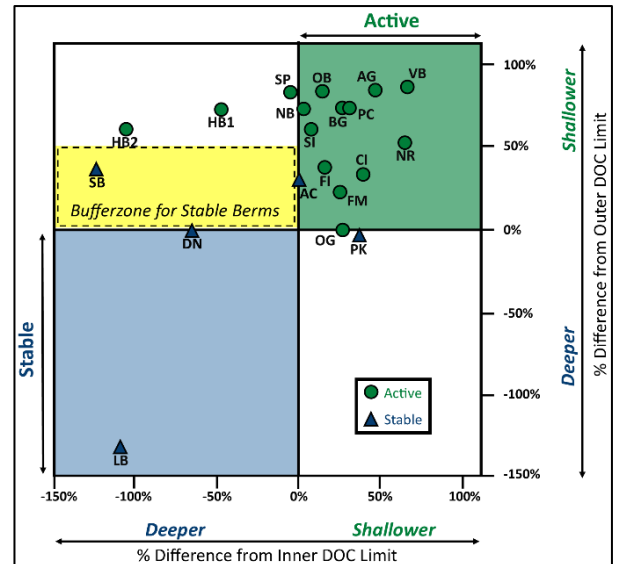




Nearshore Nourishment Challenges (FY21)

Background: Strategically placing dredged sediment in the nearshore is an increasingly utilized practice to beneficially use dredged sediment and provide natural and nature-based shore protection strategies. However, there is still a need to better understand the morphodynamics of nearshore placements. The lack of clarity on the evolution of nearshore placements continues to limit the volume of sediment beneficially used. It is important to ensure that nearby resources are not adversely affected by the placement, which is often a concern of resource agencies and stakeholders. Additionally, shoreline impacts due to nearshore placement geometry, as well as the behavior of heterogeneous sediment associated with nearshore placements, is not well understood. There is a need for clear documentation about the benefits of nearshore placement projects to improve the understanding and gain the support of stakeholders and the public. An improved understanding of the dynamics of sediment placed in the nearshore may help to quantify benefits gained from these types of projects.



Approach: This work intends to further the state of the science in nearshore placement of dredged material through public outreach, physical and numerical modeling, rapid tool development, and field monitoring of projects.

Technical Advancements:

- Quantify the increased lifespan of traditional subaerial beach nourishment by placing sediment dredged from nearby navigation channels in the nearshore.
- Improve the Sediment Mobility Tool for scoping level predictions of nearshore nourishment mobility by including alongshore transport estimate and comparison with historical projects.
- Analyze the influence of nearshore placement shape on sediment transport and hydrodynamics.

Payoff: This project incorporates a multi-faceted RD&T effort to support District planners and engineers and encourage the beneficial use of dredged sediment through nearshore placement. Improved predictive capabilities for nearshore nourishment projects has the potential to facilitate additional opportunities for the beneficial use of dredged sediment and improve coastal resilience following the goals of Engineering with Nature (EWN) and Regional Sediment Management (RSM) principles.

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