

Black sea squirt

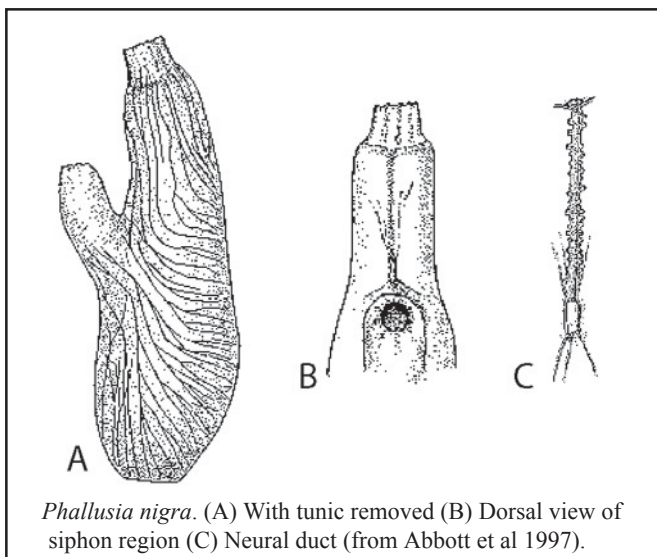
Phylum Chordata
Subphylum Urochordata
Class Ascidiacea
Order Enterogona
Family Ascidiidae



Photo R. DeFelice

DESCRIPTION

This common large solitary ascidian is typically a velvety black or dark brown. Small specimens or individuals growing in shaded areas may be a translucent gray with scattered spots of black pigment. *P. nigra* adheres to the substrate by its posterior left region. Its right has a thick, cartilagenous, smooth tunic with prominent blood vessels. The siphons are separated by a third to half the body length. Removing the tunic reveals evenly distributed musculature on the right mantle. A large individual will have around 50 oral tentacles (from Abbott et al. 1997).



Phallusia nigra. (A) With tunic removed (B) Dorsal view of siphon region (C) Neural duct (from Abbott et al 1997).

HABITAT

Common in harbors and embayments, *P. nigra* lives in shallow water attached to any available hard substrate such as dead coral, pier pilings, or floats.

DISTRIBUTION

HAWAIIAN ISLANDS

Throughout the main islands, primarily in harbors.

NATIVE RANGE

Tropical western Atlantic

PRESENT DISTRIBUTION

Tropical western Atlantic, Mediterranean, Indian Ocean, Micronesia, and Hawaiian Islands

MECHANISM OF INTRODUCTION

Unintentional, as fouling on ships' hulls

IMPACT

Fouling organism. Ecological impact unstudied, probably competes for space with other fouling and shallow-water invertebrates.

ECOLOGY

Reproduction

This species is hermaphrodite, with a simple reproductive system. Fertilization is external, and after a time in the plankton the free-swimming tadpole larvae will settle and metamorphose.

Feeding

Ascidians are suspension feeders that use a mucous net to filter plankton from the water. Ciliary action moves water into the oral siphon and to the pharynx which resembles a basket. As water is pumped through slits in the pharyngeal basket, out the atrial siphon, it passes through a layer of mucous coating the inside. When the mucous sheet is clogged with food, special structures pass it to a short esophagus and into the stomach.

REMARKS

The first records of this common large (to 9 - 10 cm) dark solitary ascidian, appear to date from 1968-1972, with the report of "*Ascidia melanostoma*" from fouling panels off of Oahu at 15 meters depth and in Pearl Harbor at 9 meters by Long (1974); Abbott et al. (1997) consider it probable that these records represent morphological variants of *P. nigra* (*Ascidia melanostoma* being otherwise unknown from the Islands).

Abbott et al. (1997) noted that *P. nigra* "lives on rocks and dead coral on barely subtidal mudflats in Kaneohe Bay and on floats and pilings there and in Pearl Harbor and in the Keehi boat harbor". They further note that the color of *P. nigra*, while a consistent velvety black in the tropical western Atlantic Ocean, varies in the Hawaiian Islands, with individuals in shady places having translucent gray tunics.

The origin of *Phallusia nigra* is unclear; it may be native to the Red Sea (its type locality) and the Indian Ocean area, or to the tropical western Atlantic Ocean, where it occurs from Florida to Brazil (Abbott et al., 1997). It also occurs in Micronesia. Earlier records from Australia are now referred to other *Phallusia* species

REFERENCES

- Abbott, D.P., A.T. Newberry, and K.M. Morris. 1997. Section 6B: Ascidians (Urochordata). Reef and Shore Fauna of Hawaii. Bishop Museum Special Publ. 64 (6B).
- Long, E.R. 1974. Marine fouling studies off Oahu, Hawaii. *Veliger*. 17: 23-39.