



Beneficial Use of Dredged Sediment to Support Nearshore Nourishment

Dredging Operations Environmental Research (DOER) Program

U.S. ARMY CORPS OF ENGINEERS

BUILDING STRONG®

Focus Area

Sediment and Dredging Processes

Problem

The USACE beneficially uses a significant fraction of predominately sandy dredged sediment each year to support coastal resilience. Beach quality sediment can be used for beach nourishment, and sediment that is near beach quality is often placed in the nearshore. The sediment placed in the nearshore is most commonly placed in water shallow enough to induce wave breaking and protect the shoreline by dissipating wave energy from highly erosive storm waves. Alternatively, the sediment can be placed in the nearshore but outside the surfzone. NWP has conducted and monitored this placement technique, and this method keeps the sediment in the littoral system. Other Districts, including SAM, SAS, and SPN also perform this nearshore nourishment technique. These placements provide least-cost solutions to DMM but also provide potential benefits to coastal resilience by maintaining sand in the littoral system. In addition, these placement sites are highly dispersive and therefore provide ongoing capacity for additional sediment placement. Methods to quantify the benefits of these projects do not exist. NWP evaluation has been project-specific, but applied tools include field monitoring, tracer studies, and predictive models. Unfortunately, monitoring methods, evaluation practices, and predicted benefits are only available in disparate reports and of inconsistent quality.

Study Description

This project has interviewed each coastal and Great Lakes USACE District to establish the current state of the practice for nearshore nourishment projects. Notes from these interviews were compiled into a White Paper in FY20 and synthesized into a more accessible Special Report in FY21. Best practices will be detailed in a journal manuscript.



Products

- Technical Note on Nearshore Nourishment Success Metrics
- Special Report on Nearshore Nourishment current practices collected from Districts
- Tool development or improvements to the Sediment Mobility Tool
- Journal Manuscript on the current state-of-knowledge and Best Practices

Summary

Least cost nearshore nourishment will provide the Navigation program with placement sites that meet the federal standard, provide sustainable placement capacity, and provide coastal resilience benefits. These practices will compliment beach nourishment and other more costly DMM alternatives with the added benefit that they can be used during each dredging cycle. An evaluation and monitoring protocol that demonstrates that these practices are environmentally acceptable/beneficial and supports coastal resilience will increase application across the USACE.



Balancing operational and environmental initiatives and meeting complex challenges of dredging and dredged material placement in support of the navigation mission.