



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 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 will compile historical data (construction plans, financial analysis, monitoring, etc.) from nearshore nourishment projects to assemble all the information into a single source. With this information, lessons learned will be derived, best practices will be identified, and scoping level tools will be improved.



Products

This effort will compile data on nearshore nourishment projects from several Districts that will be synthesized in a white paper, technical report, improved web application (Sediment Mobility Tool), and a journal manuscript.

Summary

Nearshore nourishment projects provide the Navigation program with placement sites that meet the federal standard, provide sustainable placement capacity, and provide coastal resilience benefits. These practices compliment direct beach nourishment and other more costly DMM alternatives with the added benefit that they can be used during each dredging cycle. These practices are environmentally acceptable/beneficial and support coastal resilience.



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



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