior:** Posterior three segments with dorsal cirri. Pygidium bears one pair of anal cirri and anus is dorsal and

between segments 35–36 (Salazar-Silva 2013).

**Parapodia:** Biramous. Notopodia smaller than neuropodia (Fig. 3). Neuropodia with

rounded lobe near tip of acicula. Dorsal cirri expanded distally with filiform tip and ventral cirri are short, with fine tip (Salazar-Silva 2013).

**Setae (chaetae):** All setae simple. Notosetae short and serrate. Neorosetae falcate, with rows of spines toward the tips, which are entire. Neurosetae more abundant than notosetae (Fig. 3) (Salazar-Silva 2013).

**Eyes/Eyespots:** Two pairs of eyes present at posterior prostomium (Fig. 2).

**Anterior Appendages:** Three anterior antennae (Fig. 2) and two palps (*Halosynda*, Salazar-Silva 2013).

**Branchiae:**

**Burrow/Tube:**

**Pharynx:** Proboscis strongly developed, with four jaws and nine pairs of papillae (Salazar-Silva 2013).

**Genitalia:**

**Nephridia:**

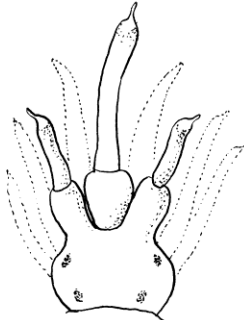
## Polynoidae-specific character

**Elytra:** 18 pairs occurring on segments 2–33 (segments 2, 4, 5–27 on every odd segment, and 28, 30, 31, 33) (Fig. 1). Elytra morphology is reniform to ovate, varied in color, and with a few tubercles.

## Possible Misidentifications

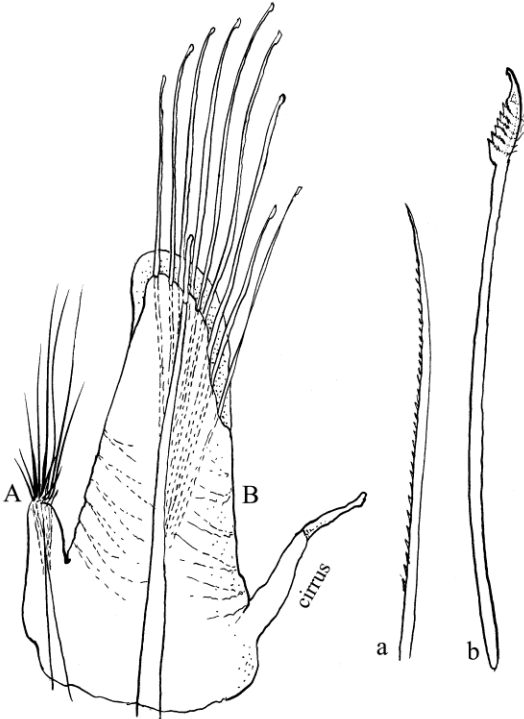
The number of pairs of elytra make identification easy among polynoids. The 21 currently accepted *Halosydna* species worldwide are characterized by possessing 36 segments and 18 pairs of elytra (Hartman 1938). The genera most similar to *Halosydna* are *Harmothoe*, *Lepidathenia*, and *Arctonoe*, but only *Halosydna* species have 18 pairs of

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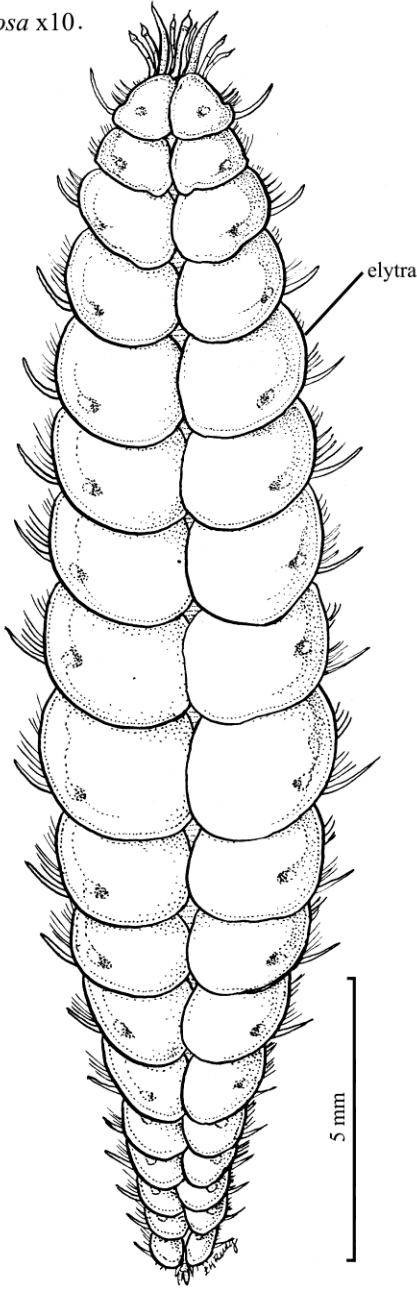


1. *Halosydna brevisetosa* x10.

2. Prostomium:  
 broadest behind four eyes;  
 central frontal antenna;  
 antennae attached terminally  
 (Hartman, 1968, p.63).



3. Parapodia:  
 notopodia small, with short, serrate setae (A,a);  
 neuropodia large; simple falcate setae (B,b).



elytra (Ruff 1993). For example, *Harmothoe*, a closely related genus, has only 15 pairs of elytra (Barnich and Feige 2009).

Species differentiation is usually by elytra morphology (Salazar-Silva 2010; Salazar-Silva 2013). *H. johnsoni*, a southern California species, has been confused with *H. brevisetosa* in the past. The difference between these two species is that *H. brevisetosa* has elytra with fringed marginal papillae that are absent in *H. johnsoni* (mid-body and posterior). Furthermore, the neurosetae in *H. brevisetosa* are complete rather than bidentate as in *H. johnsoni* (Salazar-Silva 2006; Salazar-Silva 2013). Other species of the genus *Halosydna* do not occur in the Northwest.

### Ecological Information

**Range:** Type locality is Sausalito, San Francisco, California. Known range includes southern California to Alaska.

**Local Distribution:** Very common at sites in South Slough (Hartman and Reish 1950).

**Habitat:** Free-living individuals are found on or under rocks, pilings, and amongst mussel beds. *H. brevisetosa* also occur commensally with a variety of invertebrates (see

**Associates).**

**Salinity:**

**Temperature:**

**Tidal Level:** Intertidal. Individuals collected at a tidal elevation of 0.15 m above the mean tide level in South Slough.

**Associates:** Commensal individuals occur with mud-dwelling species such as hermit crabs (*Paguristes*), moon snails (*Polinices*) and other polychaetes (e.g., *Pista pacifica*, observed in South Slough), *Amphitrite robusta*, *Thelepus crispus*, *Eupolymnia heterobranchia* (McGinitie and McGinitie 1949; Fernald et al. 1987). Prefers clean waters and seldom occurs where dissolved oxygen levels drop below 2.5 mg/l (Haderlie 1980). Commensal individuals are not chemically attracted, but possibly exhibit a tactile response to the host (Davenport and Hickok 1950).

**Abundance:** Most common scaleworm in central, northern California (Blake and Ruff

2007) and also very abundant in Oregon and Washington.

### Life-History Information

**Reproduction:** Dioecious with external fertilization (Ruff 1993). Gonads in segments 12–34. In Tomales Bay, California, ripe adults were observed in August and the larvae of *H. brevisetosa* are most common in plankton samples in the late summer months (Blake 1975).

**Larva:** Trochophore larvae were described from wild-caught individuals by Blake (1975) and are recognizable by a wide (400  $\mu\text{m}$ ) and flattened episphere, anterior to the prototroch (Crumrine 2001). They have two pairs of eyes and a small apical tuft at the anterior end. A ciliated neurotroch, which extends from the prototroch to the larval posterior, originates near the mouth. Also near the mouth, on the left side is a large tuft of long cilia. Early and late *H. brevisetosa* metatrochophores lack a telotroch. Black pigment can be observed in random patches near the prototroch and episphere. Late metatrochophores, 550  $\mu\text{m}$  in length, have five pairs of elytra and three pairs of eyes (Blake 1975).

**Juvenile:** Young juveniles are 900  $\mu\text{m}$  in length, with 11 setigerous segments, six pairs of elytra, all anterior appendages, two pairs of eyes and anal cirri (Fig. 2, Blake 1975).

**Longevity:**

**Growth Rate:**

**Food:** Voracious eaters (cannibals in captivity) and individuals may share host food when commensal.

**Predators:**

**Behavior:**

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