Sustainable Shorelines for New York's Hudson River

Project Location

Hudson River National Estuarine Research Reserve, New York

Project Lead

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Targeted End Users and Products

- *Project final report 1, 2*
- *Handbook: Managing Shore Zones for Ecological Benefits*
- *Sustainable shoreline demonstration site case studies*
- *Forensic analysis of the performance of shoreline treatment approaches during storms*
- *Geospatial data for shoreline types, ice climatology, and physical forces on the Hudson River Estuary*
- *Peer-reviewed journal articles on shore zone ecology*
- *Regulatory and decision-making analyses, lessons learned briefs, workshop presentations, and other resources*

Project Partners

- *Hudson River Reserve*
- *Cary Institute of Ecosystem Studies*
- *Consensus Building Institute*
- *NYS Department of Environmental Conservation*
- *NYSDEC Hudson River Estuary Program*
- *Stevens Institute of Technology*

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. Learn more at *www.nerrs.noaa.gov.*

Overview

Battered by tides, ice, storms, and human activity, nearly half of the Hudson River shoreline has been "armored up" by structures such as steel bulkheads or rock revetments. While these structures can protect vulnerable infrastructure in high-energy situations, they also disrupt surrounding habitats. In response, the Hudson River reserve launched the Sustainable Shorelines project. This long-term, collaborative initiative is advancing understanding of the engineering, economic, and ecological tradeoffs of using different shoreline management options today—and as the climate shifts and sea levels rise—for generations to come.

Project Benefits

- Decision makers now have access to engineering and ecological guidance, geospatial data, and economic information about different options for stabilizing shorelines.
- The project is a model for other interdisciplinary, collaborative efforts to promote sustainable shoreline management, having received a 2015 Environmental Quality Award from the Environmental Protection Agency.
- Several New York communities have implemented sustainable shoreline management techniques, demonstrating how these approaches work and the benefits they provide. The project team has captured lessons learned from these demonstration sites in case studies to inform future decision making and research. Evaluation of the performance of some of these sites during storms has provided the Hudson River permit officials and engineers with the support they need to design and permit sustainable shorelines.
- The project team has shared their work in New Hampshire, New Jersey, Delaware, and elsewhere, through workshops, webinars, conferences, and the project website.

Project Approach

The Hudson River reserve worked with the Consensus Building Institute to design and implement a collaborative framework based on Joint Fact Finding to launch and manage this interdisciplinary, multi-stakeholder initiative.

Project Approach (continued)

- Research and Investigation: The team sought to advance the science and guidance for shoreline management by investigating engineering, ecological, economic, and social science questions for a range of shoreline stabilization options. Through a series of three grants from 2008 through 2015, the team has been able to evolve to address arising questions and research needs.
- Stakeholder Engagement: A major driver for the project's success has been the effective engagement of stakeholders throughout the process. Engineers, landscape architects, and permit officials are involved in the advisory committee and have helped to prioritize research, information, and training needs
- Workshops: A 2014 training that focused on sharing the project's findings and building relationships between stakeholders involved in shoreline decisions. More than 50 participants from the fields of engineering, landscape architecture, permitting, and scientific research participants found the workshop extremely useful, not only to learn about the project's results, but to have the opportunity to interact with people from different professions.