



A Geospatial Assessment of Nearshore Sand Resources and Sediment Transport Pathways for Georgia Coastal Resiliency and Recovery

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ABSTRACT

The project aims to collect sediment samples for sediment textural parameters and composition analysis on the continental shelf seaward of Sea, St. Simons and Jekyll Islands in the 0-3 nm zone to determine the characteristics of beach quality sand for each island. Then, analyze collected sediment samples for sediment textural parameters and composition (e.g., grain size, shell and/or carbonate content, heavy minerals). Compile existing sediment textural parameters and composition data from prior studies examining sand resources regionally and for specific renourishment projects. A geospatial database of all newly collected and legacy sediment textural parameters and composition data for Sea, St. Simons and Jekyll Islands will then be created. Collect a dense grid of bathymetric data to create bathymetric digital terrain models and bathymetric maps of the seafloor seaward of Sea, St. Simons and Jekyll Islands. Lastly, identify regions of beach-compatible sand seaward of Sea, St. Simons and Jekyll Islands within state waters.

Hurricane Sandy caused billions of dollars in damages to coastal communities along the east coast of the United States. Given the eventual likelihood of similar storms in the future, coastal communities all along the East Coast have begun to develop strategies to increase their resilience to, and speed their recovery from, such an event. A detailed understanding of the distribution and character of nearshore and inner continental shelf sand resources is a critical component in developing these strategies. Sand resources are needed to rebuild beach and dune systems to provide the same or better level of protection to lives and property, and to restore habitats that are degraded by such events. These sand resource data are critically needed in Georgia, as the sand resources on the continental shelf are the most poorly known of all the states along the East Coast, an issue that has been identified repeatedly as a significant data gap over the past 30 years. Because of this paucity of detailed information, this project proposes to analyze fundamental collect new, high-resolution data to build toward an understanding of the sand resources available on the Georgia shelf, and the transport pathways by which these sediments are redistributed. The focus will be on the 3 developed barrier islands that have not been renourished (Sea, St. Simons and Jekyll Islands), as these are the regions that may require renourishment in the future.