

Long Island Sound Study

Large Aquatic Ecosystem (LAE)



The **Long Island Sound Study (LISS)**, authorized by Congress in 1985, is a collaborative effort to restore and protect the sound. Sponsored by the U.S. Environmental Protection Agency (EPA) and the states of Connecticut and New York, partners include federal, state, interstate, and local government agencies, industries, universities, and community groups. LISS partners work together to implement a Comprehensive Conservation and Management Plan (CCMP) to maintain the health of the ecosystem, restore coastal habitats, and increase public awareness of the Sound. The environmental concerns affecting the Sound cross political boundaries; by working together LISS partners can share ideas, coordinate actions, and leverage scarce financial resources to protect an entire ecosystem.

The LISS CCMP identifies specific commitments and recommendations to improve water quality, protect habitat and living resources, educate and involve the public, improve the long-term understanding of how to manage the Sound, monitor progress, and redirect management efforts. Using the plan as a blueprint, the Long Island Sound Study has continued to refine and add detail to commitments and priorities.

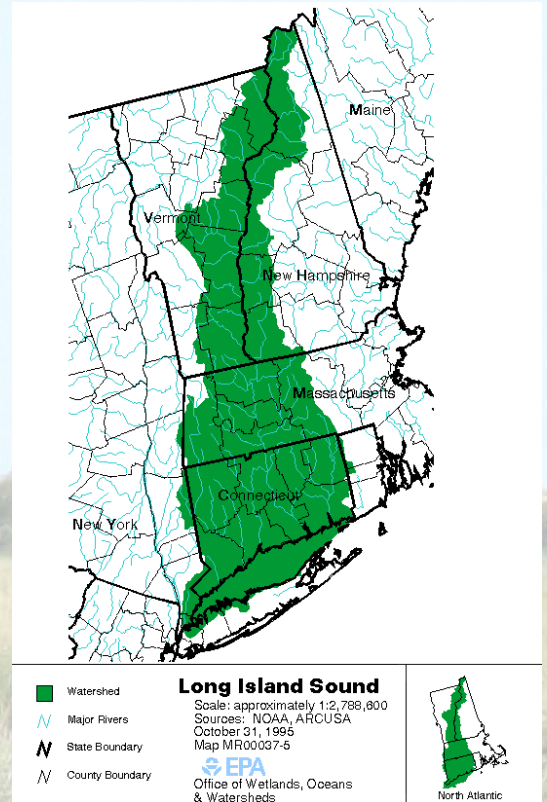
Challenges

- Large areas of the sound are impaired as habitat for fish and shellfish because of low dissolved oxygen levels, a condition called hypoxia.
- The productivity of many wetlands, intertidal areas, and other habitats has been diminished by development and pollution.
- Some bay and harbor bottoms are contaminated with toxic substances.
- Health advisories warn against too much consumption of Long Island Sound bluefish, striped bass, eels, some types of waterfowl, and lobster and crab hepatopancreas (more commonly known as tomalley) due to elevated levels of toxic chemicals.
- Beaches suffer periodic closures and many of the sound's prime shellfish beds have been closed for years due to indications of pathogen contamination. People can become sick by swimming in contaminated waters or by eating raw or partially cooked shellfish harvested from contaminated waters.

Priorities

The top priority of the Long Island Sound Program is reducing nitrogen loads, which contribute to the low levels of oxygen affecting substantial areas of western Long Island Sound in late summer. Other implementation priorities include:

- Habitat restoration and protection
- Watershed management
- Public education and involvement on Long Island Sound issues



Accomplishments

The LISS established a nitrogen reduction target of 58.5 percent. Connecticut and New York incorporated the target into a Total Maximum Daily Load (TMDL) for nitrogen to help meet water quality standards. The states have also revised their water quality standards for dissolved oxygen in marine waters to reflect EPA criteria for protection of living resources in marine waters, and created provisions for pollutant trading to cost-effectively attain nitrogen reductions.

Implementation of the TMDL is moving forward, with upgrades at wastewater treatment plants decreasing the amount of nitrogen to Long Island Sound in 2008 by 50,000 lbs. per day compared to baseline levels. These reductions are partly due to innovative strategies. Connecticut's Nitrogen Credit Exchange program, which won a 2007 EPA Blue Ribbon Water Quality Trading Award, has bought or sold 14 million credits at a total value of \$39 million (2002-2008).

Environmental indicators are used to characterize the status and trends in the Sound. Trends in pollutant levels, land use and development, water quality, living resources, and sensitive habitat include:

- EPA's TRI database shows a 93 percent decline in total discharges of industrial chemicals since 1988 in the Sound.
- PCB concentrations in striped bass from the sound declined from about 2.5 parts per million to less than 0.5 parts per million.
- From 1995 to 2006, the area certified for shellfishing increased by 22 percent to 127,200 acres.
- There are now an estimated 12,000 acres of salt marsh around the sound. Historically, about 1/3 of the Sound's marsh was lost to development.
- Eelgrass, once common throughout the sound, is now only found in the east. Acreage in the eastern sound increased to 1,905 acres in 2006, a gain of more than 300 acres since 2002.
- Shorebird management programs have helped trigger an increase in piping plovers and least terns; the colonial waterbird population has been stable in recent years, but is down compared with the population in the 1970s.

Future Direction

- Continued focus on nitrogen reductions and habitat restoration.
- Revision in 2010 of the TMDL, which will include more specific allocations for upstream states.
- Research on food web structure and fisheries relationships to water and habitat quality.
- Establishment of a sentinel monitoring program to understand climate change related impacts.
- Expanded efforts on land protection and watershed management.

The Long Island Sound Study Facts

Watershed Size: 17,393 square miles

Waterbody Size: 1,268 square miles, 2.19 trillion cubic feet

Population: more than 8 million people living in its watershed

EPA Regions: 1 and 2

Director: Mark Tedesco

The Long Island Sound Study
Program was designated a member of the US Environmental Protection Agency's



Large Aquatic Ecosystem Council (LAE) in 2008. The Long Island Sound Study Program joins nine other geographic-based efforts that focus on protecting and restoring the health of critical aquatic ecosystems. The LAE Council seeks to merge geographic-based efforts with national water programs to advance the health of the nation's large aquatic ecosystems and strengthen national water programs.

LAE Program Web Sites

Chesapeake Bay Program
www.chesapeakebay.net

Columbia River Basin
www.epa.gov/region10/columbia

Great Lakes
www.epa.gov/glnpo

Gulf of Mexico Program
www.epa.gov/gmpo

Lake Champlain Basin Program
www.lcbp.org

Long Island Sound Study
www.longislandsoundstudy.net

Pacific Islands Office
www.epa.gov/region09/islands

Puget Sound - Georgia Basin
(Under Construction)

San Francisco Bay Delta Estuary
www.epa.gov/region9/water/watershed/sfbay-delta.html

South Florida Geographic Initiative
<http://epa.gov/region4/water/southflorida/index.html>

EPA Office of Wetlands, Oceans, and Watersheds

www.epa.gov/owow/oceans/partnerships/large_aquatic.html

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