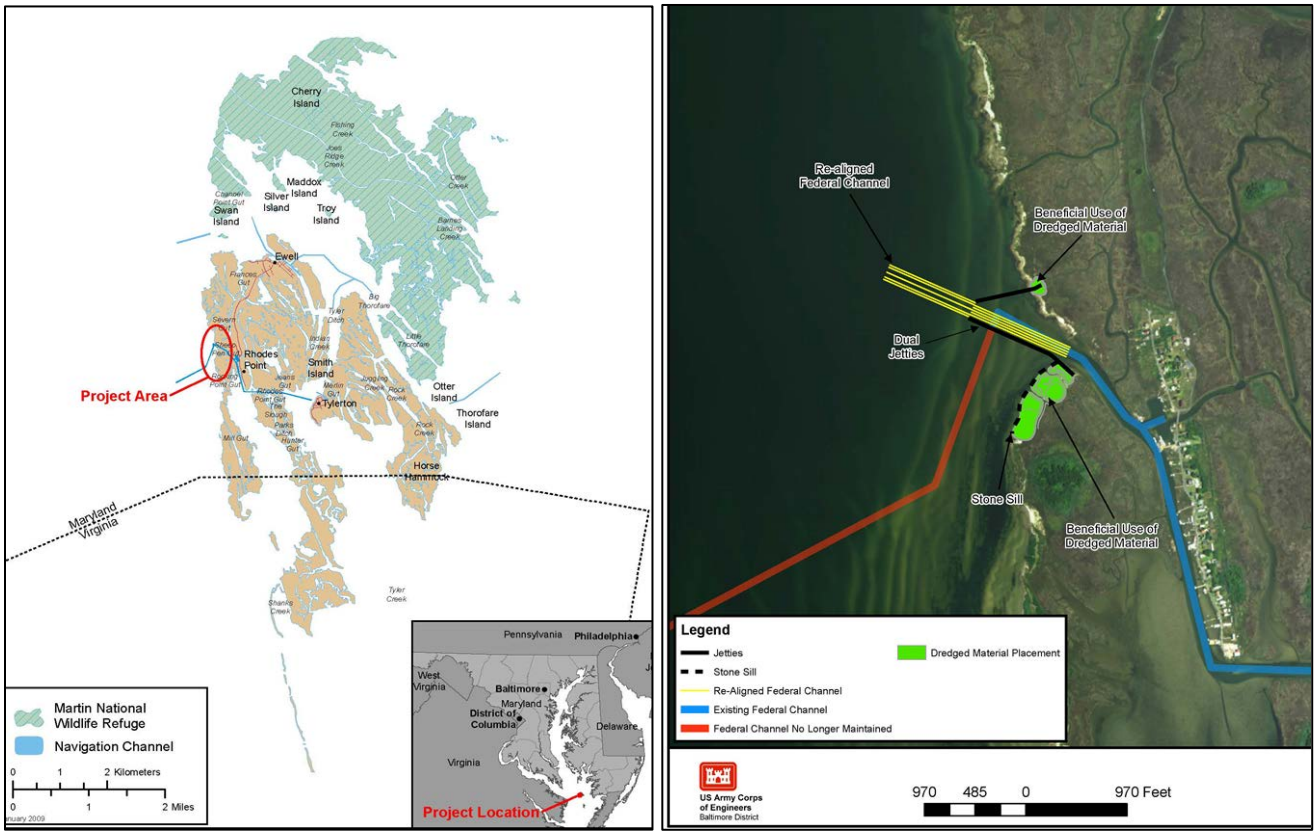
US Army Corps of Engineers®
Engineer Research and Development Center

National Regional Sediment Management Program Baltimore District (NAB):

Post-Project Monitoring of a Navigation Solution in a Dynamic Coastal Environment, Smith Island, Maryland

Description

The primary purpose of the project is to evaluate the performance of navigation improvements at Rhodes Point (Section 107) on Smith Island, Maryland, with respect to the prevention of shoreline erosion and shoaling within the channel. Secondarily, an opportunity exists to evaluate the response of submerged aquatic vegetation (SAV) to changes in bathymetry and sedimentation induced by the constructed jetties and sill.



Left: Project location on Smith Island, Maryland. Right: Navigation features for the Rhodes Point Section 107 Project

Issue/Challenge To Address

This project presents an important opportunity to conduct post-project monitoring of recently constructed navigation features in a dynamic coastal environment in the Chesapeake Bay, Maryland. The coastal environment of Smith Island, in the Chesapeake Bay, is highly dynamic, with significant sediment movement noted even during the six month construction period for the Rhodes Point Navigation Improvement Project. Findings from the proposed monitoring would inform future plan formulation and design for USACE navigation projects by illuminating potential considerations for placement of structures to prevent shoaling, as well as by informing SAV management decisions to consider indirect impacts of projects on SAV.

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Successes Lessons Learned

Lessons learned will be compiled during the duration of this study.

Projected Benefits Cost Savings Value Added

Long-term value from this monitoring project will be derived from the assessment of how completely the project meets its objectives to prevent shoaling and shoreline erosion through the communication of lessons learned. This evaluation will strengthen and improve design criteria, methodology, and modeling for the placement of navigation structures in dynamic coastal environments, reducing lifecycle costs and increasing benefits in Navigation and Ecosystem Restoration projects. Additionally, findings from the proposed monitoring will lead to efficiencies in formulating future USACE coastal navigation projects with respect to SAV management decisions, in order to better consider the indirect impacts of projects on SAV.

Expected Products

- Hydrographic data collection and SAV characterization
- Evaluation and Summary of Observations
- Final Report (Technical Note) and Presentation

Stakeholders/Users

Stakeholders include the residents and watermen of Smith Island and the cost-share partners for the Rhodes Point Section 107 project (Somerset County, Maryland Department of Natural Resources, and Maryland Department of Housing). USFWS and partners for the protection and study of the Chesapeake Marshlands National Wildlife Refuge Complex are concerned with the protection of habitat in the area and have interest in management decisions that decrease the impacts to these resources, including SAV. The findings of this project will be communicated with these stakeholders for the benefit of management decisions for islands within the Chesapeake Bay.

Leveraging Opportunities

NAB will partner with the Monitoring Completed Navigation Projects Program (ERDC) to determine the data collection and analyses effort (evaluating appropriate data to be collected to meet the project objectives, ensure data will meet resource agency needs, timeframe). Data from Somerset County, NOAA, and VIMS will be used as appropriate. The Maryland Department of Natural Resources (MDDNR), Resource Assessment Service, will partner with USACE on this project to collect post-project SAV data, which will serve to inform similar shoreline protection projects in the Chesapeake Bay. Any data from Somerset County's shoreline protection project will be evaluated for use. NOAA data will be used to assess tidal conditions.

Points of Contact

Jacqueline Seiple, CENAB-PL-P
Project Manager, Planning Division
410-962-4398
Jacqueline.a.seiple@usace.army.mil

Participating Partners

Maryland Department of Natural Resources