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Wednesday, November 24, 2004

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Sea squirts put squeeze on 40 square miles

By JOHN RICHARDSON, Portland Press Herald
Writer

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[SEA SQUIRTS](#)

Sea squirts, an invasive animal found on the Georges Bank seabed a year ago, now cover at least 40 square miles, a sixfold increase, say researchers who inspected the offshore area earlier this month.

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Scientists say colonies of the sea squirts have created dense, slimy mats over gravel and sand on the northern edge of Georges Bank, historically one of the most productive fishing grounds in the world.

The small animals, which are not native and may have dropped off a passing

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ship, could spread over a far larger area and may already be pushing out native species such as worms and shellfish that live in the ocean floor.

The discovery of such a large offshore colony is believed to be unprecedented, and is especially troubling because of the history and value of Georges Bank to New England and its seafood industry. The large underwater plateau is home to haddock, cod and other groundfish, as well as scallops, the second most valuable commercial species in New England after lobster.

"It covers everything," said Page Valentine, a research geologist at the U.S. Geological Survey. "How much impact it has on fish food such as worms and clams remains to be seen. But it's definitely changing things, and it's getting to the point where you can't eradicate it. It has no known predators, so the only option right now is don't spread it."

The federal agency assigned to managing ocean resources and fisheries is participating in the research. A spokeswoman said there are too many mysteries to make any decisions about what, if anything, should be

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USGS photo

Light-colored sea squirts spread over the gravel ocean bottom in this photograph taken last year on Georges Bank.



done about the sea squirts.

"We know they're out there, but what difference is it making?" said Teri Frady, chief of research communications for the National Marine Fisheries Service in the Northeast. "We need to find out more about it."

The sea squirt is a type of tunicate - filter-feeding animals with a flexible but firm outer covering. It has been mostly known to live and multiply in nutrient-rich inshore waters rather than deeper offshore areas.

The same research team came back from its trip to Georges Bank last fall with reports of the sea squirt covering more than 6 square miles of the gravel bottom. The invaders appeared to come almost out of nowhere. Photos of the sea floor in the same area showed none of the tunicates before 2000, and relatively small numbers until 2003.

"We didn't see it 10 years ago when we first started out there. We consider it new," said Valentine, the geologist.

This year, the research team searched a larger area to gauge the size of the invasion. They had to stop looking and come home after examining about 40 square miles. "We were surprised at how big the area is," Valentine said.

Valentine believes the conditions there just happen to be right for the tunicates. Georges Bank, which lies about 200 miles southeast of Portland, is a relatively shallow plateau rich with nutrients. It also has areas of gravel bottom, which allows the sea squirts to glue themselves to the sea floor.

The sea squirts are believed to have no predators because of

SEA SQUIRTS

Sea squirts are tunicates, a type of animal with a primitive spinal cord and firm, flexible outer covering. They filter microscopic nutrients out of the water and can form dense mats made up of millions of individual sea squirts.

They are an invasive species on Georges Bank and may have settled there after traveling on the hull of a ship from the Netherlands or France.

Sea squirts can spread by producing tiny larvae or by breaking apart into fragments that drift away, resettle and start new colonies.

They can cover or push out native marine life, such as clams and scallops, and disrupt food chains that support fish.

Infestations of sea squirts have been removed using chemicals in New Zealand, but scientists do not know of any way to get rid of large colonies, especially offshore.

Source: National Oceanic and Atmospheric Administration and U.S. Geological Survey

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chemical defenses and their tough skin. Scientists are taking a closer look at that issue, however, after finding some fish on Georges Bank with undigested fragments of sea squirts in their stomachs.

Sea squirts produce tiny tadpole-like larvae that help colonies to spread out. But they can spread even more quickly by being broken up into fragments that drift and then resettle and recolonize.

"If you break up the mats, that's actually a pretty good way to spread it," Valentine said. "The best thing right now is to leave it alone."

Some scientists have suggested making the area off limits to fishing vessels that drag nets across the ocean floor. But fishery managers are quick to point out that it's unknown whether fishing or other factors, including storms, are helping to spread the colonies.

"Storms could rip it up. Dragging fishing gear through there could do it," Valentine said. "Those are options that fisheries managers should consider."

Fishing is already banned in other areas of Georges Bank in an effort to reverse decades of overfishing off New England. The area infested with sea squirts is open to fishing, according to the New England Fishery Management Council.

Barbara Stevenson, owner of offshore draggers based in Portland, said fishermen have avoided the area in recent years because of regulations and the economic struggles of the industry.

"That's an area, for a number of reasons, that has not been fished for a long period of time," Stevenson said.

She said she believes fishing could be more of a solution than a problem. "It got a toehold because there was no fishing," Stevenson said.

Scientists plan to present their latest data on the sea squirts at an International Invasive Sea Squirt Conference in Woods Hole, Mass., in April.

Staff Writer John Richardson can be contacted at 791 - 6324 or at:

jrichardson@pressherald.com

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