NATIONAL CENTERS FOR COASTAL OCEAN SCIENCE

Science To Sustain Thriving Coastal Communities and Economies

Economic Analysis of Shoreline Treatment Options in Coastal New Hampshire

What We Are Doing

Coastal communities are experiencing an increase in coastal hazard risk due to a variety of factors that include erosion and sea level rise. In order to reduce this risk, coastal communities can implement shoreline options in the form of green, gray, or hybrid infrastructure. Through the use of both primary and secondary data, researchers at NOAA's National Centers for Coastal Ocean Science (NCCOS) are estimating the costs and benefits associated with different shoreline treatment options in coastal New Hampshire.

Why We Are Doing It

As erosion impacts increase in frequency and severity under a changing climate, it has become progressively more important for communities to develop cost-effective adaptation strategies. New Hampshire coastal resource managers, their coastal resource partners, and municipal technical assistance providers have been interested in evaluating shoreline treatment options, as exemplified by the Buffer Options on the Bay Project, the Smart Shorelines Project, and the Northeast Regional Ocean Council Regional Resilience Project.

This study will provide information for coastal managers to evaluate shoreline treatment options based on the estimated costs of implementation and the related ecosystem service benefits. This will establish baseline economic values for key ecosystem services relevant to coastal New Hampshire. Furthermore, this study provides a framework for coastal managers to incorporate costbenefit analyses when planning shoreline projects in the future.









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Our Approach

Researchers are conducting an economic analysis of shoreline treatment options for coastal New Hampshire that may affect important environmental services, such as erosion control and flood mitigation. The primary goal of the analysis is to compare the costs and benefits associated with different types of shoreline treatments that are under consideration for implementation by local partners in New Hampshire.

The costs of implementing these shoreline options include acquisition, planning, construction, maintenance, and labor costs. This cost information is being collected through an inventory of similar shoreline projects within coastal New Hampshire.

The benefits of implementing shoreline treatment options will be measured through a contingent choice survey. The survey will value the benefits of erosion control and flood mitigation, as well as other co-benefits from ecosystem services, such as aesthetics, improvements to water quality, and the protection of fish, wildlife, and other aquatic species. This survey will also address other relevant coastal management topics, such as existing and future plans for shoreline treatment options by property owners, perceptions of climate change, and place attachment.

Inundation modeling software is being used to estimate the potential impacts of climate hazard scenarios given the implementation of shoreline options. Climate hazard scenarios, relevant co-benefits, and additional informational objectives are being determined in consultation with local partners.

Our partners include:

- The Great Bay National Estuarine Research Reserve
- The National Estuarine Research Reserve System
- The New Hampshire Fish and Game Department
- The New Hampshire Coastal Program
- The New Hampshire Department of Environmental Services
- The Nature Conservancy
- The Piscataqua Region Estuaries Partnership
- NOAA Office for Coastal Management
- University of New Hampshire



For More Information

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