

## International Team of Scientists Searches for Bioinvaders in New England Waters

If it's 9 a.m. on August 5, it must be Boston.

A team of 15 researchers from around the world is making a 7-day whirlwind tour of ports and coastal areas from Maine to New York, searching for native and non-indigenous marine plants and animals. The tour, which started on August 3 and includes over 20 stops, is part of a Northeast Rapid Assessment Survey (RAS), which is coordinated by the MIT Sea Grant College Program and the [Massachusetts Bays Program](#). The team's goal is to develop a baseline inventory of species in the region and to identify creatures that could become a problem for the region.

At the end of each collection day, the group will identify and catalogue the specimens using labs at the University of New Hampshire, the U.S. Environmental Protection Agency in Narragansett, RI, and Fairfield University in CT. The rapid assessment technique is not meant to be a comprehensive study, but rather an early step that may lead to further research or immediate management decisions.



One species of invasive red algae.

Non-indigenous species—also known as invasive species, bioinvaders and exotics—disrupt the existing ecology of an area and cause significant economic damage. Exotic marine plants and animals may be brought to new environments in a variety of ways, including international shipping, recreational boating, the bait trade and aquaculture. A few of these problematic creatures have made their way to Massachusetts. One such animal is the European green crab, *Carcinus maenas*, which is suspected to have arrived in the Northeast via sailing ships in the 19th or 20th centuries. The hearty crabs have reproduced successfully throughout the region and have had a major impact on the ecology of the shallow, inter-tidal zone.



The invasive *hemigrapsus* shown here hugging a rock.

Other invasive species that can be found in Massachusetts are the small Asian shore crab, *Hemigrapsus sanguineus*, which grows only to one inch, and green fleece alga, *Codium fragile ssp. tomentosoides*, which attaches itself to hard surfaces, rocks, and shellfish.

In New Hampshire, recent research funded by the New Hampshire Estuaries Project revealed that green crabs were a major predator on juvenile soft-shell clams in Hampton Harbor, which is currently experiencing low numbers of harvestable clams. The researchers stopped at Hampton Harbor on Sunday morning, August 3, looking for invasive species that have recently shown up in other parts of the Northeast. One such creature is the compound tunicate,

*Didemnum vexillum*, which was newly identified in New England in August 2000 and is also found in New Zealand and Brittany, France. It is a very aggressive invader and may cause problems for aquaculture facilities and overgrow attached organisms. Another potential bioinvader is a barnacle, *Elminius modestus*, which can

grow on ship hulls and displace native barnacles. This species, endemic to New Zealand and Australia, is now present in Europe and may soon make its way to the U.S.

Scientists will also be looking for these same animals in Massachusetts harbors. In addition, they will be looking for a red alga, *Grateloupia turuturu*, which was found in Rhode Island in the 2000 survey and is spreading along the coast both northward and southward.

One of the goals of the Northeast RAS is to spot bioinvaders before they become a problem. "This type of rapid assessment is one of the best preventative tools we have right now," says Judy Pederson, an organizer of the survey and manager of [MIT Sea Grant's Center for Coastal Resources](#). "And with marine bioinvaders," she adds, "an ounce of prevention is worth many pounds of cure. Once a non-indigenous species takes hold, managing or removing it is extremely difficult and costly." This sort of survey, she explains, can help prevent further spread of organisms and limit their impacts, such as the restructuring of established food webs, importing of new diseases, and competition with indigenous organisms for space and food. The Northeast RAS is a collaborative effort of eight regional estuary programs and is funded with a grant from the U.S. Environmental Protection Agency.

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### Other References:

#### *Hitchhikers Guide to Exotic Species*

This handy, waterproof guide provides detailed information about 14 invasive marine species, as well as a few species native to New England. You can find out exactly what a star tunicate or a common sea grape looks like. And you can learn how to help researchers out in case you think you see one of these invaders. Order this free guide (MITSG publication #02-3) at <http://web.mit.edu/seagrant/publications/order.html>

#### *A Quick Guide to Marine Bioinvasions*

<http://web.mit.edu/seagrant/bioinvade/index.html>

#### MIT Sea Grant: Introduced Species Descriptions

[http://massbay.mit.edu/exoticspecies/exoticmaps/descriptions\\_intro.html](http://massbay.mit.edu/exoticspecies/exoticmaps/descriptions_intro.html)

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