1-1-1988

Hillsborough Bay sediment research

City of Tampa Bay Study Group

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City of Tampa Bay Study Group, "Hillsborough Bay sediment research" (1988). Reports. Paper 164.
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The City of Tampa Bay Study Group has conducted and sponsored several sediment studies of Hillsborough Bay since 1983. These include:

1. Determination of the areal coverage of major sediment types.
2. Measurements of oxygen demands and nutrient exchange rates by major sediment types.
3. High resolution seismic reflection studies of mud dominated sediment deposits.

In addition, the first phase of a study to identify controls and processes governing geologically recent sediment distribution patterns for mud-dominated sediments in Hillsborough Bay, including anthropogenic impacts, has now been completed. This project is a cooperative effort between the City of Tampa Bay, Study Group and the University of South Florida, Center for Nearshore Marine Science.

The first phase of this project attempted to determine mud-dominated sediment distribution patterns over the past several thousands of years. Several deep cores were analyzed for standard sedimentologic parameters and also dated by the radiocarbon method. Within the scope of this study, the results suggest that the distribution patterns of the mud-dominated sediments in Hillsborough Bay have remained relatively constant over the past several thousand years. The dominant control of the mud-dominated sediment distribution appears to be bathymetry and the sediments have accumulated in bathymetric depressions at the relatively slow rate of 40 cm/1000 years.

A second phase of this project is planned for the spring of 1989. This phase will include detailed Pb-210 and other radioactive isotope dating of the uppermost mud-dominated sediment layer in an attempt to determine anthropogenic impacts on sedimentary processes. The effects of ship channel and port area dredging on sediment deposition rates will receive special emphasis. The just completed phase of the project indicates that bathymetry determines the distribution of the mud-dominated sediments in Hillsborough Bay. Since 1879, however, man has artificially changed the bathymetry of the bay by dredging deep areas, which act as sinks of fine sediments. Today therefore, much of the fine sediment introduced to or produced within the bay may be transported to the deep channels and port areas by wind and tide generated currents, where it is eventually removed from the bay system by maintenance dredging.
Locations of Hillsborough Bay core stations. Hatched areas denote mud dominated surface sediments.