

## Gray sea squirt

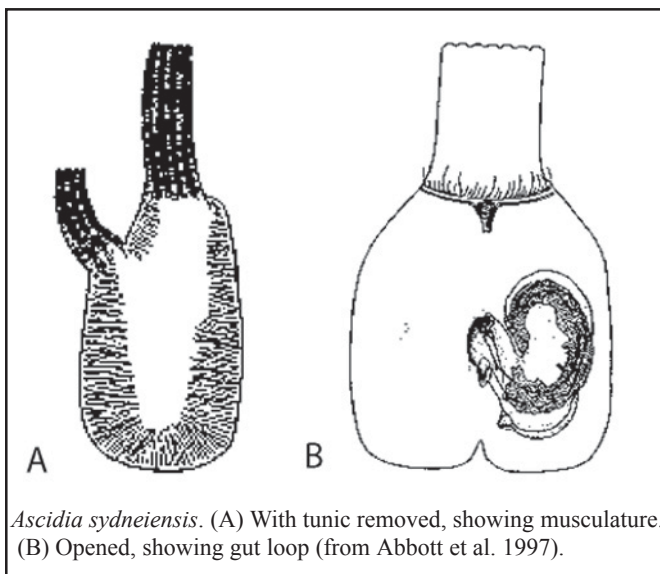
Phylum Chordata  
Subphylum Urochordata  
Class Ascidiacea  
Order Enterogona  
Family Ascidiidae



Photo by R. DeFelice

### DESCRIPTION

This very common large solitary ascidian has a translucent gray membranous tunic. It is finely wrinkled with minute hairs and clear enough to let the brown, orange or reddish body show through. With the tunic removed, the right side displays a prominent fringe of short, stout muscle fibers set perpendicular to the margin of the body, with the central region almost devoid of musculature. A large specimen will have more than 100 oral tentacles. The S-shaped gut loop is deeply recurved, and the hindgut is typically grossly swollen and packed with silt (from Abbott et al. 1997).



*Ascidia sydneiensis*. (A) With tunic removed, showing musculature. (B) Opened, showing gut loop (from Abbott et al. 1997).

### HABITAT

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

### DISTRIBUTION

#### HAWAIIAN ISLANDS

Throughout the main islands and Midway Atoll in harbors and embayments.

#### NATIVE RANGE

Most likely Indo-Pacific

#### PRESENT DISTRIBUTION

Warm and temperate seas of the Southern Hemisphere

#### MECHANISM OF INTRODUCTION

Unintentional, as fouling on ships' hulls

### IMPACT

Fouling organism. Ecological impact unstudied, but probably competes with other shallow-water invertebrates for space, especially in the fouling community.

## ECOLOGY

### 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.

### 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.

## REMARKS

*Ascidia sydneiensis* is probably the most common large ascidian in calm waters in Hawaii. It was first recorded in 1940-1941 from Oahu. Abbott et al. (1997) note that it “exploits docks, floats, boat hulls, solid debris on mudflats, and other firm substrates in calm habitats such as Kaneohe Bay, Pearl Harbor, and the Keehi boat harbor.”

Although described as “virtually worldwide”, “cosmopolitan” and “widely distributed in the warmer regions of the world” (Van Name, 1945), *Ascidia sydneiensis* likely originates in the Australian - Indo-Pacific region. First described from Port Jackson, Australia, from material collected intertidally, most of its many synonyms were described from Indonesia, Sri Lanka, or Australia. It is also known from lagoons in Tahiti and Moorea, New Caledonia, Palau Island, Japan, and the Indian Ocean (Seychelles, Isles Maurice, and eastern Africa) (Kott, 1985). It may be introduced to Japan (where it was first recorded by 1906 [Kott, 1985]).

By 1878 it was recorded from South Africa and by 1881 it was reported from the Caribbean, at St. Thomas in the West Indies. In the tropical western Atlantic, it is more restricted in its distribution, being known from the West Indies and other Caribbean regions, Colombia, and Brazil (Van Name, 1945), as well as from the “Atlantic coast of Africa”, suggestive of introduction from the Pacific by ship fouling in the 19th century.

## REFERENCES

- Abbott, D.P., A.T. Newberry, and K.M. Morris. 1997. Reef and Shore Fauna of Hawaii. Section 6B: Ascidians (Urochordata). Bishop Mus. Spec. Pub. 64(6B).
- Kott, P. 1985. The Australian Ascidiacea Part 1, Phlebobranchia and Stolidobranchia. Mem. Queensland Mus. 23: 1-440.
- Van Name, W.G. 1945. The North and South American ascidians. Bull. Amer. Mus. Nat. Hist. 84: 1-476.