

Assessing Late Holocene Climate Variability in the Hudson Estuary
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The primary goal of this study is to evaluate long-term climate variability (decadal to centennial scale) of the lower Hudson estuary based on climate reconstruction for the past 6,000 years. This will be accomplished by estimating salinity changes and fluctuations in freshwater discharge rates into the Hudson River by using diatom assemblages and sedimentological evidence as proxies. The fundamental principle is that the Hudson River flow is recorded by the position of the salt wedge, with extreme flow rates and salinity changes in the estuary resulting from watershed droughts or excess precipitation. Marine diatom abundance and sedimentological analyses will be used to estimate the magnitude of marine incursions into the estuary and its response to changes in discharge. An age model will be constructed for calibration, and to determine sedimentation rates, from radiocarbon and short-lived radionuclides. These data will be obtained from cores (ranging from 1 to 10 m in length) drilled in the Hudson River as part of the “Hudson River Benthic Mapping Project” sponsored by the New York State Department of Environmental Conservation.