

# Op-Ed Submission

New Hampshire Department of Environmental Services

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## Together, We Can All Help Restore Great Bay

Nobody needs to be reminded why Great Bay holds such a special place in our lives. Featuring great scenery, fishing, boating, birdwatching and other recreation, this gem of an inland ocean boosts the lives and economy for all of southeastern New Hampshire. Unfortunately, like other waters near urban areas, Great Bay also faces major challenges due to a variety of disturbances, especially nutrient pollution.

Part of what makes Great Bay special and unique is because it is an estuary – a place where ocean water meets freshwater. EPA designated it as an “estuary of national significance” under its National Estuary Program in 1995. And since 2004, the Department of Environmental Services (DES) has been intensively studying nutrient dynamics in the Great Bay Estuary. We know two important facts: 1) the levels of nutrient loading into the Great Bay estuary are high enough to cause problems, and 2) the estuary exhibits many of the symptoms of excess nutrients. However, determining what actions need to be taken becomes a bit more complicated.

Over the past three years, DES and the communities surrounding the estuary have worked closely to better understand the factors causing the problems we witness, such as eelgrass loss, low dissolved oxygen in tidal rivers, and a proliferation of macroalgae. Together we agree that nitrogen is a culprit, but because other factors may also influence water quality, there remains some uncertainty over specifically what level of nitrogen becomes problematic. Now, the US Environmental Protection Agency (EPA), DES and the communities are developing an adaptive management approach, one in which reasonable investments are made in nutrient reductions, results are measured, and additional actions taken as necessary. Already great progress in reducing both nitrogen and other pollutants is being made.

Waste water treatment plants (WWTPs) contribute about one-third of the nitrogen entering the estuary. However, they contribute well over half of the more problematic type, the so-called dissolved inorganic nitrogen (DIN), which stimulates undesirable plant and algae growth. Thus far, of the six largest wastewater facilities around the estuary, four are either in the design or construction phase of upgrades. The other two already achieved low nitrogen discharge levels in the summer of 2014 and will be exploring opportunities to do even better in 2015. These improvements will reduce by at least 50% the amount of nitrogen (and reduce over 75% of the DIN) discharged by these facilities. In addition, the planned upgrade of the Portsmouth facility will vastly reduce other particulates in the water which can shade eelgrass. Importantly, none of the WWTPs has been forced to immediately upgrade to the strictest possible treatment standards, as was once the concern.

The other two-thirds of the nitrogen pollution that reaches Great Bay originates from activities on the lands surrounding it and from air pollution depositing pollutants on the ground. These so-called “nonpoint sources,” such as lawn fertilizer, septic systems and urban runoff, are typically difficult to control and track. In 2014 DES published the “Great Bay Nitrogen Non-Point Source Study” to provide a useful starting point for towns and watershed groups to prioritize efforts to reduce nitrogen discharges. DES has also worked with municipal and community partners to reduce nitrogen in the ring of New Hampshire communities that comprise the shoreline of the estuary. Small projects are sprouting up in many communities and we expect that to multiply in the coming year. In 2015, a new tracking system will be developed, with funding assistance from EPA and DES, to allow communities to account for increases and decreases in pollution loading so that communities can take credit for their reductions.

While pollution reductions are underway, monitoring results in the estuary do not yet show improvement. Eelgrass presence continues to decline and the other symptoms of poor health persist. It will likely take at least 10 years to see the full impact of the beneficial actions of today. What is clear today is that the adaptive management approach is one that will significantly reduce pollution over a longer period of time in a manner that makes sense and maximizes the return on the investments made for the residents of the seacoast. It is also clear that the way forward on improving the health of the Great Bay estuary is through collaborative science, intensive monitoring, reasonable regulation and open dialogue. At DES and EPA, we are committed to these tenets and look forward to working with the communities in this fashion.

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