

ORGANIC MATTER DISTRIBUTION IN THE SEDIMENT PROFILES OF THE LONG ISLAND SOUND

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The long Island Sound, an estuary situated in the close proximity of the New York City and over 8 million people in its watershed (Fig. 1), is vulnerable to wide range of pollutions including nutrient/organic matter loadings. The Sound currently suffers from hypoxia and visibly murky water affecting aquatic life severely. Prior studies have also shown that the sediments of western Long Island Sound have been contaminated by heavy metals. Most studies concentrated east of 73°45' W, however, there is a gap in the understanding of anthropogenic pollution to the west. We surveyed Long Island Sound from 73°30' W to 73°55' W in June 22-29 of 2006 from the R/V Hugh Sharp with the goal of filling this gap. We collected multi-beam bathymetry, chirp sub-bottom profiling, side-scan sonar imagery and sediment samples (25 gravity cores, 11 multi-cores and 10 grabs). The spatial and temporal variability in the concentration of total organic carbon (TOC) were measured in the sediments of western Long Island Sound to assess the impact of anthropogenic activities: 1) in a region of flat topography in the eastern part of the study area, near the Connecticut shoreline (in Cores HS06-1G, HS06-2G at 29.1 m of water depth and HS06-15G at 15.2 m of water depth); and 2) east and west of the main navigation channel (at water depth of 12 -16.7 m) near the Throggs Neck Bridge, in the westernmost part of the study area (Cores HS06-21G, HS06-22G and HS06-12G). To assess the temporal variability in TOC concentrations, we measured the upper meter of the cores. The study is ongoing, and it is anticipated that the data obtained will provide much needed historical insights on organic matter distributions, in turn, help us to mitigate hypoxia and its detrimental effects on the sound's ecosystems.

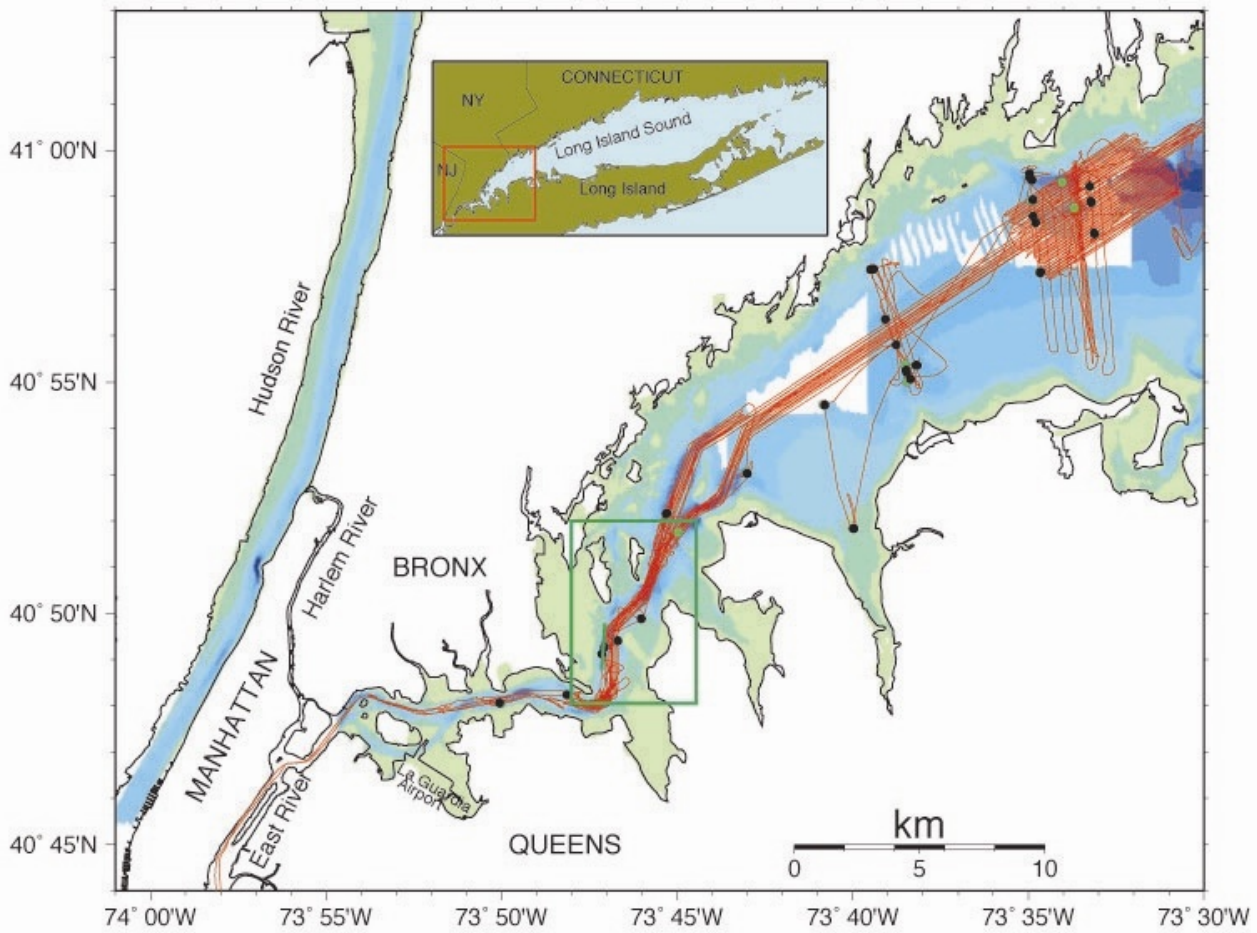


Fig.1 Location of study area in Long Island Sound with respect to New York City, NY, USA. Red lines mark the navigation tracks of the R/V Hugh Sharp.

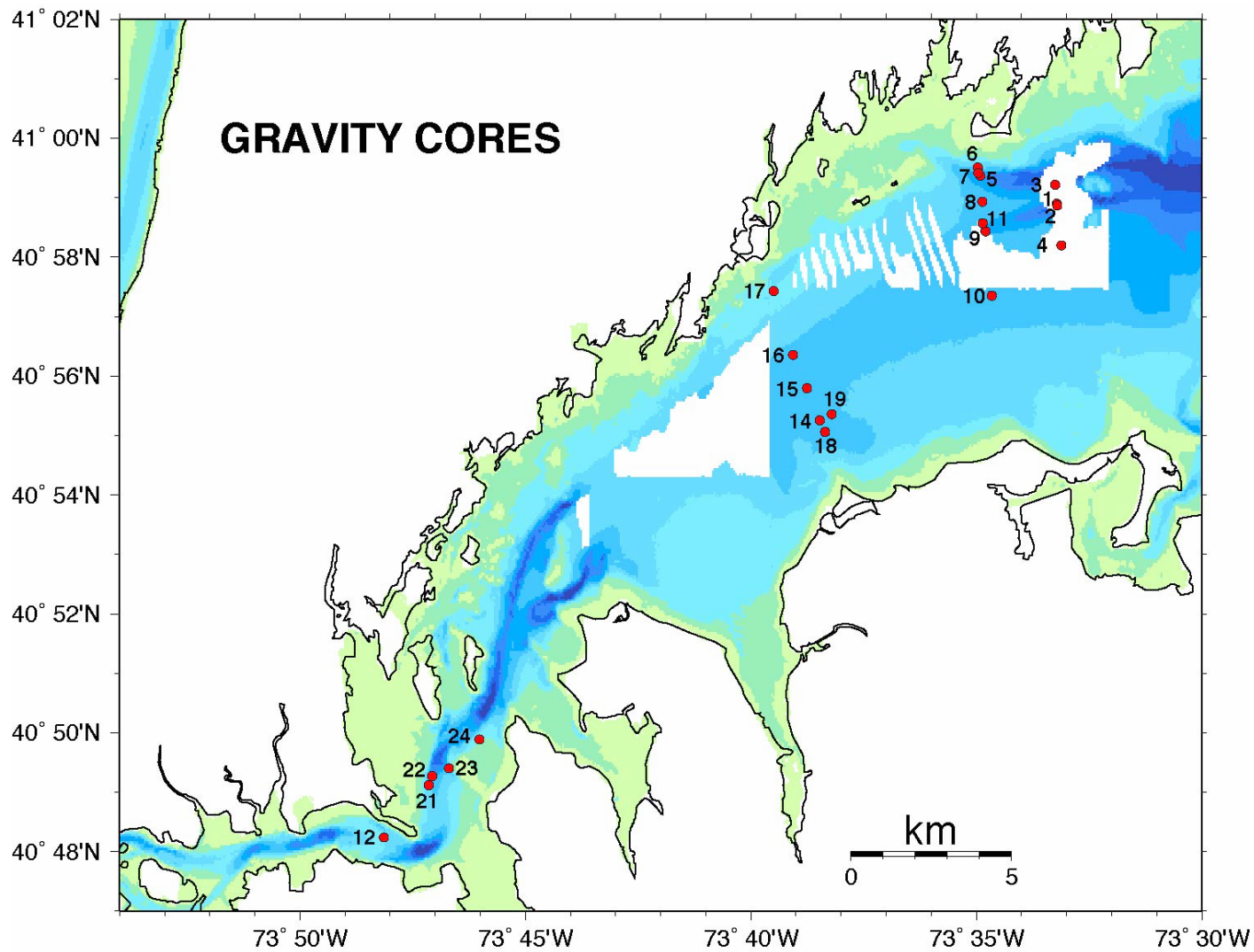


Fig. 2 Location of gravity cores (red dots)