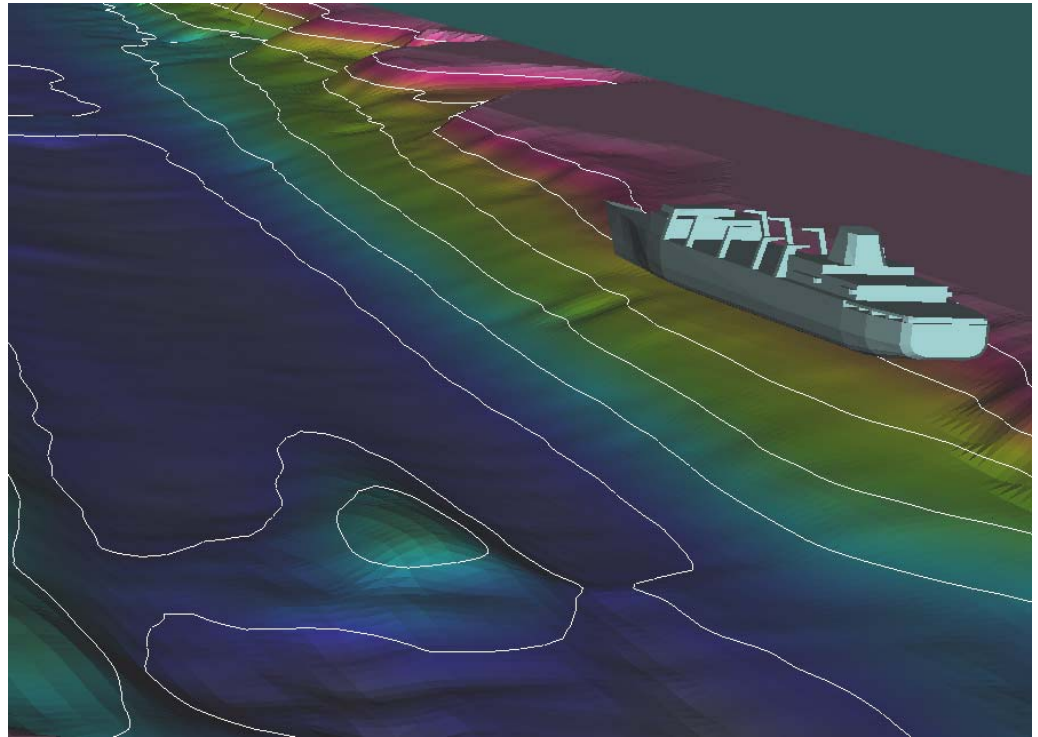# DOER
Dredged Material Management Focus Area

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Purpose

- **<u>Situation</u>**: The Corps must address increasingly complex issues pertaining to dredging. Customers do not have appropriately advanced dredging tools required to address operational, planning, resource, and regulatory issues.

- **<u>Barriers</u>**: Existing dredging tools and models lack the mechanistic and numerical components sufficient to address these complex issues. Increased accuracy to proposed solutions requires increased understanding of processes and methods to predict DM fate.

- **<u>Solution</u>**:
  - Improve understanding of dredging and dredged material processes.
  - Develop a suite of peer-reviewed documents, tools and models for dredged material management that vary in mechanistic and numerical rigor.
  - Demonstrate applicability of these tools to active Corps dredging issues.
  - Interconnect tools to improve applicability

Purpose

- Develop Tools to quantify dredged material processes for operation, management and regulatory purposes

- Develop regional/sustainable dredging guidance for optimizing placement and beneficial use of dredged material

- Focus Area consists of six topic areas
  - Sediment Processes
  - Dredging and Placement Processes
  - Dredging and Placement Models
  - Dredging Project Data and Model Management
  - CDF Operations and Management

- Wide array of Research Tasks - from required processes research to regional and sustainable solutions tool development

Ongoing Research Projects

- Dredged Sediment Processes
  - Dredged Material Flocculation, Aggregation and Settling
  - Wave-Induced Erosion from ODMDS
- Dredging Placement and Controls
  - Dredging Source Terms
- Dredging and Placement Models
  - FATE Models – 3-D LTFATE, Revised STFATE
  - Far-Field Fate of Dredged Material (PTM)
  - Far-Field Dredging Water Quality and Contaminant Transport
- Dredging Project Data and Model Management
  - SMS Framework for DMM Tools (data and models)
  - Web-Based Model Interfaces
- CDF Operations and Management
  - Desalination of dredged material for reuse
  - Risk-Based Criteria for reuse
  - Sampling Analysis Protocols for CDF Characterization

Future Research Projects

- Dredged Sediment Processes
  - Dredged Material Deposition and Consolidation Processes
  - Mixing, Entrainment, and Settling of Dense Plumes
- Dredging Placement and Controls
  - Near-Field Dredge Plume Evolution
  - Pipeline and Barge Placement Processes - Underflow
- Dredging and Placement Models
  - Pipeline Fluidized Mud
  - Nearshore Placement and Transport Model
- Dredging Project Data and Model Management
  - SMS Interface for Dredging WQ and Contaminant Transport Model
  - Analysis and Management Tools for Dredging Data (SMS and GIS)
- CDF Operations and Management
  - CDR Retrofitting for Sustainability
  - Continued Risk-Based Criteria and Sampling Analysis Protocols