

New Insights on the Origin of the Peconic Bays from a New Detailed Bathymetric Map

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The Peconic Estuary at the eastern end of Long Island is one of the largest coastal bays in New York. The Peconic Estuary has been designated an "Estuary of National Significance" by the U.S. Environmental Protection Agency, and we have been involved in a multi-year study of sea-bed morphology, sediment distribution and benthic habitat throughout the estuary as part of the Peconic Estuary Program (PEP). These studies have been supported financially by The Nature Conservancy and the Suffolk County Department of Health Services. A key component of this study has been the acquisition of new high-resolution bathymetric and backscatter data from the Peconic Estuary. We have now worked in all parts of the Peconic Bays west of Shelter Island, and the results of individual surveys are being compiled into a series of detailed maps of the area. The depth data was collected using a multibeam sonar system, resulting in a depth measurement about every 0.5 to 1 meter. The strength of the echo return is also measured, and this backscatter signal is generally related to seabed properties such as roughness and grain size with coarse or shell-rich sediments having higher backscatter than muddy sediments. Prior to our studies, the bathymetry of the Peconic Estuary was primarily known from lead-line bathymetric studies conducted in the early 1930s. Our new bathymetric data clearly images a range natural and anthropogenic seabed features that provide new insights into modern sedimentary processes as well as into the history of the Peconic Estuary, for example in the locations and characteristics of probable glacial-age sediment deposits. Our poster will display these new bathymetric and backscatter maps in both paper and digital formats.