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Marine life gone bad: Scientists inventory invaders

By MEREDITH GOAD, Portland Press Herald Writer

A group of scientists in rain gear huddled over a floating dock that had been pulled from the water at Portland Yacht Services on Monday morning.

Staff photo by Jack Milton

Undisturbed by the showers that swept over the waterfront, they scraped off curtains of kelp, sucked up water samples with eyedroppers, and pored over the colorful creatures with unusual shapes that still clung to the dock.

The team of 25 scientists is conducting a week-long survey of floating docks and piers to find out how many exotic marine species have invaded the coastal waters from Maine's Casco Bay to New York Harbor. The group includes about a dozen taxonomic experts with different specialties, from tiny crustaceans to colorful sea squirts. They hail from places as varied as Rhode Island, England, New Hampshire, Seattle and the Carolinas.

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European green crabs, Asian shore crabs, periwinkles and other non-native species can enter a coastal area naturally or spread from port to port through a ship's ballast water. While some species are benign, others can spread rapidly and cause widespread economic and ecological harm.

Dr. James Carlton, director of the Williams-Mystic Program, collects marine life from a dock at Brewers South Freeport Marine on Monday. He is part of a group of scientists searching docks and piers for signs of exotic marine species in coastal waters from Maine's Casco Bay to New York Harbor.

The green crab, for example, preys on commercially valuable shellfish. Other species chew up piers and pilings, damage fisheries or cause public health problems.

A similar survey conducted three years ago in Massachusetts found that 10 percent of the species identified were not native to the state, including two species that had never been seen before on the East Coast. This year's expanded survey will give scientists a broader look at which exotic species are here and how far they've spread.

"One reason that we've chosen Portland is because, with all the ship traffic coming in and out of here, there's a good chance that some of them may have come in on some of the ships," said Jan Smith, director of the Massachusetts Bays National Estuary Program.

The survey began Monday with a visit to Port Harbor Marine in South Portland, then moved to Portland Yacht Services on Fore Street. The group spent the afternoon at Brewers South Freeport Marine.

At Portland Yacht Services, Niels Hobbs of the University of Rhode Island used a strainer and an eye dropper to capture tiny animals called arthropods and isopods, which are closely related to crabs and shrimp. He pointed to a small, dark shape scurrying through the water in a plastic container.

"They look a lot like little shrimp," he said, "and there are a number of species that we've found around here that are non-native, that we've found in the past. They're little fast swimmers that you can see in the corner there. Some of them are a little too fast for the eyedropper."

Hobbs said he is collecting as many species as he can, trying to develop a baseline of what's in the water. Scientists don't know yet whether the animals cause any damage, he said.

"As little as we know about what ones are here," he said, "we know even less, really, about what impact they actually have."

It's a different story for the sea squirts, or tunicates, which were being examined Monday by Gretchen and Charles Lambert of the University of Washington in Seattle. Gretchen Lambert is a taxonomist who, among other things, identifies sea squirts for the Smithsonian. Her husband Charles is a physiologist who also works on the animals, but on this trip is performing a variety of tasks, from sorting critters to making sure that microscopes are working.

"Of the many invasive animals, the most abundant one in this harbor is a sea squirt from Japan," Charles Lambert said, pointing to an orange colony of squishy sea squirts on the dock.

Gretchen Lambert pointed to another one nearby, a brown, knobby creature known as a club tunicate. As tunicate colonies grow, she explained, they smother shellfish fisheries.

"They are causing millions of dollars worth of damage to mussel and oyster growers on Prince Edward Island," she said. "We were there at the end of March to talk to about 100 aquaculturists about how to get rid of them, actually, which is very difficult once they've come into an area. So one thing we hope to accomplish with surveys of this type is to enact more stringent rules on processing the ballast water and profiling suspect vessels."

In March, U.S. Sen. Susan Collins, R-Maine, and other lawmakers introduced a broad invasive-species bill that would set more aggressive rules for the shipping industry and how it handles ballast water. The Environment and Public Works Committee held hearings on the bill last month, but it has not yet been sent to the full Senate.

Lambert said she is also keeping an eye out for a tunicate called **Didemnum**, a relatively new invader that simultaneously appeared in New England, California, western France and Brittany, New Zealand, most likely carried in ballast water.

"Unlike some introduced species, which so far have mainly been found on what we call artificial surfaces, **Didemnum** has the ability, we've found, to easily colonize natural rock surfaces," Lambert said. "So it is now subtidal all along New England and parts of northern California, where it is growing in subtidal rock walls, smothering native species and very drastically changing the marine ecology of these areas."

Jan Smith said the scientists will also be watching for "a nasty whelk" from Korea that was introduced into the Virginia Beach area, probably by a Navy ship.

"It's very predatory on shellfish," he said. "We're nervous about it getting up here, so we're kind of keeping an eye out."

The scientists were brought to Maine by the Northeast National Estuary Program Partners, the Casco Bay Estuary Program and MIT Sea Grant, with the help of a $60,000 grant from the U.S. Environmental Protection Agency. Their expenses are being paid, but otherwise the scientists are doing the work for free, Smith said.

The National Geographic Society is filming the group for two days for an upcoming segment on its "Explorer" television program.

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