

The Sedimentary History of Great South Bay, N.Y.

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Great South Bay is the largest backbarrier lagoon on Long Island, situated on the south shore behind Fire Island National Seashore. Sediment cores collected from Great South Bay reveal that sedimentary environments have been dynamic and changed over the course of its history. Core lengths range from two to four meters and show both extended periods of variability and stability in their sedimentary regimes. Grain size is indicative of the energy (waves or currents) of the environment at the time of deposition. Finer sediments are laid down under lower energy conditions while coarser sediments are deposited in higher energy waters. The distribution of sediments based on size may help to identify relict inlets or overwash events, as well as areas where these events did not occur. Freshwater deposits are also present at the base of some cores suggesting that lowland swamps existed in areas of the bay prior to becoming estuarine. The transition from freshwater to an estuarine system ultimately occurred due to sea level rise, but may have been influenced by other events as well. This data combined with CHIRP sub-bottom sonar will help to describe the origins of GSB and how it has evolved over its existence.