

Protecting Long Island Sound

A Colonial Sea Squirt Invades Long Island Sound

If you have ever cast a line for striped bass in Long Island Sound, or sat on a nearby restaurant deck slurping native oysters, you know that the Sound is home to many valuable animals. However, an invasive colonial sea squirt (*Didemnum* sp.) poses a serious new threat to the ecological health of the Sound and to all of the organisms that depend on it.

Didemnum is unlike any other invasive species that scientists have seen in the region. It has the unique ability to cover massive areas of the sea floor, endangering native organisms that rely on that area for their food or habitat.

Didemnum has been dubbed the Blob because it envelops everything in its path, overgrowing whatever it encounters, and spreading over wider and wider areas. On the Georges Bank, east of Cape Cod, some colonies have covered square kilometers of habitat.

When a colony covers a large area of the sea floor, it acts as a barrier between the water and the sediment. As a result, cod, flounder, and other fish cannot reach the sediment for their prey, such as worms. Lobsters cannot find adequate hiding places among the rocks. Mussels and oysters cannot feed on the microscopic plants in the water.

Because *Didemnum* has the potential to devastate an ecosystem, scientists are seeking to learn what makes the species such a successful invader, and why it has spread so rapidly in the area.

One reason for its success may be its ability to reproduce by fragmentation. Fragmentation occurs when one colony breaks into two or more pieces. When a small fragment breaks off from a larger

colony, it may float with water currents to a new location before it settles and reattaches. Once the fragment reattaches, it becomes a new colony. Because fragments may travel long distances, fragmentation may contribute to *Didemnum*'s successful invasion of new habitats within Long Island Sound.



The colonial sea squirt (*Didemnum*) overgrowing a blue mussel
Photograph courtesy of Jeff Mercer

This research adopts an interdisciplinary approach to investigate the process of fragmentation. It uses techniques and equipment from the field of

materials science to measure changes in a colony's tensile strength (ability to stretch without breaking), as well as microscopic analyses from marine sciences.

Given *Didemnum*'s potential to harm natural communities and economically important species, research on how the species spreads, and on factors that may control this spread, is urgently needed.

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