Sediment Sorting During Coastal Restoration Projects: Implications for Resource Management, Environmental Impacts, and Multiple Use Conflicts

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Coastal restoration project managers must ensure that borrow area sediments are compatible with native beach sediments with regard to sediment grain size, composition, sorting, and sometimes color. These requirements exist because sediment characteristics influence beach fill performance, recreational experience, and the environmental response along the beach during and after nourishment. Beach fill compatibility is currently based on a comparison of in-situ borrow area and native beach sediment samples; however, this approach only provides a partial comparison of sediment characteristics and does not reflect the changes that could occur during various dredging and placement operations.

The objective of this study is to quantify changes in sediment characteristics (i.e., grain size, sorting) and the degree, timing, and variability of sediment sorting during dredging and placement operations to determine the extent of potential sediment coarsening to better inform sediment compatibility analyses and subsequent management of sediment resources. The implications of the study are significant at a national level as the results are likely to increase available sediment sources for restoration projects and expand beneficial use opportunities for dredged material. An increase of potential borrow areas could alter BOEM's approach to sand resource management, reduce impacts on environmental resources, and ease multiple use conflicts.