

SHORT-TERM FLUCTUATIONS IN BEACH VOLUME ALONG THE SOUTH SHORE OF LONG ISLAND: IMPLICATIONS FOR THE SEDIMENT BUDGET.

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ABSTRACT

Volumetric change was calculated for beach profiles along the south shore of Long Island over a three-year period to infer patterns and trends in the sediment budget. For 351 monitoring stations between Rockaway Inlet and Montauk Point, beach volume was calculated from the monument to the shoreline datum (NGVD 1929) and from the shoreline to the 24-foot depth contour. Change in both sub-aerial and sub-aqueous compartments of the profile were calculated between survey seasons (Spring and Fall of each year) and for the longest term possible with the available data (Fall 1995-Fall 1998). Volume change in the sub-aerial profile was added to change in the sub-aqueous profile, resulting in “residual volume change.” Given that the depth of closure for the study area is shallower than 24 feet (excluding portions of Montauk), the residual volume change should represent the amount of volume change unaccounted for by cross-shore transport. Residual volume change was then extrapolated along the coast; total residual volume change was calculated to determine the net volume change for the region. Cumulative residual volume change was calculated in the direction of longshore transport to determine where losses/gains were occurring. Total residual volume change ranged from -55 to 43 m³/m; spatial patterns showed the influence of inlets, one large sink was located at the site of a transient rip-cell.