
Aphrodita japonica

Sea Mouse

Phylum: Annelida
Class: Polychaeta
Order: Aciculata
Family: Aphroditidae

Taxonomy: The genus *Aphrodita* Linnaeus 1758 is a small, cryptic and understudied genus of polychaete with a distinctive felt-like dorsal covering that gives the genus its common name of “sea mouse.” *Aphrodita japonica* was first described by Marenzeller in 1879 and has been synonymized with *Aphrodita cryptommata* Essenberg 1917, *Aphrodita leioseta* Chamberlin 1919, *Aphrodite japonica* Marenzeller 1879, and *Aphroditella japonica* (Marenzeller 1879) (Read and Fauchald 2021).

Description

Size: ~3.5 cm length and, ~2.5 cm wide

Color: Brown to grey

Body: Like all polychaetes, *A. japonica* is segmented. Body segments, numbering more than 30, are very short and wide (Fig. 1). The dorsum is grey to brown and the ventrum ranges from white to yellowish (Blake and Ruff 2007; Kozloff 1987). There are 15 pairs of scale-like elytra on the dorsal side that are covered with hair-like setae. Mucus covering the setae adheres to sediment, making the worm cryptic against its soft-bottom environment. Unlike other species the elytra completely cover the animal (Hartman and Reish 1950).

The parapodia of *A. japonica* have three sets of neurosetae each (Fig. 2). The neurosetae are lined adjacently, with sets being stacked on top of each other. The ventral-most set has around 8 setae, thin and tightly packed. The 4 middle setae in each set are thicker and longer than the ventral ones, and the two dorsal setae are the thickest and longest of all. All of the neurosetae have a curved hooked tip, though this is most pronounced in the dorsal-most neurosetae. The ventral-most neurosetae are coppery to gold in color. (Blake and Ruff 2007; Fauchald 1977; Kozloff 1987).

The head and prostomium of *A. japonica* are very small and hard to differentiate in dorsal view. Two long palps,

measuring about 0.5 cm in length, extend from the anterior end. A secondary sensory antenna on the ventral side of the body measure about 0.1 cm in length.

Mouthparts: *Aphrodita japonica* has an eversible buccal tube leading to a gizzard pharynx used for digestion (Dales 1963).

Eyes: Eyes are reduced and hidden.

Sexual Dimorphism: No sexual dimorphism present.

Possible Misidentifications

Two possible misidentifications are *Aphrodita regulgida* or *A. parva*. Both of these are in the same genus as *A. japonica* and found in similar habitats. *Aphrodita japonica* is distinguished by its gold to coppery dorsal neurosetae. *Aphrodita parva* may be misidentified as a juvenile version of *A. japonica*. (Blake and Ruff 2007; Kozloff 1987)

Ecological Information

Range: Alaska to southern California, Costa Rica (Dale 1963), Japan (Watanabe 2017).

Local Distribution: Presumably all along Oregon coast in muddy and silty bottoms.

Habitat: *Aphrodita japonica* is found in muddy or silty bottoms where it burrows just below the surface. (Blake and Ruff 2007).

Temperature: Unknown

Depth: At least 90 m (Dean 2004).

Associates: Unknown

Abundance: Densities of *A. japonica* are usually sparse (Blake and Ruff 2007).

Life-History Information

Reproduction: Unknown

Larva: Unknown

Juvenile: Unknown, possible that *A. parva* are juvenile *A. japonica* (Blake and Ruff 2007).

Longevity: Unknown

Growth Rate: Unknown

Food: *Aphrodita japonica* eats detritus that falls from water column or acts as a predator

chasing slower moving animals such as other burrowing polychaetes (Blake and Ruff 2007). It uses its felt-like setae to trap falling detritus (Watanabe 2017).

Predators: Unknown

Behavior: Appears to use anal respiration to help oxygenate (Cowles and Cowles 2007).

Bibliography

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Fig. 1. The ventral view of *A. japonica* with anterior side pointing up. This specimen was collected near Cape Arago, offshore Coos Bay Oregon, USA on 2018-June-29.



Fig. 2. The neurosetae of *A. japonica* showing sets. Specimen is the same as in Fig. 1.