

Project Location

Great Bay National Estuarine
Research Reserve

Project Duration

September 2015 to August 2017

Project Lead

Cory Riley
Great Bay National Estuarine
Research Reserve
(603) 868-1095
cory.riley@wildlife.nh.gov

David Patrick
New Hampshire Chapter of The
Nature Conservancy
(603) 224-5853,
david.patrick@tnc.org

Project Type

Integrated Assessment – evaluating
options for action

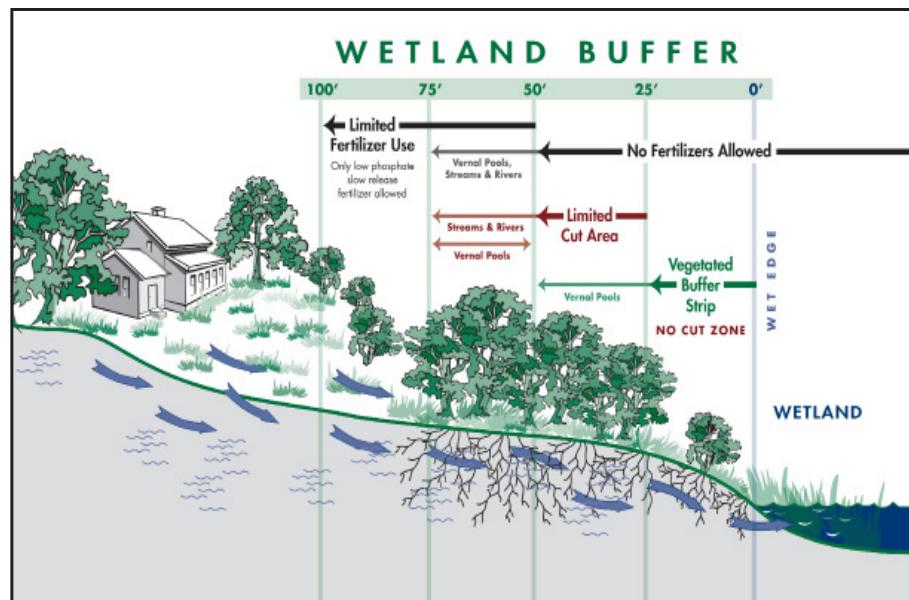
Project Partners

- Clark University
- Great Bay National Estuarine Research Reserve
- New Hampshire Department of Environmental Services
- Piscataqua Region Estuaries Partnership
- The Nature Conservancy
- University of New Hampshire

Exploring the Trends, Science, and Options of Buffer Management in the Great Bay Watershed

Overview

The health of the Great Bay Estuary is strongly influenced by stressors from across the watershed. Seven rivers flow into the estuary, which is recessed 15 miles from the Atlantic Ocean. While science and case studies clearly demonstrate the value of vegetated buffers along these rivers in promoting a healthy estuary, New Hampshire does not yet consistently or effectively use buffers to protect the Great Bay Estuary. This project will enhance stakeholder capacity to make informed decisions on the protection and restoration of buffers around the Great Bay Estuary by addressing the following question: What are the options for addressing the challenges to effectively protect and restore buffer zones around New Hampshire's Great Bay? The project will support strategic agency and nonprofit investments; inform strategies for outreach professionals to work with towns on water quality improvement, habitat protection, climate adaptation, and nonpoint source pollution control; and lead to new research questions.



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Anticipated Benefits

- Improvements to water quality, habitat, and resilience because of more effective long-term buffer management.
- A network of partners to support and assist in implementing regulatory and non-regulatory management actions related to buffers.
- Model solutions for addressing multiple watershed stressors.
- More efficient and better-coordinated activities and investments to mitigate climate and water quality impacts.

Project Approach

This project will explore the ecosystem functions, services, and values that arise from protecting buffers in the Great Bay watershed, emphasizing services selected by end users and stakeholders. The team will conduct a literature review and analyses to describe the technical, policy, and social contexts of buffer use in the watershed. They will be guided by an advisory committee that includes land conservation partners, regional planners, outreach professionals, and others. The resulting analyses will accomplish the following aims:

- Aggregate existing scientific data.
- Explore current and historic barriers to buffer use.
- Identify opportunities for overcoming these barriers.
- Delineate the regulatory and non-regulatory options for buffer management.
- Assess the ecosystem functions, services, and benefits that arise from protecting buffers.

The team will also identify areas where targeted efforts to conserve and restore buffers are most likely to enhance desired ecosystem services. This watershed-scale analysis will be complemented by an assessment of the regulatory and social context of Great Bay communities. The team will develop criteria to select a sub-watershed within which they will more deeply explore the identified barriers and potential solutions. The project will develop a decision-support tool to guide end users through regulatory and non-regulatory options for buffer restoration and protection. It also will produce an action plan to help organizations represented by the project team and advisory committee advance the use of buffers in ways that enhance desired ecosystem services in the watershed.

Targeted End Users

- Environmental agencies and nonprofits that invest in buffer protection, restoration, and municipal outreach.

Anticipated Products and Targeted End Users

- Summaries of analyses to utilize in outreach efforts around buffer science and benefits.
- Decision support framework to analyze where and how to protect and restore buffers.
- Action plan to assist sub-watershed communities and other stakeholders in selecting and implementing preferred options.
- Maps that show where buffers are most critical to protecting valued ecosystem services.

About the Science Collaborative

The National Estuarine Research Reserve System's Science Collaborative supports collaborative research that addresses coastal management problems important to the reserves. The Science Collaborative is managed by the University of Michigan's Water Center through a cooperative agreement with the National Oceanic and Atmospheric Administration (NOAA). Funding for the research reserves and this program comes from NOAA. Learn more at www.nerrs.noaa.gov or www.graham.umich.edu/water/nerrs.