Understanding the Vulnerabilities of Southeastern Coastal Habitats to Climate Change Impacts

Project Location

North Inlet-Winyah Bay National Estuarine Research Reserve
North Carolina National Estuarine Research Reserve

Project Duration

June 2016 to May 2018

Project Lead

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Project Type

Science Transfer – promoting the use of science

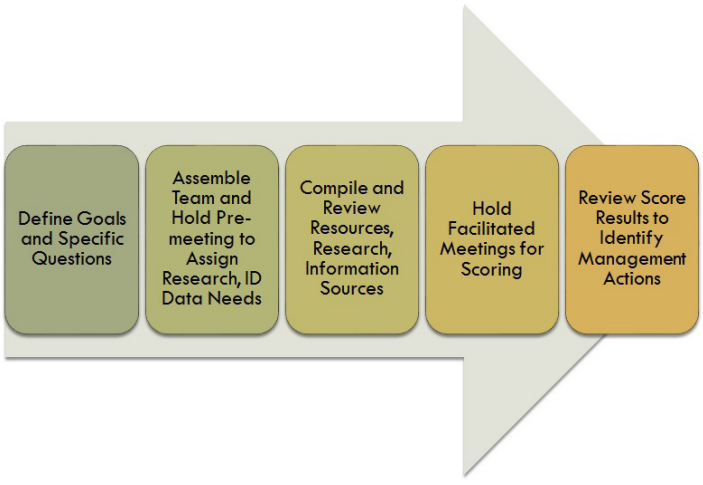
Project Partners

- North Carolina National Estuarine Research Reserve
- North Inlet-Winyah Bay National Estuarine Research Reserve

Overview

Climate change is having an impact on salt marshes in the southeastern United States through sea level rise, increases in air and water temperature, changes in precipitation patterns, and an increase in storm event intensity. However, the degree and intensity of these impacts vary from marsh to marsh, depending on local environmental conditions. Understanding this local variability is critical when making management decisions. Estuarine reserves in North and South Carolina are seeking to improve local understanding of climate change effects on southeastern marshes, and provide decision makers with the information and skills they need to address these vulnerabilities, by using the Climate Change Vulnerability Assessment Tool for Coastal Habitats, or CCVATCH. Created to help managers better understand the specific vulnerabilities of a habitat to climate change, this decision-support tool incorporates existing information on climate change impacts with knowledge of local conditions to help users develop vulnerability scores for specific areas.

For this project, North Carolina Reserve staff members will be fully trained in the application of the tool and facilitation of the assessment process by their colleagues from the North Inlet-Winyah Bay Reserve. The two reserves will work together to identify relevant resources and existing research needs and develop outreach products and activities.



Anticipated Benefits

- End users, including land managers, researchers, and coastal decision-makers, will gain a greater understanding of the impacts of climate change on coastal habitats in the Southeast.
- Local land managers and organizations will have a better understanding of the data and resources available to support assessments of local habitat vulnerability.
- Managers and decision makers will make more informed habitat management decisions aimed at increasing resilience to climate change.

Project Approach

Following initial training in the Climate Change Vulnerability Assessment Tool for Coastal Habitats application, the project team will consult with regional experts to identify and collect local resource data and information on the effects of climate change on local habitats. After gathering this information into a resource database, the team will apply the tool at each reserve component in North Carolina and at North Inlet in South Carolina. Input from project participants, including local land managers, representatives of community organizations, and reserve staff members, will be used to develop habitat vulnerability assessments for emergent marsh areas at each reserve location. The assessment outcomes will be captured in site-specific and summary reports that end users can use to explore how current and potential management actions could increase resilience to climate change.

Targeted End Users and Anticipated Products

- Land managers, community organizations, and reserve staff members will be trained to apply this decision-support tool to better determine the sources of habitat vulnerability, the suitability of applying specific adaptation strategies, and the potential to guide policy and management decisions.
- Southeastern reserves will have an updated website and database to find information on the potential effects of climate change on coastal habitats in the region.
- A regional resource document based on background information gathered to inform the Climate Change Vulnerability Assessment Tool for Coastal Habitats process will be available to support managers as they seek to improve habitat resilience.
- Site-specific reports and a technical summary report that compares relative habitat vulnerabilities across the region will be shared with end users.

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 nerrs.noaa.gov or graham.umich.edu/water/nerrs.