



Enhancing Coastal Resilience Decision-Support Tools to Reflect Latest Local Applied Science

Overview

Since Hurricane Sandy battered the New Jersey coastline in 2012, coastal decision makers have been inundated with data, tools, assessment techniques, and planning guidance to help them prepare communities to face future extreme storm events. Concurrently, the New Jersey Climate Adaptation Alliance, a network of policymakers, practitioners, academics, non-governmental organizations, and business leaders designed to build climate change preparedness in New Jersey, requested that Rutgers University convene a panel to identify planning options that coastal managers can use as part of resilience efforts. The panel suggested a framework for communities to apply a “total water level approach,” reflecting user-defined combinations of sea level rise and flood conditions and providing communities with additional flexibility to evaluate a range of flood conditions and time horizons for planning.

In this project, Jacques Cousteau National Estuarine Research Reserve and Rutgers University, who have collaborated for more than a decade to develop coastal resilience tools, are working together to both streamline the resilience data, tools, and techniques used by coastal decision makers and operationalize the total water level approach. By streamlining and enhancing existing mapping and decision-support tools, this project will increase the capacity of New Jersey’s coastal decision makers to assess and plan for potential risks to people and property from future storms and related flooding.

Project Location

New Jersey

Project Duration

September 1, 2018 to August 31, 2019

Project Lead

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Project Type

Catalyst – Targeted investment for
advancing collaborative science

Project Collaborators

- Jacques Cousteau National Estuarine Research Reserve
- Rutgers University

Anticipated Benefits

- New Jersey coastal decision makers will have a single, one-stop-shop to access the most current, science-based, state-specific data and visualizations. The total water level approach tool will provide a framework that can be replicated statewide.
- New Jersey's ongoing municipal and regional resilience planning efforts will coalesce around a single tool, approach, and output to inform local, regional, and state climate adaptation and mitigation planning.
- NOAA and other tool delivery organizations will receive results of end-user feedback to understand lessons learned and potential tool improvements for other applications.

Project Approach

The first step of the project includes an inventory of all current and possible new data sets from sources such as FEMA Region II, NJFloodMapper, and NJADAPT, in consultation with end users, to produce a ranked list of data and indicators for inclusion in the merged tool. To inform the development of the total water approach tool, the team will solicit feedback on needs and priorities from end users via a half-day work session and follow-up webinar. The team will use this feedback to develop and test an alpha version of the tool with end users, in consultation with NOAA and New Jersey State Offices. Following the alpha test, the team will develop a user's guide for the tool and function-specific tutorials, incorporating feedback into a beta version of the tool. After conducting a beta test of the tool with end users and revising it as needed, the project team will launch the final tool online and conduct extensive outreach and communications efforts to draw attention to its availability.

Targeted End Users and Anticipated Products

Targeted end users include floodplain managers, planning professionals, and regional municipalities participating in the New Jersey National Disaster Recovery Competition's new resilience planning and implementation grants. The preferences and feedback from these end users will guide the project work plan to streamline the existing Rutgers online coastal hazards mapping tools into one unified platform and operationalize the total water concept by enhancing Rutgers' existing geospatial decision-support tools. This will help end users step through the decision points of the framework, relate water level outputs to geographically-relevant historic events, and allow users to visualize total water level outputs to aid resilience decision making.

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