Fire Island is a narrow barrier island approximately 0.5 km wide by 50 km in length and 50 km from New York City, New York. The island experiences severe erosion and beach nourishment has been the primary method to combat erosion and prevent loss of property and infrastructure. Sediment transport is primarily to the west and sediment budget estimates are unable to account for all sediment entering the system. Single-beam and multibeam data was collected at two sites, Lighthouse and Watch Hill, to examine seafloor morphology and the connection between offshore ridges and nearshore sediment dynamics. This data set indicates offshore ridges composed of Holocene sediments consistent with sediment found on island beaches is a likely contributor to the sediment budget of Fire Island.

The detailed bathymetric and backscatter data is an invaluable tool for coastal resource managers in the region charged with managing the beach and nearshore regions. The data provides insight into the formation and stability of nearshore ridges as well as suitable borrow sites for nourishment projects. Alteration of the system could affect local hydrodynamics and would likely impact local erosion rates and future shoreline locations.

Multibeam echosounders use a swath of sound to measure the depth and morphology of the seafloor. Backscatter intensity is a measure of seafloor roughness.