



Great Bay MATTERS

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*Promoting research, education
and stewardship throughout
the Great Bay Estuary*

Making a Difference



I am often asked if we work during the winter. The answer is obviously “yes” and the question probably reflects a lack of knowledge of what we really do all year at the Reserve. Much

of this issue is dedicated to highlighting the depth of our programs and how we are making a difference.

One of the Reserve’s least visible but most important programs is the System-Wide Monitoring Program known as SWMP. This is a water quality monitoring program created through the National Estuarine Research Reserve System (see the Research page for more information about the program and how the data is used). To date, the Reserve has spent nearly two million dollars implementing SWMP. As more and more people are concerned about water quality in the Great Bay Estuary, long-term monitoring is critical to understanding the impacts from pollution and the success of clean-up efforts.

One of the most effective ways to prevent further pollution in the estuary is to limit development along the shoreline. As a founding member of the Great Bay Resource Protection Partnership, the Reserve has developed an acquisition plan for protecting as much land as possible within the estuary. The Partnership is led by The Nature Conservancy and has so far protected over 5,000 acres. Sen. Judd Gregg has been a champion in securing funds to support our land protection efforts.

Of course, if you have funding available, acquiring land is easy. The hard part is managing all these properties. The Reserve’s Stewardship Program is designed to take an ecosystem based

approach to improve our knowledge of best management and restoration practices. Currently, we are involved in mapping all of the habitats found in the Reserve as part of a NERRS Habitat Mapping and Change effort. Once documented, we will be able to monitor long-term habitat change and the impacts from climate change.

Most people associate the Reserve with the Great Bay Discovery Center. This facility is the gateway to learning about Great Bay and is visited annually by over 5,000 school children who participate in our education programs. Many more thousands of visitors view the Center’s exhibits or walk the boardwalk and trail. What most people don’t realize is the site of the Center was slated to be condominiums and was protected by the State in 1989 as the future headquarters for the Reserve.

The addition of the Hugh Gregg Coastal Conservation Center has provided a much needed meeting place for trainings and events. The Coastal Training Program (CTP) is another NERRS initiative and provides valuable assistance and technical training to local decision-makers. As southern NH continues to experience rapid population growth, local communities need all the help possible in protecting our natural resources.

These are just some examples of what it means to be a Research Reserve. In this issue, you will learn about how we are controlling invasive plant species and establishing a series of sediment elevation tables in the salt marshes to monitor long-term change due to sea level rise. We are here for the long haul and happy to be making a difference.

 Peter Wellenberger
Reserve Manager, GBNERR



GREAT BAY
NATIONAL
ESTUARINE
RESEARCH
RESERVE

Great Bay National Estuarine Research Reserve (GBNERR) is an estuary comprised of 7,300 acres of tidal waters and 2,935 acres of coastal land. Acquired through land purchases and conservation easements, GBNERR was designated on October 3, 1989 to be preserved for the purposes of education, research, and resource protection.

GreatBay MATTERS

89 Depot Road, Greenland, NH 03840
603-778-0015

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GBNERR

Manager: Peter Wellenberger

Great Bay Discovery Center

Education Coordinator:
Kelle Loughlin

Great Bay Stewards

President: Nancy Cauvet



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Our Changing Landscape:

Balancing Quality of Life for People and Nature

Great Bay sits at a nexus of biodiversity. Its watershed encompasses the southern range of many boreal forest wildlife species and the northern range of many northern hardwood species. In addition, coastal shores provide habitats such as mudflats and species such as eel-grass not found in other parts of the state.

This hot spot of biodiversity is also home to a disproportionate number of rare species. Great Bay's watershed covers less than ten percent of New Hampshire, but is home to nearly twenty percent of the state's rare species and exemplary natural communities. Globally rare species include small whorled-pogonia, brook floater, and ringed boghaunter. Rich vernal pool and wetland diversity support critical reptile and amphibian species. Twenty species of waterfowl, twenty seven shorebird species, and thirteen species of wading birds use Great Bay. This region is a natural treasure.

This status was threatened in the early 1970s when the world's largest oil refinery was proposed to be built on Durham Point. It was a difficult choice during an energy crisis and a time of high unemployment. The developers promised new jobs and lower taxes. They had optioned over 1000 acres. However, a group of stewardship-minded individuals rallied to prevent the building of the 400,000 barrel a day refinery in the heart of what is now our largest unfragmented block of forest in the region. These pioneers recognized the ecological value of Great

Bay and laid the foundation to it being federally recognized as the seventeenth National Estuarine Research Reserve.

Rapid land use change was prevented when House Bill 15 passed, reaffirming towns' home-rule rights to decide on large projects such as the oil refinery. However, change continues in an incremental manner as individual lots of undeveloped land are slowly built on. New Hampshire is the fastest growing state in the Northeast. The average population of towns in Great Bay's watershed increased by 81% between 1980 and 2008. To mitigate this change, nine natural resource agencies formed the Great Bay Resource Protection Partnership and together have protected some of the most ecologically rich parcels in this region. As a founding member of the Partnership, the Reserve has helped leverage 56 million dollars in NOAA funds for land conservation. Acquisition has been prolific and is ongoing. Currently the Reserve manages 81 tracts that cover 3,495 acres. These properties provide wildlife habitat, recreational opportunities, and a myriad of "ecosystem services" such as flood control, improved water quality, and maintenance of fisheries. It is not just quantity, but the quality of the health of these habitats that we are working to protect. Imagine how different our lives would be if a large oil refinery were central to our local economy.

Rachel Stevens
Stewardship Coordinator, GBNERR

The red dot (left) is in the location that would have housed massive oil storage tanks had the oil refinery been built. Today it is the parking area of Great Bay National Estuarine Research Reserve WMA at Crommet Creek. This area provides public access to explore beautiful wetlands, Appalachian Oak Pine forest, and the wildlife these habitats support.



GRAPHIC BY RACHEL STEVENS

In the Field

Homes for Wildlife or People?

The importance of protecting habitat for wildlife is balanced with the need to provide homes for people. The process of protecting land for conservation extinguishes development rights in perpetuity. This might seem counter to the mission of providing affordable housing. The NH Chapter of The Nature Conservancy operates as lead acquisition agent for the Great Bay Resource Protection Partnership and has transferred over 3,000 acres to New Hampshire Fish and Game to be managed as part of Great Bay National Estuarine Research Reserve. Of this, 76 house lots had already been approved by local planning boards on 14 parcels. It is almost certain these houses would have been constructed and some ecologically rich land impacted. If this land had been built on instead of protected, it would have done little to address affordable housing needs. All of the plans were for large single family homes, each with an average 16.7 acre lot. Appropriate areas for affordable housing tend to allow for small plot size, high density and located near population centers serviced by public utilities. Of the Fish and Game properties protected within the Reserve boundary, the "highest and best use" provided in appraisals had the potential to result in an additional 174 single family homes around Great Bay. Thanks to the efforts of all involved, instead we have over 3,000 more acres of conservation land within the Reserve for residents to enjoy.

Thanks to Duane Hyde and Bob Miller of TNC for providing highest and best use statistics.