Developing New Ways to Analyze Reserve Monitoring Data

Project Location

Jacques Cousteau National Estuarine Research Reserve

Project Duration

September 2015 to August 2017

Project Lead

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Project Type

Science Transfer – promoting the use of science

Project Partners

- Delaware National Estuarine Research Reserve
- Jacques Cousteau National Estuarine Research Reserve
- Eagle Rock Analytics

Overview

The national estuarine research reserves form a network of coastal sites protected for long-term stewardship, research, and education. To support this mission, the reserves conduct long-term monitoring of water quality, weather, coastal habitat, and biological communities using consistent methods. This system-wide monitoring program has great value to support coastal resource management and research. However, this value has not been fully realized because reserve staffs often lack the time, technical expertise, and computational resources to analyze large, complex data sets. This project will provide research staff members from the mid-Atlantic reserves with targeted tools, graphical support, and training to facilitate the use of reserve monitoring data. The project team will focus on deciphering trends in water quality parameters, which are related to management issues such as storm surge mitigation. Through workshops and the development of statistical applications, this project will increase capacity to distill monitoring data into a format that resource managers can use. The project team will share their approach and project outputs with the larger reserve system, and collectively, these efforts will demonstrate the value of the reserve monitoring program.

Anticipated Benefits

- Reserve staff members will have greater skill, confidence, and technical resources to analyze monitoring data.
- Reserve monitoring data will be more available for use in research and outreach programs.
- Reserve staff members and their coastal management partners will have access to new graphics and data summaries that will improve understanding of coastal water quality trends.
- There will be greater capacity regionally to integrate and distill data from across the reserve system for the benefit of scientists and non-scientists.

Project Approach

A team from the Jacques Cousteau and Delaware Reserves will improve the ability of research staff members from the mid-Atlantic reserves and beyond to utilize reserve monitoring data using the following approach:

- **Data Product Development** – Expanding on previous analytical coding efforts, the project team will develop a template that performs the same core analytical processes for all sites while making allowances for local conditions. Product specifications will be tailored in response to reserve priorities and will be validated by an external partner, Eagle Rock Analytics.
- **Workshop** – The team will host a two-day workshop to share the newly developed data analysis tools with research staff members from mid-Atlantic reserves. Before the workshop, participants will receive background reading and preparatory exercises. Reserve-specific data and information will be entered into the template, and workshop participants will have the opportunity to run analyses and produce individualized graphs and data summaries.
- **Evaluation and Outreac**h – The project team will share the outcomes of the project, including technical products and findings from workshop evaluations, with the broader reserve community at the annual meeting in November of 2016.

Anticipated Products and Targeted End Users

- Mid-Atlantic reserve research staff will receive training and new computational tools for analyzing trends in water quality monitoring data.
- Participating reserves will have updated figures and tailored data summaries about their estuaries that can be used in outreach programs.
- Newly developed computer code and a variety of training materials will be available to reserves and their partners throughout the country.

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National Estuarine Research Reserve System