

Friday, November 28, 2003

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Sea squirt poses new problem for fishermen

By MEREDITH GOAD, Portland Press Herald Writer

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The sea squirts recently discovered invading Georges Bank were probably carried there by fishing gear, so similar fishing areas should be searched to see if the problem has spread, says an expert on the creatures.

Gretchen Lambert of the University of Washington in Seattle said the sea squirt found colonizing a 6 1/2-square-mile area of Georges Bank is "very aggressive" and needs to be monitored because it could ultimately harm the fishery.

"The fact that it has spread out so far from shore now is reason to be very concerned," she said. ". . . It's going to change the whole food web out there. At this point we can't even know what all the repercussions are, but we can say with pretty good surety that it's definitely going to be negative."

Scientists announced last week that, while exploring the sea floor 160 miles off Cape Cod, they found the invasive species of sea squirt growing in dense mats on the ocean floor. It is believed to be the first

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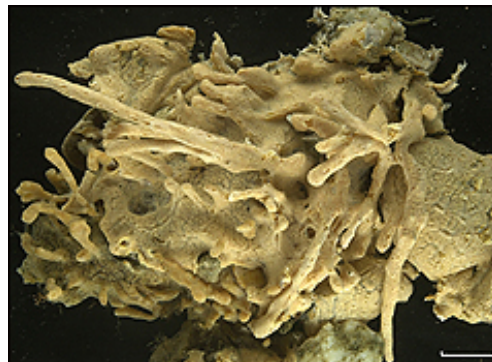
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time the creature has been found in offshore waters.

Sea squirts are tunicates, a form of sea life that grows in colonies and has a firm but flexible outer covering called a tunic. As the colonies grow, they encrust and smother native species, changing the marine ecology.

Other species of sea squirts are giving headaches to mussel and oyster growers in places such as Prince Edward Island, where they are causing millions of dollars' worth of damage. The sea squirt found on Georges Bank, which has been given the scientific name *Didemnum vexillum*, is already known to inhabit coastal areas of New Zealand, Brittany, California and New England.

The sea squirt "sort of looks like thick, off-white pancake batter," said Larry Harris, a professor of zoology at the University of New Hampshire. It can crowd out other species.



USGS/NOAA photo
Sea squirts cover a dredge sample of pebbles, gravel and scallops shown photographed on the deck of the the NOAA Ship Delaware II this month. The sample was taken from Georges Bank.

"It sort of looks like thick, off-white pancake batter," said Larry Harris, a professor of zoology at the University of New Hampshire.

It's possible that, like other invasive species, this sea squirt arrived here years ago - perhaps as early as the 1970s - and has quietly been biding its time, waiting for just the right conditions to take off, Harris said. A pinhead-sized larva can bloom into a colony the size of a dinner plate in just a month or so.

This year scientists conducting a survey of marine invasive species from Freeport to Long Island found that the sea squirt has already become well established in Portsmouth Harbor. Divers spied it this fall on Duck Island, one of the Isles of Shoals, and soon after it was found in nearby Gosport Harbor.

It was first recorded in Maine in the late 1980s in the Damariscotta estuary, and has recently moved outside the estuary, Harris said. There have also been reports of a population in a back bay of Eastport.

Didemnum has not been found in Maine's offshore waters yet, but that could be just because no one is looking. It is just a matter of time before it reaches the Casco Bay islands, Harris said.

"In most places, it's going to be mostly a shallow-water phenomenon," he said. "But the fact that it's become established on Georges Bank makes it rather unique. There aren't a whole lot of examples of invasive species that have done that sort of thing."

Researchers who have been visiting Georges Bank regularly for the past nine years saw small colonies of the sea squirt last year, but didn't recognize it as an invasive species.



This year, when they returned, they were "very surprised" by how far the colonies had spread, said Page Valentine, a scientist with the U.S. Geological Survey. In some places, the colonies covered more than 90 percent of the seabed.

"The concern is that this organism will spread by being fragmented by fishing gear," Valentine said, "and then pieces can be transported by currents and fall to the ground and grow a new colony."

Scientists are worried that the growth of sea squirt colonies could harm the fishery by changing the mix of species that live in gravel beds on the ocean floor. Juvenile fish frequent these gravel beds because predators can't see them there, and they can find small crabs, shrimp and other food to eat. Those fish may not be able to survive there anymore if their food supply changes.

Aside from simply pushing out other animals, the sea squirt secretes a defensive chemical that keeps other life forms away, said Jeremy Collie, a researcher at the University of Rhode Island.

"It could cause problems if it really does blanket areas of the bottom," he said. "Other larvae of bivalves - clams, scallops - may not be able to settle there."

Collie said it appears the sea squirts at Georges Bank are already altering the ecology of the sea floor.

Harris said the discovery poses an interesting and potentially serious question for fisheries managers, one he is already challenging his students with in the classroom: Does the proliferation of sea squirts mean that future fishing ground closures could actually do more harm than good?

"What do you do?" Harris said. "This is not an easy dilemma because the idea of rotating (closed) areas to keep a sustainable production of scallops and finfish is something that has gained a fair amount of acceptance recently, and now somebody has thrown a monkey wrench into that plan with a species that hasn't read the management manuals."

Valentine said it's unlikely the sea squirt could cover all of Georges Bank because the seabed there contains sand ridges as well as gravel beds, and it's unlikely that it could grow on constantly shifting sand. But scientists need to do more inspection and monitoring in the area to be sure, and to see how far the organism has spread.

"It's something to be concerned about and address," he said. "You can't eradicate it. It remains to be seen whether it's a long-term threat or not."

Lambert said that until more is known, fishermen should be sure to clean their gear well.

"If it means dipping it briefly in bleach, then that's what they

need to do," she said. "Just a quick scrubdown probably isn't enough. Until we get a better handle on this, it would be the prudent thing to do."

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