

Hiatella arctica (= *Saxicava arctica*)

The nestling saxicave (Linnaeus, 1767)

Phylum: Mollusca
Class: Bivalvia
Order: Myoida
Family: Hiatellidae

Description

Size—to 50 mm (2"); this specimen (Coos Bay) 38 mm long (Quayle 1970).

Color—exterior white, chalky, granular, with tan, thin, ragged periostracum: genus *Hiatella* (Keen and Coan 1974); interior porcelain-like, white: family *Hiatellidae* (Hunter 1949).

Shell Shape—variable: distorted by nestling habit. Valves equal, oblong, gaping: posterior and broader, more square than anterior end, broadly truncated (fig. 1). Elongate, boring specimens have been reported as *H. pholadis* (Coan and Carlton 1975) (fig. 1a).

Sculpture—concentric only

Interior—pallial line faint, broken into discontinuous scars (fig. 3): family *Hiatellidae* (Coan and Carlton 1975). Adductor muscle scars approximately equal in size (not shape). No pallial sinus (Kozloff 1974a).

Hinge Area—adult without hinge teeth (or worn) (fig. 3); young clams have 1-2 weak, peg-like cardinal teeth.

Umbones—depressed, nearer anterior end than middle; do not touch each other (fig. 2).

Ligament—external (figs. 2, 3): family *Hiatellidae* (Coan and Carlton 1975).

Byssus—(attachment threads), present in nestling specimens, not in boring ones (*H. pholadis*); not figured. Long, single byssal thread spun by post-larval clams allows them to be moved by weak water currents (Morris et al 1980).

Siphons—fused; red tipped: genus *Hiatella* (fig. 1) (Kozloff 1974a).

Periostracum—light tan, thin: genus *Hiatella* (figs. 1, 2) (Keen and Coan 1974).

Possible Misidentifications

Burrowing and nestling clams, of which there are many genera, can be difficult to separate by shell shape; they tend to be variable and often quite distorted from the "norm." Useful characteristics are the hinge teeth, pallial line and siphons. Most *Pholadidae* can be distinguished by their two distinct shell sections (see *Penitella*, *Zirfaea*); all *pholads* have file-like denticulations and (except for *Netastoma*) an internal myophore.

The venerid clam *Protothaca staminea* var. *orbella*, like *Hiatella*, is white with an external ligament, and can be found nestling in old pholad burrows. It has radial as well as concentric striations, however, and interiorly has 3 cardinal hinge teeth and a strong pallial line and sinus.

Petricola carditoides is a nestling clam which (like *Hiatella*) has an external ligament and a chalky white shell. It has hinge teeth in the adult (2-3), not just in the young. *P. carditoides* has purple-tipped siphons, not red ones, and its shell has some radial sculpture.

Two myid clams could be confused with *Hiatella*: *Platyodon cancellatus* is a white borer with a heavy shell with fine, almost lamellar concentric exterior sculpture. Inside it has a chondrophore and tooth in its hinges, and a well-developed, deep pallial sinus. *Cryptomya californica* can nestle among rocks, although its usual habitat is sand or mud. It is small (to 30 mm), thin-shelled and has a chondrophore. Interiorly it has an entire pallial line, and an inconspicuous pallial sinus (Coan and Carlton 1975).

Entodesma saxicola is probably most likely to be confused with *Hiatella*: it is of a comparable size, shape and habitat. *Entodesma* has a dark, rough periostracum, not a pale, thin one, an external ligament like *Hiatella*'s, and short, fused siphons, but without red tips. Inside the shell is very pink and pearly. *Entodesma* has no hinge teeth, but does have a large internal ligament and lithodesma; its pallial line is entire and there is a small pallial sinus.

The nomenclature of *Hiatella* sp. is rather confused: *Hiatella pholadis* is a large (to 50 mm), often very elongate, boring species strictly resident in pholad burrows and without hinge teeth or red-tipped siphons (Kozloff 1974a). It has a prominent ridge from the beaks to the lower posterior angle (Oldroyd 1924). Coan and Carlton believe this name to be a probably synonym for a form of *H. arctica* (Coan and Carlton 1975).

Hiatella gallicana is a small (to 25 mm) species which may be the same as *H. arctica* (Ricketts and Calvin 1971; Quayle 1970).

Other northwest Hiatellidae include *Panopea generosa*, the geoduck, which is large, quadrate and not distorted. It has one cardinal tooth in either hinge. *P. generosa* is a very deep bur-rower with very long siphons; it is rarely found in Oregon.

Ecological Information

Range—Arctic Ocean to Panama (Oldroyd 1924); circumpolar.

Local Distribution—Coos Bay: Pigeon Point.

Habitat—nestles in old pholad burrows, or bores into smooth soft homogenous rocks; also found in *Mytilus* beds, on pilings, and on open coasts in algal holdfasts. On hard, crevice, surfaces it will attach byssally (Hunter 1949).

Salinity—found in Coos Bay in lower, more saline parts of estuary: collected at 30 ‰.

Temperature—

Tidal Level—intertidal to 120 m deep; collected at 0.0 ft.

Associates—other nestling and boring molluscs: *Entodesma*, *Penitella*, *Zirfaea*.

Quantitative Information

Weight—

Abundance—not common.

Life History Information

Reproduction—

Growth Rate—

Longevity—

Food—suspension feeder.

Predators—tooth snails (*Nucella*, etc.) can prey on small nestling clams.

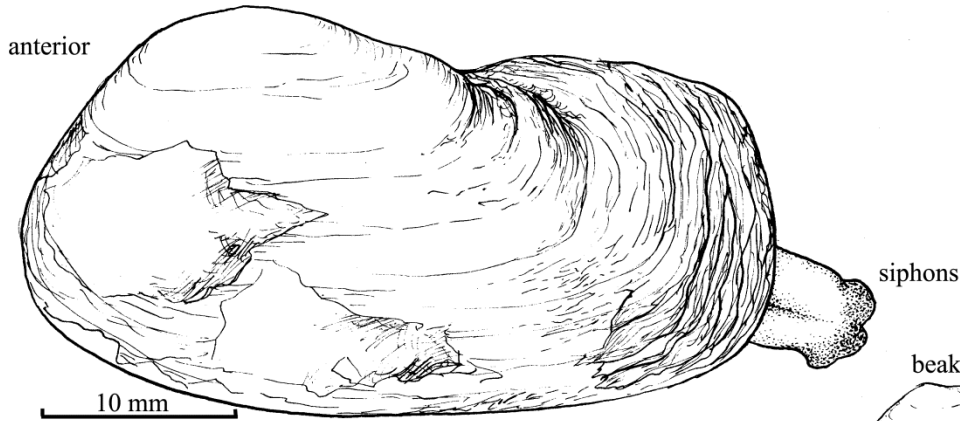
Behavior—boring is mechanical, not chemical (Hunter 1949).

Bibliography

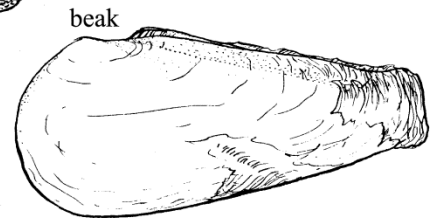
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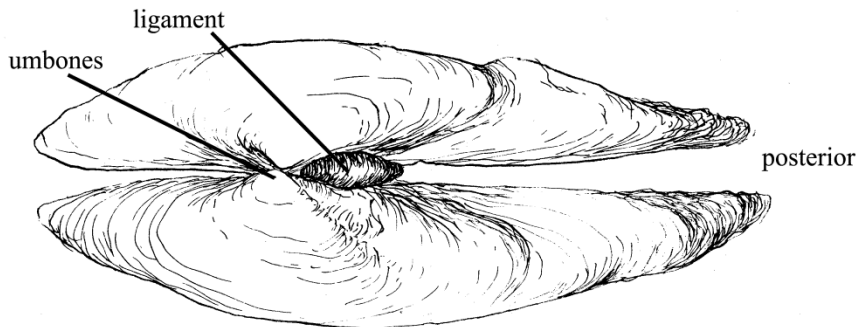
Hiatella arctica



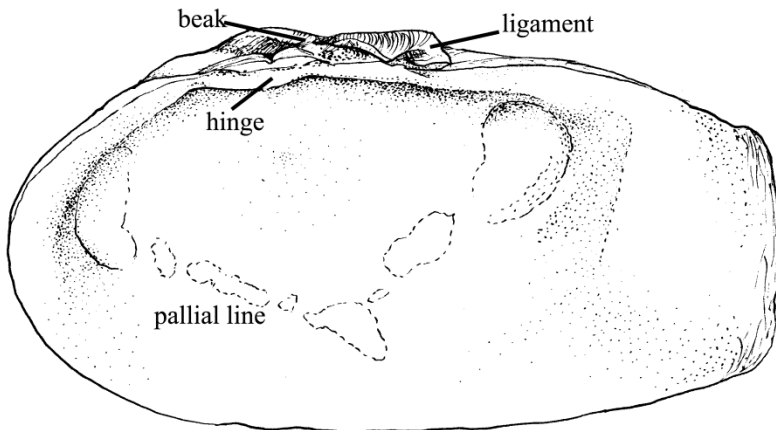
1. *Hiatella arctica*, exterior, left valve (L:38mm) x3:
shell oblong, distorted; posterior truncate, beaks nearer
anterior end than middle; concentric striations on rough,
white surface, thin tan periostracum.



1a. *H. pholadis*, left valve x2:
elongate; beaks near anterior end.



2. (Dorsal view): umbones depressed, not touching; ligament
external, posterior gaping.



3. Interior, right valve: white, porcelain-like; hinge without
teeth; ligament external; pallial line broken into scars.