



Dredged Material Placement Models for Complex Aquatic Environments

Dredging Operations Environmental Research (DOER) Program

U.S. ARMY CORPS OF ENGINEERS

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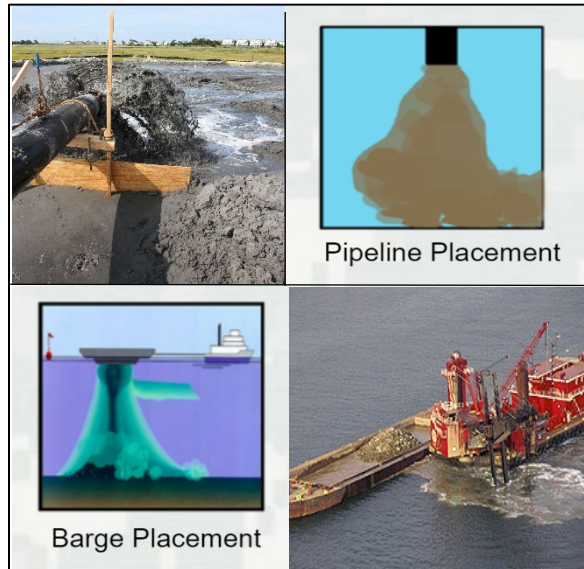
Focus Area

Sediment and Dredging Processes

Problem

USACE applies a series of dredging models to simulate transport and loss of sediments during placement processes. These models include STFATE, MPFATE, and DIFCD. These models were originally developed in the 1980s and early 1990s. Process descriptions and range of applicability are limited due to computational limitations of that era as well as limited understanding of dredged material placement. The dredge placement models have several challenges:

- Processes need to be updated to address complex conditions which can be solved with new computational capabilities.
- Interfaces are outdated and modeling setup is inefficient.
- Systematic method of training, support, and access to models.



Study Description

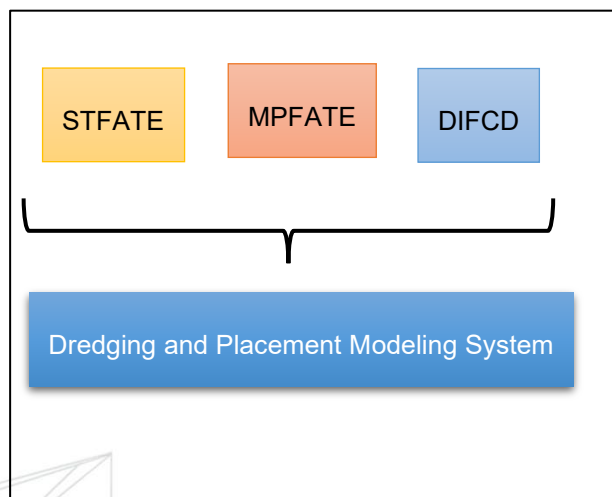
This Research Task will develop a single modeling system to replace current dredged material placement models. The new model system will ultimately address all three of the above challenges. The focus of the current research is to develop the platform, create the interfaces, and develop a systematic method of training and support. The new model will estimate fraction released to the water column during placement and seamlessly feed this information directly to the PTM and GSMB/LTFATE far-field fate and exposure predictions.

Products

- Dredging Placement Modeling graphical user interface (WebApp and Desktop)
- Documentation and Guidance
- Online and In-person Training/Workshop

Summary

A comprehensive modeling interface and systematic method of training and technical transfer for the dredging placement models will be developed. This modeling interface will replace the previously outdated interface for DIFCD with both a desktop and webapp and create a webapp for STFATE. In addition, model documentation, workshop materials, and testcases will be developed and made available for users.



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