

Engineering With Nature

Project Fact Sheet



Title

Long Term Function of Coastal Islands Derived from Engineering With Nature Efforts

Background

The USACE has pursued the creation and/or restoration of islands in limited ways. However, there are many more opportunities to beneficially use dredged sediment for this purpose. Infrequent pursuit of beneficial use of dredged sediment for island creation results from the following factors, but is not limited to: (1) complexity in gaining needed approvals, (2) understanding the movement of sediment once placed in open water, (3) potential impacts to aquatic resources, (4) quantifying actual benefits derived from such activities, and (5) overcoming years for traditional placement methods that typically depend on CDFs/DMPAs and ODMDS.



Aerial of Swan Island

Objectives

This project seeks to overcome historical practices of dredged sediment management and increase frequency that island systems are restored or created. In doing so, this will offer increased opportunities to advance “triple win” outcomes (economic, social and environment benefits) derived from island restoration 18-06_Fact Sheet_Berkowitz_Filling the Beneficial Use Gapon and/or creation opportunities. Ultimately, this research task will establish criteria and methods for evaluating long-term function, life-cycle costs, derived benefits and design alternatives for islands; leverage multi-agency interest and expertise to gain acceptance /value-added of island construction.



Scientist collecting SAV data adjacent to constructed island.

Approach

Initially the project will focus on a unique opportunity to collect pre- and post-construction data associated with NAB’s Swan Island restoration project. This collaboration includes USACE Baltimore District, ERDC, NOAA-National Centers for Coastal Ocean Science, USFWS and Maryland Department of Natural Resources. Activities associated with Swan Island effort include, but not limited to: biological, ecological and hydrodynamic data collection for 3-5 years; hosting ecological modeling workshops; and social science studies. As the project progresses, other island projects will be studied and best available data will be integrated to identify common themes and ultimately methods to prioritize and/or accelerate beneficial use of dredged sediment for the purpose of island restoration/creation.

Outcomes

Future anticipated deliverables associated with this project will include, but are not limited to: Proceedings Document: Ecological Modeling Workshop Supporting the Construction and Maturation of NAB’s Swan Island (January 2020); Tech Note: Decision Making and Collaborative Outcomes: A Case Study (Spring 2020); Special Report: Restored Island Design-Communicating Benefits to Stakeholders (Fall 2020); Journal Article: Evaluating and Communicating Benefits of Constructed/Restored Islands Using Dredged Sediment (Q3 of FY21); Journal Article: Wave attenuation value of NNBF Island Features (Q4 of FY21).



EWN/LA illustrating multi-island concept for possible CSRM and ecological benefits.