



Description

From a dredging operations perspective, a certain percent of fines are lost during the dredging process and placement thereof. The Florida Department of Environmental Protection’s (FDEP) current Sand Rule criterion assume zero risk associated with such losses (no loss of fines) and hence limiting or completely eliminating numerous potential sand sources for federal projects. This also limits the amount of sediment being returned to the natural system, because of disposal occurring offshore or in upland disposal areas. The “Ship to Shore” initiative proposes to quantify losses by understanding and assessing the fate of the material during the dredging process and placement over time. Becoming aware of the behavior and long term results of the fines provide an opportunity to expand the variance of material that can be placed for continued beneficial use. Materials can be placed within the littoral system by eliminating the need to dump in an ODMDS or upland site alternative while providing a reasonable assurance to the regulating agencies of not violating the Sand Rule. Results of this initiative are not only important to RSM goals, but information related to sorting of sediment during dredging and natural sorting of sediment once placed are key to Engineering With Nature (EWN).

This will be a two-year effort, with data collection taking place in FY14.

Issue/Challenges

At present, there is an assumed zero risk associated with altering the native grain size distribution at the beach or nearshore area where dredged sediments are to be placed. FDEP accomplishes this by requiring the distribution at the borrow site to closely match that of the placement site: 5% fines or less for beach nourishment, 10% fines or less for beneficial use on the beach, and 20% fines or less for beneficial use in the nearshore. Because beaches are inherently relatively free of fines, it is becoming a demanding task to find borrow sites for beach nourishment and allowing O&M material for beneficial placement on the beach and in the nearshore.

Expected Products

FY14

- Data collection at intake and pump-out of dredge on several SAJ projects

FY15

- Presentation of results to the FDEP
- Technical note containing a series cumulative distribution functions developed through the collection of data aboard dredges to determine the probability of the losses in the percentage of fines in the dredging process.
- Nearshore berm discussions report

Potential Users

USACE, Florida Department of Environmental Protection (FDEP), Florida Inland Navigation District (FIND), local navigation and HSDR sponsors.

Projected Benefits

Allowing for variance in the Sand Rule based upon a robust estimate of a reduction of fine sediments will save O&M dollars by opening up placement areas close to shore and will fulfill the RSM principle of retaining sand to the littoral zone.

Points of Contact Matthew Schrader, P.E. (USACE-SAD-SAJ-PD-PN) 904.232.2043

Leveraging Opportunities The proposed work will take place in cooperation with several scheduled Shore Protection and O&M projects in collaboration with ERDC and DOER. FDEP will likely contribute labor to the effort.

Participating Partners USACE-SAD-SAJ, FDEP, ERDC, DOER