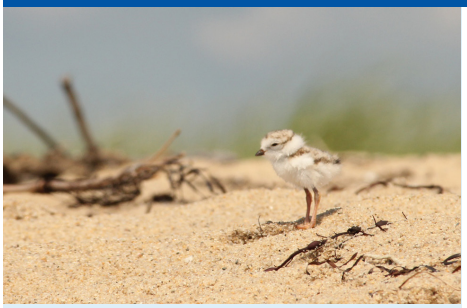

Assessing How Climate Change Will Affect Coastal Habitats in the Northeast

Project Location

Great Bay National Estuarine Research Reserve Narragansett Bay National Estuarine Research Reserve Waquoit Bay National Estuarine Research Reserve Wells National Estuarine Research Reserve

Project Duration

September 2015 to August 2017

Project Lead

Robin Weber
Narragansett Bay National Estuarine Research Reserve
robin@nbnerr.org

Project Type

Science Transfer — promoting the use of science

Products

- A regionally relevant resource document capturing the state of knowledge on the impact of climate change on salt marsh habitat in the northeastern U.S.
- Fact sheets, technical reports, and case studies comparing relative habitat vulnerabilities in the region
- A demonstrated step-by-step process that serves as a model for the application of the Climate Change Vulnerability Assessment Tool for Coastal Habitats in other regions

Project Partners

- Chesapeake Bay – Virginia National Estuarine Research Reserve
- Great Bay National Estuarine Research Reserve
- Narragansett Bay National Estuarine Research Reserve
- Waquoit Bay National Estuarine Research Reserve
- Wells National Estuarine Research Reserve

Project Overview

Climate change will significantly affect coastal habitats as sea level, storms, erosion, and water quality change. However, the impacts on different habitats in different locations will vary, and it is not clear how coastal managers should best protect vulnerable habitats such as marshes, seagrass beds, and dunes. A more complete understanding of risks could help coastal managers prioritize actions that could enhance the resilience of coastal habitats.

A new tool, the Climate Change Vulnerability Assessment Tool for Coastal Habitats (CCVATCH), has been developed to help land managers, decision makers, and researchers develop conservation, management, and restoration plans for coastal habitats. This tool identifies primary sources of vulnerability to assist these parties with prioritizing coastal habitat management actions. In this project, four National Estuarine Research Reserves in the northeastern U.S. (Great Bay, Narragansett Bay, Waquoit Bay, and Wells) applied CCVATCH individually to inform local management decisions and collaborated to develop regionally relevant resources for the tool's application and outreach.

Project Benefits

Overall, this project demonstrated the utility of the Climate Change Vulnerability Assessment Tool for Coastal Habitats to support adaptive management in response to climate change.

- Northeast reserves calculated individual vulnerability scores, which informed their reserve-specific habitat management decisions and adaptation strategies.
- Knowledge of the tool, its implementation process, and lessons learned were transferred between reserves and from reserves to local stakeholders and partners, enabling project participants to gain a greater understanding of the potential impacts of climate change on coastal habitats in the Northeast.
- The project resulted in a number of unanticipated yet valuable outcomes, including incorporation as a resource into Rhode Island's Shoreline Change Special Area Management Plan. The project team is also consulting with a NOAA Fisheries team interested in incorporating CCVATCH into the development of marine mammal and sea turtle climate vulnerability assessments.

Project Approach

Since climate vulnerability assessments can be labor- and time-intensive, the four Northeast reserves collaborated to develop a greater understanding of regional and coastal vulnerabilities to climate change. With training and facilitation support from the Chesapeake Bay – Virginia Reserve, the Northeast reserves conducted a thorough assessment of climate change impacts.

- **Gathered Information** – Reserves shared the task of collecting and compiling regional and site-specific data and information on climate change impacts on coastal habitats. They collectively developed a regionally relevant resource document, which identifies research and data needs.
- **Conducted Vulnerability Assessments** – The project team applied CCVATCH at each of the Northeast reserves to assess site-specific vulnerability to climate change and better understand specific threats to coastal habitats. Reserves used results from the tool to prioritize restoration actions and land acquisition that would build resiliency to climate change.
- **Shared Information** – The project team shared information with other reserves and user groups to generate a broader understanding of the tools available to support climate adaptation.

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 nerrssciencecollaborative.org or coast.noaa.gov/nerrs.