

**Project Name:** LISICOS: The Long Island Sound Integrated Coastal Observing System

**Project Initiated:** September 2003

**Brief Project Summary:** With more than eight million people living in its watershed, Long Island Sound (LIS) is the nation's preeminent urban estuary. LIS provides the region with natural resources, including oysters, clams, lobsters, and bluefish, and both commercial and sport fishing are important to the regional economy. Unfortunately, LIS has also served as the region's sewer, resulting in water quality degradation and critical habitat loss. Extensive wastewater treatment plant upgrades have been mandated to rectify these problems. The high concentration of development along the surrounding coastline has also prompted increased dredging for navigation, electric power transmission, and gas pipelines. The goal of the Long Island Sound Integrated Coastal Observing System is the development of a sustained capability to observe the Long Island Sound ecosystem and an adequate capability to understand and predict its response to natural and anthropogenic changes.

**Accomplishments to Date:**

- Deployment and maintenance of seven buoys that monitor salinity, temperature, and dissolved oxygen, and chlorophyll throughout the sound
- Three of the above buoys provide over-water meteorological observations. One includes a surface wave sensor, and two includes PAR
- Deployment two new CODAR surface current monitoring systems in western Long Island Sound
- Installation of the data archive and IOOS-DMAC compliant Mapserver based data distributions system
- Development of a three-dimensional circulation model
- Development and testing of a primary-production respiration model
- Coupling of the circulation and ecosystem models
- Analysis of existing hydrography to infer exchange between LIS, the Hudson River, and the shelf waters
- Process studies for C,N,O budgets in western LIS that include measurements of primary production, grazing, standing stocks, downward vertical fluxes and benthic utilization of organic matter
- Measurement and monitoring of fluxes of salt and carbon through the East River
- Training of five graduate students and two postdoctoral investigators
- At-sea and data analysis experience for two undergraduate students
- Advice to citizen's groups and public education on water quality and coastal eutrophication

**Current Year Objectives:**

- Develop surface wind and wave monitoring and forecast capability for mariners, incident response managers and scientists
- Provide operational surface current predictions in LIS and adjacent shelf

- Maintain moored instruments, data archiving and enhance data and product distribution system

**Partners:**

- University of Rhode Island
- National Undersea Research Program
- Sea Grant College Program
- Connecticut Department of Environmental Protection
- U.S. Environmental Protection Agency – Long Island Sound Office
- U.S. Coast Guard