

## **Multibeam Sonar Reveals Mound Features Associated with Oyster Terrain in the Peconics Estuary.**

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An extensive area covered by mound features in the Peconic Estuary on Long Island, NY that may hold paleoclimate records has been revealed by multibeam sonar as part of an ongoing project. Multibeam backscatter and bathymetry data have revealed relatively high backscatter regions associated with the mound morphology. Mounds are typically 2m in height, but can be close to 4m high and 10 –50m in diameter according to the multibeam bathymetry. Close to 3,000 distinctive mounds can be counted in Eastern Little Peconic Bay and Noyack Bay. Mounds surfaces are associated with stained oyster shells in grab samples. No living oysters were found during sampling. These mounds may be relict oyster reefs. The depth distribution of the tops of these ~3,000 mounds has a peak abundance at ~11-12m, to depths of at least 18m, but almost none appear above 6m. Modern active oyster reefs are often associated with much shallower water of a few meters to intertidal depths, but can be found at deeper depths than the mounds we see exposed in the Peconics. However, this unusually deep distribution suggests that these oysters were alive when sea level was much lower. In addition to the depth distribution of these mounds, a few seismic profiles over mound terrain has revealed the tops of yet more mounds within this depth range that are buried under at least 3m in places in a system with low sedimentation rates. This reinforces the idea that these mounds are indeed older features if enough sediment has accumulated at a steady low rate to bury them by a few meters. These mounds may hold interesting paleoclimate records by preserving carbonate shells with annual growth bands from a time of lower sea level for which paleoclimate records for the region are sparse. More work is needed to see if these mounds are indeed relict oyster reefs, and when they were formed.