

ENVIRONMENT

Shellfishermen want to boost nitrogen in the Bay to help quahogs. Regulators say no way.



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PROVIDENCE – The members of a special legislative commission studying the decline of quahog harvests in Narragansett Bay agree on a few things.

That a steady supply of nutrients in the water is critical to ensuring that the filter-feeding mollusks have plenty of microscopic algae to eat.

That climate change is impeding the growth of the winter-spring algae bloom that is so important to fueling the quahog spawning season.

And that scientists need to conduct more research to understand other factors that may be contributing to a long-term trend: quahog landings have dropped from more than 4 million meat pounds in 1985 to less than 400,000 in 2022.

But as the commission met this week to discuss findings and recommendations gleaned from six months of meetings, it was clear from the outset that where members differ is on what actions state government should take to try to reverse the decline.

Quahoggers want to increase nitrogen flows from sewage plants

The commercial shellfishermen who sit on the commission want the group's final report to support a proposal for raising the cap on winter nitrogen discharges from wastewater treatment plants that empty into the Bay.

Nitrogen is the key ingredient in fertilizer, and it acts in the water just as it does on land, by feeding the growth of plant life. Shellfishermen say that by strategically increasing nitrogen

flows from the treatment facilities in winter, quahogs would have more food to eat when they need it most and their numbers would increase as a result.

Jim Boyd, a board member of the Rhode Island Shellfisherman's Association, acknowledged the ecosystem-wide impacts of climate change, but he said that warming will continue, even as fossil-fuel emissions are cut, because of greenhouse gases already in the atmosphere.

He argued that adjusting the nitrogen flows from the Fields Point facility in Providence, the Bucklin Point plant in East Providence and others around the upper Bay is the only option that could have an immediate effect on the quahog population.

“If we ceased all of those emissions today, there's enough greenhouse gases in the atmosphere and enough momentum in the Earth's energy imbalance that we will have warming continue for another century,” Boyd said. “We're not going to be able to change those.”

“There is one thing we can change,” he continued. “That's our management of nitrogen.”

In theory, that's true. Nitrogen levels in the Bay increased from the late 1800s onward as the human population of the watershed grew and the amount of effluent they discharged from sewage systems went up.

Nitrogen levels were cut after 2003 fish kill

While more nitrogen may have led to more food for quahogs and other bottom-dwelling organisms, it caused other problems in the Bay. When nutrient loads get too high, they can cause uncontrolled growth of algae. And when the plants die, they sink to the bottom and decompose, using up dissolved oxygen in the water and creating conditions that can suffocate fish. The threat is especially serious in the summer.

Lawmakers forced treatment plants to dial back nitrogen releases after a fish kill in Greenwich Bay in 2003 left more than a million juvenile menhaden dead. In the years since, the facilities have cut their discharges by three-quarters.

Oxygen levels in the Bay have improved, but they still aren't meeting standards in all areas, according to the state Department of Environmental Management.

Regulators and others oppose changing nitrogen discharges

It's the main reason the agency opposes any move to relax the nitrogen cap on the treatment plants. The risk of impacting oxygen concentrations is too high, said Joseph Habarek, administrator of surface water protection for the DEM. Even if more nitrogen is allowed only in the winter, the impacts could be felt months down the line if dead algae accumulate at the bottom.

“For that reason, it's very likely that if we were to try to increase nitrogen discharges in the summertime or winter period, EPA would challenge that,” he said, referring to the U.S. Environmental Protection Agency.

And because of the way biological processes at treatment plants work, it wouldn't be possible to boost nitrogen flows in the winter and bring them back down again in time for summer, said Walter Palm, director of environmental science and compliance at the Narragansett Bay Commission, which manages the largest sewage system in the state.

“The answer has to be no,” he said when asked about the feasibility of adjusting nitrogen levels. “To increase and decrease is impossible.”

Scientists on the commission also raised doubts about moving forward on nitrogen concentrations. Both Marta Gomez-Chiarri, an aquatic pathologist at the University of Rhode Island, and Hisham Abdelrahman, a marine biologist at Roger Williams University, said more study needs to be done before considering it as an option.

“Just increasing nutrients might not solve the issue,” Abdelrahman said.

Quahog transplants could help

So if attempting to change nutrient levels is off the table, what else can be done to help quahogs in the Bay?

Some of the options on the table include more long-term monitoring of not just quahogs but the Bay as a whole, including the designation of certain areas as spawner sanctuaries to boost reproduction, construction of a shellfish hatchery to augment quahog numbers, and funding of experiments and field studies on nitrogen impacts on quahogs.

One alternative that all members of the commission seem to support is expanding a program to transplant quahogs from contaminated areas off-limits to harvesting to clean waters

where, in as little as two weeks, they can filter out contaminants and be safe for human consumption.

From the mid-1950s to the mid-70s, an average of 2.5 million pounds of quahogs were transplanted annually in the Bay. The number plummeted to 100,000 pounds between 1993 and 2001. And since 2010, the program has been sporadic and shrunk even more, to about 44,000 pounds a year.

“While large-scale transplants are no longer viable because there are less closed areas in the upper Bay, several evaluations of declining quahog catch have identified regular and sustained quahog transplants as an important tool for rebuilding the Narragansett Bay quahog fishery,” the DEM wrote to the commission.

Transplants used to be funded by the state, but they are currently paid for by fines collected from wastewater treatment plants for discharge violations. Both the DEM and the shellfisherman’s association recommend increasing funding for the program.

Michael McGiveney, president of the association, said there appear to be large numbers of quahogs in parts of the Providence River where shellfishing is still prohibited.

“The transplant program is one of the things that we can really ramp up quickly,” he said. “It is there and all we need is the funding and the plan to get it out so we can harvest them.”