



# Rapid Tools for Nearshore Placement of Dredged Material

Dredging Operations Environmental Research (DOER) Program

U.S. ARMY CORPS OF ENGINEERS

BUILDING STRONG®

## Focus Area

Dredged Material Management

## Problem

In the last 20 years, the US Army Corps of Engineers (USACE) has placed more than 350M yd<sup>3</sup> of dredged material in the nearshore. This popular beneficial-use (BU) option keeps dredged sediment within the coastal sediment system by placing it between the swash zone and the depth of closure.

Nearshore Nourishment projects frequently require rapid estimates for complex processes early in the scoping and planning process. The currently available rapid predictive tools, such as the Sediment Mobility Tool, do not capture temporary impacts on wave conditions and shoreline response to the nearshore placement of dredged sediment.



## Study Description

This study has proposed updates to Depth of Closure estimates that are used to predict whether nearshore placements will be active or stable. It is also applying predictive techniques for wave characteristics and shoreline response from submerged breakwaters to nearshore berms (artificial sandbar) created from dredged sediment.

## Products

A manuscript has been prepared for the Journal of Coastal Research to propose a new classification system with comparisons of updated Depth of Closure estimates to observations from 40 case studies. Successful techniques to estimate wave sheltering effects will also be documented in a journal publication. The findings of both efforts will be posted in the Nearshore Nourishment Knowledge Hub and added to the Sediment Mobility Tool web application.

## Summary

This project will improve the enterprise's ability to rapidly scope nearshore placement alternatives for dredged sediment on the open coast by developing rapid tools to predict whether dredged sediment placed in the nearshore will be active and how the shoreline will respond. Better rapid predictions support the USACE goal of beneficially using 70% of dredged sediment by 2030.



*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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## Research Products

Product Type	Product Title



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