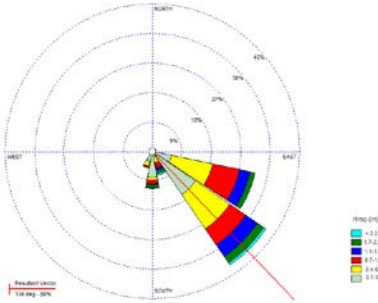




### Nearshore Berm Challenges

**Need** Nearshore berm placements are becoming an increasingly utilized practice for beneficial use of dredged material. However, there is still a need to better determine whether sediment will mobilize, and where it will transport based on the hydrodynamic characteristics of the project area. The mobilization and transport direction of sediment is important to understand 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 mixed sediment transport associated with nearshore placements is not well understood. Understanding the dynamics of nearshore berms may help to quantify benefits gained from these types of placements.



- Approach**
- Numerical modeling – The Sediment Mobility Tool (SMT) was developed as a preliminary tool to assess how often dredged sediment placed in the nearshore will be mobilized and where it is likely to go. Additionally, robust numerical models are validated against historical nearshore berm field data collected through this work unit.
  - Physical Modeling – Movable bed physical models are used to improve the understanding of sediment transport under a range of hydrodynamic conditions.
  - Field Monitoring – Ongoing collaborations with Districts allow for monitoring of nearshore berms constructed in the field for model validation. These pilot studies allow for a direct quantification of the shoreline response to a nearshore berm.
  - Crowd Sourcing Field Data – The use of “citizen scientists” to collect beach grain size information using the cameras on their cell phones is currently being investigated. This sediment data is very beneficial for macro-scale morphological studies and could be used as an input for the SMT

**Technical Advancements** The Sediment Mobility Tool has been developed into a webtool that can be found on the USACE’s navigation website (<http://navigation.usace.army.mil/>). Within minutes the tool can calculate the local depth of closure, frequency placed sediment will be mobilized, and the expected transport direction. The SMT will also create a report with the results.

**Leveraging Opportunities** This work is leveraged with technology transfer efforts conducted under the Regional Sediment Management (RSM) Program.

**Points of Contact** Katie Brutsche (601-634-4174; [Katherine.E.Brutsche@usace.army.mil](mailto:Katherine.E.Brutsche@usace.army.mil)); Brian McFall (601-634-6015; [Brian.C.McFall@usace.army.mil](mailto:Brian.C.McFall@usace.army.mil))

**Community of Practice (CoP)** Elizabeth Godsey CESAM, Kevin Hodgens CESAJ, and John Winkelman HH&C/CWG

