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Guidance on Lifecycle Management of Wetland Nourishment for Coastal Navigation (FY21)

Background: Strategic in-bay placements of dredged material often serve important sediment management, storm risk reduction, and habitat restoration and resilience functions. These benefits could make large repeated strategic in-bay placements integral parts of ambitious coastal management efforts. Many research projects are focused on beneficial use of dredged material related to wetland nourishments, but the potential long-term navigation and O&M impacts are unknown or have a poor research track record. In fact, a standardized procedure for assessing O&M impacts from long term in-bay placement strategies has not be formulated and standardized in practice]. This work unit is intended to begin to address this issue.

Approach: This effort will leverage complimentary research on the physical processes of sediment transport related to strategic placement in wetland areas and practical experience through collaboration with a cross-discipline project development team. Progress towards generalized guidelines to anticipate inlet system response to strategic in-bay placements will be advanced by compiling and synthesizing information, literature, model results, data, and maps.

Technical Advancements:

- Combine relevant information with insight and experience from a broad and multi-faceted project development team to identify key processes controlling morphological change in and around navigation channels related to expansive and cyclical wetland nourishments.
- Develop generalized guidelines to anticipate inlet system response to sea level rise and anthropogenic modification.

Payoff: Guidance and diagnostic procedures for evaluating the impacts of wetland nourishment on navigation could result in mitigation of impacts to lifecycle O&M costs, such as a reduction in dredging requirements due to decreased channel shoaling. This research effort is intended to begin developing diagnostics to evaluate possible O&M impacts from wetland nourishment.

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