



# Guidance for Wetland Thin Layer Placement (TLP) of Fine and Course Grained Sediment

## Dredging Operations Environmental Research (DOER) Program

U.S. ARMY CORPS OF ENGINEERS

BUILDING STRONG®

### Problem

Thin layer placement (TLP) is the purposeful placement of thin layers of sediment (e.g., dredged material) in an environmentally acceptable manner to achieve a target elevation or thickness. Thin layer placement objectives include infrastructure maintenance and the creation, maintenance, enhancement, or restoration ecological function. Wetland TLP is experiencing a renaissance due to a confluence of various forcing functions such as rising sea levels, degrading wetlands, limited dredged sediment placement and disposal areas, etc., but there is a dearth of definitive engineering guidance on how to conduct it.. Engineering guidance is required to optimize acceptance and the success of TLP as a solution to wetland degradation and dredged material placement.



### Study Description

The objectives of this research task are to distill knowledge and information from past and currently developing TLP projects, and ongoing pertinent TLP research and development activities. These elements will be synthesized into a guidance document designed for use by both USACE and stakeholders to optimize the planning, permitting, design, construction, and maintenance of TLP projects. The ongoing DOER R&D being conducted includes the following two aspects: 1) investigations into processes affecting settlement and consolidation of dredged sediment in wetland environments and improve the tools and methods of predicting settlement and consolidation in order to optimize attainment of design marsh elevations and, 2) updating the Marsh Equilibrium Model (that predicts the 100-year response of salt marshes to rising sea levels given known physical processes and data) to incorporate the ability to add thin layer placement activities to the model and predict the long term effects on the marsh elevation, biomass, sediment organic content, and carbon sequestration.



### Products

This research task will produce an engineering guidance document distilled from knowledge and information from past and currently developing TLP projects, and ongoing pertinent TLP research and development activities.



### Summary

The guidance document provided by this research task will improve the planning, permitting, design, construction, and maintenance of TLP projects to facilitate the acceptance and expansion of TLP in using dredged material from navigation projects beneficially to restore degraded wetlands.



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

17-03



#### Points of Contact

Dr. Candice Piercy, 601-634-7253, Environmental Lab, Candice.D.Piercy@usace.army.mil  
Tim Welp, 601-634-2083, Coastal and Hydraulics Lab, Timothy.L.Welp@usace.army.mil

October 2017