Application of Data from the Grand Bay Estuary System to Enhance Water Quality on the Northern Gulf of Mexico Coast

Project Location

Grand Bay National Estuarine Research Reserve, Mississippi

Project Duration

June 2017 to November 2018

Project Lead

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Project Type

Science Transfer — promoting the use of science

Products

- A website that provides local stakeholders with water quality data, recommendations, and resources to improve local water quality
- An "edutainment" tool to make learning about water quality fun for all ages

Project Partners

- Dauphin Island Sea Lab
- Eco-Tours of South Mississippi
- Grand Bay National Estuarine Research Reserve, Mississippi
- Mobile Bay National Estuary Program
- University of North Carolina – Wilmington
- University of South Alabama

Overview

From 2010 to 2014, the Dauphin Island Sea Lab and the Grand Bay National Estuarine Research Reserve conducted a large-scale, multidisciplinary collaborative project funded by the National Estuarine Research Reserve System Science Collaborative on the Mississippi/Alabama coast.

The project improved understanding of the legacy effects of human land use change on water quality, fisheries resources, and human health in the region. At the culminating workshop, more than 40 stakeholders from local, state, and federal agencies and members of the public identified three products of greatest value to end users that could be developed from the project team's research data. These products included informational packets for eco-tour operators and municipal authorities to enhance awareness and education; a webpage to provide the public and management authorities with centralized resources and recommendations to improve water quality; and simple predictive models to demonstrate how changes in land use affect water quality.

In this project, Grand Bay Reserve and Dauphin Island Sea Lab reunited and worked together to meet those needs previously identified by end users. Developing a product package called "Our Wastewater Footprint," the project team sought to increase awareness of water quality concerns, provide up-to-date data to inform decision making, and prompt the behavior changes needed to protect coastal water quality.

Project Benefits

Through the development of the new website and the "edutainment" package, data and information about the legacy effects of human land-use change on water quality were made more accessible to the public. These resources target the general public and can help increase awareness about water quality concerns. They also better position municipal and regional decision makers to apply new data to inform fisheries management, land-use planning, zoning, and municipal waste management.

Project Approach

The project team used a unique, adaptive approach that involved stakeholders from project design and data collection through product development. Bringing together the original research team, key stakeholders, and a data specialist, the team used a joint fact-finding approach to determine key messages and information from their original research on the legacy effects of land use change on nutrients and pathogens. They then produced draft outreach products, including a website and "edutainment" tool, and vetted content with a larger group of stakeholders to ensure the products were of the greatest interest, utility, and applicability to them. At a culminating workshop, the team shared the final versions of the outreach tools with their stakeholders to distribute through their networks to educate the public, community groups, and decision-makers.

What's Next

The project team is continuing to work with eco-tour groups and distribute materials modified for specific end user applications. This work will be led by a graduate student at the Dauphin Island Sea Lab as a capstone project. The student is currently working with local non-profits, businesses, and eco-tours to bring "Our Wastewater Footprint" into the community. Specifically, the student and research team will be working with groups such as Alabama Coastal Foundation, Dog River Clearwater Revival, WildNative Delta tours, and Ecotours of South Mississippi to educate the public on the community's wastewater footprint and what they can do to minimize sources of wastewater input and enhance water quality. The continued goal for the project is to help local stakeholders use and modify "Our Wastewater Footprint" and assess the impact on local awareness of water quality concerns.

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 nerrssciencecollaborative.org.