

Protecting Great Bay Estuary, the Seacoast's 'jewel'
Experts advise multi-tier approach to improving water body's health

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PORTSMOUTH — To ensure the health of the Great Bay Estuary, often called the "jewel of the New Hampshire Seacoast," representatives of local area environmental groups are weighing in on solutions that go beyond upgrading local wastewater treatment plants.

Tom Irwin, vice president and New Hampshire advocacy center director of the Conservation Law Foundation, and Joel Harrington, director of government relations for The Nature Conservancy, spoke with Seacoast Sunday's editorial board Wednesday. The pair discussed several issues related to the estuary, including areas in which communities can become actively engaged in preserving the ecological resource.

Revised regulations of the N.H. Department of Environmental Sciences and U.S. Environmental Protection Agency will force 21 New Hampshire and Maine communities around the estuary to upgrade their wastewater treatment facilities, including Portsmouth, Newington, Exeter, Newmarket and Newfields. The upgrades will cost millions of dollars apiece.

Nitrogen inputs impair the estuary, and scientists place the amount that comes from wastewater treatment plants at 30 percent, which amounts to approximately 20 million gallons of nitrogen a day being introduced into the estuary, Harrington said. Non-point sources such as septic systems, fertilizers, storm water and the atmosphere account for the remaining 70 percent. Storm water pollution occurs when water runs off paved surfaces into rivers and streams and directly into the estuary, carrying with it nitrogen, oil, metals and other toxic pollutants.

"I think there's agreement now that nitrogen is the single greatest threat to the estuary," Harrington said. A solution to solving the storm water issue may be as far as 30 years out, said Irwin, so interim solutions are necessary to maintain and potentially reverse degradation to the system.

"Achieving major nitrogen load reductions from storm water in the near term is very difficult, so you can't leave the wastewater treatment plants alone and focus on storm water and expect to solve the problem," Irwin said. "It's essential that we tackle both issues."

The multi-tiered approach discussed by Harrington and Irwin involves implementing new upgrades for the wastewater treatment plants, land protection and restoration around the bay, and re-examination of land use and development in the watershed.

Irwin said with an approximate 5,000 acres protected by the Great Bay Resource Protection Partnership, leveraged by an additional 5,000 to 6,000 acres by individual communities, some nitrogen runoff is being collected through natural buffers such as low shrubs, trees and high grass that absorb the chemical and allow the ground to filtrate it.

Even with the progress of land protection, Irwin expressed a concern over the increase of "sprawl" developments, which cause more nitrogen runoff into the estuary. The increase in low-density, scattered developments have seen the amount of paved surfaces in New Hampshire's coastal watershed rise from roughly 31,000 acres in 1990 to roughly 53,000 acres in 2005, he said.

"New Hampshire has, in the last 20 years, proceeded primarily with a low-density, more sprawling style of development, whereas if you had more compact forms of development, we wouldn't see these numbers ballooning the way we have," he said.

Communities embracing compact forms of housing, including cluster housing and conservation subdivisions, will be a crucial undertaking to reduce the amount of storm water pollutants, Irwin said. Reducing the footprint of development while accommodating needs more efficiently through land use planning, Harrington said, will take community effort to implement low-impact development techniques — for example, the use of impervious surfaces to allow precipitation to filter through rather than run off and be discharged into streams and rivers.

"Low-impact development will definitely be a part of that, and that means using development techniques that mimic the natural hydrology as much as possible," Irwin said.

The recent update to the state's Comprehensive Shoreland Protection Act has started to address new septic design requirements, Irwin said, but in such a short time span since then, the overall impact so far is difficult to determine.

Fertilizer, which is absorbed within larger non-point sources, is an area for concern, but as there is no regulatory structure to limit its use, data on its impact is not readily available. Harrington and Irwin stressed there are education efforts going on to make citizens more aware of the impacts of fertilizer use in relation to the health of the estuary.

A new oyster restoration project is being viewed as an avenue for restoring the estuary: A healthy adult oyster can filter 20 gallons of water a day, removing nutrients and pollutants from the water and creating a net effect of cleaner, clearer water. However, Harrington said the bay's oyster population was decimated by two diseases in the 1990s, and restoring the animals is difficult and will take time.

Filter-feeding oysters are a critical part of the ecosystem in local waters, and their populations have also been hit hard in recent years by development and overharvesting, Harrington said. A partnership between The Nature Conservancy, Piscataqua Region Estuaries Partnership, the University of New Hampshire and others has brought more than 100 tons of surf clam and ocean quahog shells to local waters in an effort to encourage the population growth of the mollusk.



A view of Great Bay as seen from the Ferry Way Trail at the National Wildlife Refuge in Newington.
Herald file photo

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