

Protecting Biodiversity

Invasive Species in Long Island Sound

Is Long Island Sound threatened by alien invaders?

While an invasion by little green people seems unlikely, an invasion by little green organisms is a real possibility. These invaders (which may also be brown, red, or another color) include various species of algae that can move into the Sound and reproduce so successfully that they replace native species.

Invasive species have wreaked havoc on habitats around the world. When they compete successfully with native flora and fauna, the numbers of the native species begin to decline. Ultimately, the ecosystem changes as the species composition changes. The result is usually decreased diversity and decreased stability. The total cost of the environmental damage caused by all invasive species throughout the United States is estimated at \$120 billion.

To protect the Sound's native species and their habitat, researchers are investigating how algae invaders reach this location. One route may be via bait used for commercial or recreational fishing. The sandworm, a popular bait, is often packaged with seaweed (a type of algae). This seaweed may contain the spores of invasive species. If the seaweed is discarded into the water, the spores can develop into mature invasive organisms, which can multiply rapidly and endanger the health of the Sound.

The goal of this research is to determine the role of seaweed packaging in the introduction of invasive algae. It investigates which species are being introduced and ways to prevent these introductions. The problematic species include macroalgae (those that can be seen with the naked eye) and microalgae (those that require a microscope to be seen).



Red algae (*Grateloupia turuturu*)
in Long Island Sound

Photo: Becky Gladych

Microalgae, especially forms called phytoplankton, may be the most dangerous. Many of these species can form toxins that affect both marine life and humans. These toxins can cause skin, respiratory, digestive, and neurological problems, and even death in fish, birds, and mammals.

In water, many microalgal species can form harmful blooms, or dense, rapidly growing populations. These blooms can reduce the oxygen content of the water, killing large numbers of fish and seriously damaging the habitat.

If the seaweed packaging of bait worms is a route for invasive algal species, this research may lead to safer ways to dispose of the seaweed and thus help to protect Long Island Sound.

Award recipient: Christina Haska, Department of Marine Sciences
Mentors: Senjie Lin, Department of Marine Sciences, and Charles Yarish, Department of Ecology and Evolutionary Biology

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