SPECIES AT A GLANCE

# Colonial Tunicates

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**REPORT THIS SPECIES!**
**Oregon:** 1-866-INVADER or OregonInvasivesHotline.org
**Washington:** 1-877-9-INFEST or www.invasivespecies.wa.gov/report.shtml
**California:** https://www.wildlife.ca.gov/Conservation/Invasives/report

What ancient animal in modern times has a primitive spinal chord that may resemble the first vertebrate animals on Earth, spends most of its life stuck to a boat or rock, produces an exoskeleton made of cellulose, and is more associated with plants than animals? **Tunicates!** Tunicates are marine invertebrate filter feeders that colonize underwater substrates, and can also be invasive. Today, solitary tunicates, club tunicates, *Ciona* tunicates, and colonial tunicates are considered invasive. Many of them form slimy colonies that coat rocky shorelines and oyster beds, smother marine benthic life, and foul hard surfaces, such as boat hulls and maritime structures. It is important to clean, drain, and dry your boat, equipment, and fishing/aquaculture equipment to prevent additional spread of these damaging invaders.

## Species in the news

**Case Study:** "Unraveling the Sea Squirt: Pesky Creature's Genome Holds Secrets to Human Origins." Oregon Public Broadcasting, 2002. Available from http://www.npr.org/templates/story/story.php?storyId=875863.

## Learning extensions

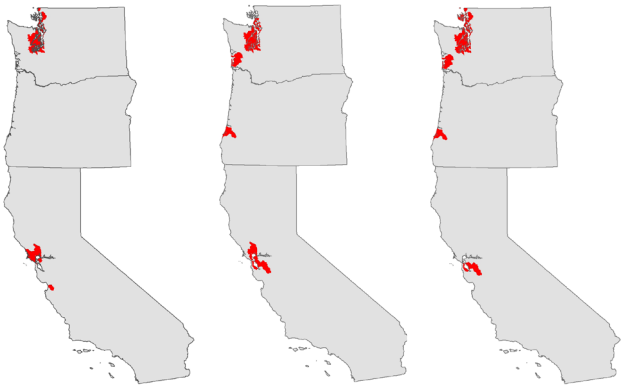
See the **Teacher Guide to Activities on Colonial Tunicates** at MenaceToTheWest.org.

## Selected Resources

***On the Lookout for Invasive Tunicates: Identification Guide for Early Detection and Response***
Oregon Sea Grant Extension, Oregon State University.

## Why you should care

Colonial tunicates can foul hard surfaces by growing prolifically and reproducing on anything including other organisms, boat bottoms, and dock pilings. The tunicate *Didemnum* sp. is quick to colonize an available substrate, and, once established, it can overgrow and potentially smother other **sessile** (fixed in one place) marine invertebrates. *Didemnum* also blocks access to the sea floor, displacing the many organisms that depend on it for habitat.




*Established distributions and species occurrence. Maps created 3/08.*

*Top photo:* Didemnum *sp. A covering a bryozoan (*Watersipora subtorquata*) in San Francisco Bay.*

## How they got here and spread

It is thought that these tunicates were brought to the West Coast of the United States from locations in Europe and Japan as a fouling species attached to the bottoms of boats and other maritime equipment. It is also possible that they were introduced through aquaculture as hitchhikers on nonnative oysters.

## COOL FACTS

Sea squirts are ancient animals dating back about 500 million years. It is believed that they are responsible for the evolution of animals with a spinal chord. They are essentially ancient vertebrates without backbones.

The free-swimming larval stage of tunicates exhibits all fundamental chordate characteristics: a notochord, dorsal nerve cord, pharyngeal slits, and post-anal tail. Humans are more closely related to a tunicate than a crab or sea snail! Tunicates are one of the few advanced invertebrate species in Chordata, a phylum dominated by vertebrates.

One tunicate species found in the coral reefs and mangrove swamps of the West Indies is the source of a cancer treatment drug that is currently undergoing clinical trials.

Tunicates are often called sea squirts because of their immense ability to circulate and filter water while feeding and squirt water at a high velocity when disturbed.