



Great Bay MATTERS

Spring/Summer 2010

Volume 18 • Number 2

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

The Solution is Right Overhead



Recent visitors to the Great Bay Discovery Center may have noticed pieces of asphalt on the ground. This debris has nothing to do with our porous asphalt parking lot but is actually

from the roof shingles. The problem is especially bad on the southern facing roof surface where the shingles are now very brittle and easily break off. In other words, it is time for a new roof.

The Reserve is pleased to announce that it has received a NOAA construction award to install a metal roof with solar capability. The advantage of metal is that it will last many more years compared to an asphalt roof. In fact, it comes with a 35-year warranty and should last at least 50 years. The current asphalt shingles were installed in 1995, a lifespan of barely 15 years.

However, the real reason we are so excited is the new roof comes with an integrated PV thermal system. In tech speak PV means photovoltaic, which will allow us to generate our own electricity, and thermal means solar hot water to help heat the building. During the winter, we will be generating heat and saving on oil. In the summer, we can use the electricity to help run the pumps for the tanks and the air conditioning. The combined energy savings should be around a \$1,000 a year. If energy prices increase by just seven percent annually, we would save over \$60,000 during the next

25 years.

Part of the knock against solar energy is some people think solar collectors are eyesores. To preserve the architectural integrity of the building, the system we have selected eliminates this problem. The heat collection system and all the pipes are located underneath with only the metal roofing material exposed. The PV component is actually a thin laminate that is applied directly to the metal surface. From a distance, the roof will simply appear as a two-tone metal roof.

We plan to start work on the new roof later this fall. Part of the installation will include a water storage tank in the basement and some other minor modifications to the current duct work. There should be minimal disruption to the operation of the Center.

The last issue of Great Bay Matters contained several articles on climate change. Several of our readers took exception to references that climate change was inevitable. We respectfully disagree but regardless of your stance on the issue, it makes sense to utilize green energy. Taking advantage of the energy right above our heads is a lot better than relying on oil shipped halfway around the world. We can reduce our energy costs as well as our carbon footprint.

We are proud of going green. The Hugh Gregg Coastal Conservation Center is heated and cooled with a geothermal system. The water used is pumped back into the ground. The composting toilets at the Center use no water. Our porous asphalt parking lot and pervious concrete sidewalks, along with the rain garden, are demonstrations on how best to manage stormwater. Now we have an opportunity to green up the Discovery Center. In other words, we are doing our part.

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

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Great Bay Matters is published cooperatively by GBNERR and the Great Bay Stewards

Editor: Kelle Loughlin
Design and Composition: Victor Young
Cover Photo: © NHFG / Victor Young

Financial support for this publication was provided by a grant under the Federal Coastal Zone Management Act, administered by the Office of Ocean and Coastal Resource Management, National Oceanic and Atmospheric Administration, Silver Spring, MD.

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GBNERR is funded by the National Oceanic and Atmospheric Administration and the New Hampshire Fish and Game Department. The Reserve is supported by its non-profit friends group, the Great Bay Stewards



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Cross-section of an integrated PV thermal roof.

A Well Designed Approach to Stewardship

As part of managing 81 properties within the Reserve boundary, the Stewardship program continues to work on its invasive plant control project. Reserve staff have mapped over


techniques is completed, our goal is to work with our Coastal Training Program and NH CWIPP (Coastal Watershed Invasive Plant Partnership) partners to transfer recommendations of control priorities to community members and coastal decision makers throughout the watershed.

This project is also taking place as part of Great Bay's contribution to the National Estuarine Research Reserve's system-wide Habitat Mapping and Change Project. This is designed to assess habitats in the Reserves for long-term change related to local sea level change and human-caused stress.

Part of implementing this invasive plant project will involve GBNERR seeking funds to develop a public online reporting geospatial database. Likely using Google Maps, this project will allow any interested community member to contribute geospatial and ecological

information about invasive plant populations throughout the Great Bay watershed. In the future, we'd like to distribute town scale maps to Conservation Commissions and Town Planning Boards to identify areas in which the control of invasive plants may have a maximum positive ecological impact.

Part of the mission of the Reserve is to maintain and improve the ecological integrity of the land we manage while educating the public. These projects are a great opportunity to do both.

 Jay Sullivan
Naturalist, GBNERR



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GBNERR staff map and remove invasive plants from reserve properties.



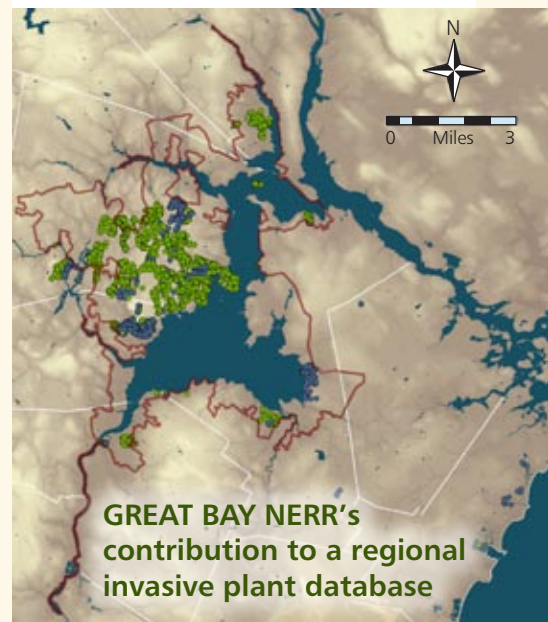
4,100 separate stands of invasive plants (see map). Of these, nearly 400 stands are classified as "large" (20 individual plants or more). Using an experimental design to quantitatively assess the effectiveness of the control techniques most commonly used by natural resource managers in this region, the goal of this project will be to restore these natural areas.

For each of the 14 invasive plant species distributed throughout the Reserve, and included in this project, at least one manual control technique is being employed. Once an evaluation of tech-

In the Field

Volunteers Needed

This is the fourth year of the Reserve's ongoing invasive plant project. Control, using chemical and mechanical techniques, is planned on 33 properties this year. Between the Habitat Mapping and Change Project, and the invasive plant project, this coming field season will be a busy one. To get the job done, our Reserve will be employing the help of seasonal staff, several interns and our loyal volunteers. We are so grateful for our dedicated volunteers, the backbone for so many of our Reserve programs. With these new projects, there is always a need for more people to help. If you have a flexible schedule, a desire to get outside, and a willingness to get your hands dirty, we'd love to hear from you! Please contact Jay Sullivan at the Great Bay Discovery Center. She can be reached at 778-0015 or Jay.Sullivan@wildlife.nh.gov.



Green dots indicate populations mapped by GBNERR. Blue dots indicate populations mapped by NH CWIPP.