

***Long Island Sound Study:
North Shore Embayment Watershed Management Plan
For Suffolk County***

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An Electronic Newsletter
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Long Island Sound Study

Many scientists on Long Island are already familiar with the acronym LISS, or the Long Island Sound Study. The LISS commenced in 1985, spearheaded by the U.S. EPA funded LISS offices in New York State and Connecticut. This cooperative effort included federal and state agencies, researchers, user groups, concerned organizations, and individuals dedicated to restoring and protecting the Long Island Sound. In 1994, the LISS team released a Comprehensive Conservation and Management Plan, which identified the key environmental problems in the sound. They outlined seven key issues for their agenda: 1) low dissolved oxygen (hypoxia), (2) toxic contamination, (3) pathogen contamination, (4) floatable debris, (5) living resources and habitat management, (6) land use and development, and (7) public involvement and education. More detail on their mission can be found at <http://www.longislandsoundstudy.net>.

North Shore Embayments Watershed Management Plan

Driven by the goals of the LISS, the Suffolk County Department of Health Services (SCDHS) developed a needs statement for the North Shore Embayments Watershed Management Plan ("the plan") to focus on improving water quality in specific sub-watersheds within Suffolk County. These watersheds included Huntington Bay-Northport Harbor complex, Nissequogue River, Stony Brook, Port Jefferson and Mount Sinai Harbors. In addition, Wading River, Mattituck Creek and Goldsmith's Inlet sub-watersheds were examined on a lesser scale.

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*Study Area for the Suffolk County North Shore
Embayments Watershed Management Plan*

[larger image](#)

The Suffolk County North Shore Embayments planning team included two consultants: Nelson, Pope & Voorhis, a Long-Island based firm with expertise in civil engineering, environmental consulting and surveying (<http://www.nelsonpope.com/index.html>) and EEA, Inc. (<http://www.eeaconsultants.com/>). County agencies include Suffolk County Department of Health Services, Suffolk County Department of Public Works (SCDPW), Suffolk County Department of Planning (SCDP) and Suffolk County Soil and Water Conservation District (SCSWCD). State agencies include NYS Department of Environmental Conservation (NYSDEC), NYS Office of Parks, Recreation and Historic Preservation (NYSOPRHP) and NYS Department of State. The U.S. EPA Long Island Sound offices also play an integral role on the planning team. In addition, with over one dozen local agencies, educational institutions, and interest groups as part of the planning team, this can be considered one big think tank!

At present, the management plan is in draft form and under agency-wide review. When the plan is finalized, EEA will provide details in future articles. Below we provide an overview of the goals of the management plan and major aspects under study.

Goals of the Plan

The LISS has estimated that the load of nitrogen delivered to Long Island Sound has more than doubled since pre-colonial times. In 1998, under the direction of U.S. EPA, NYSDEC and Connecticut Department of Environmental Protection (CTDEP), the LISS developed a nitrogen Total Maximum Daily Load (TMDL), which requires an approximate 60% reduction in anthropogenic sources of nitrogen within the LI Sound by the year 2014 (link to [TMDL Report](#) for further in depth details).

In order to reach this goal, the North Shore Embayment Watershed Plan is focusing on the nonpoint nitrogen sources in the target watersheds and



Bunker die-off, September 2005.

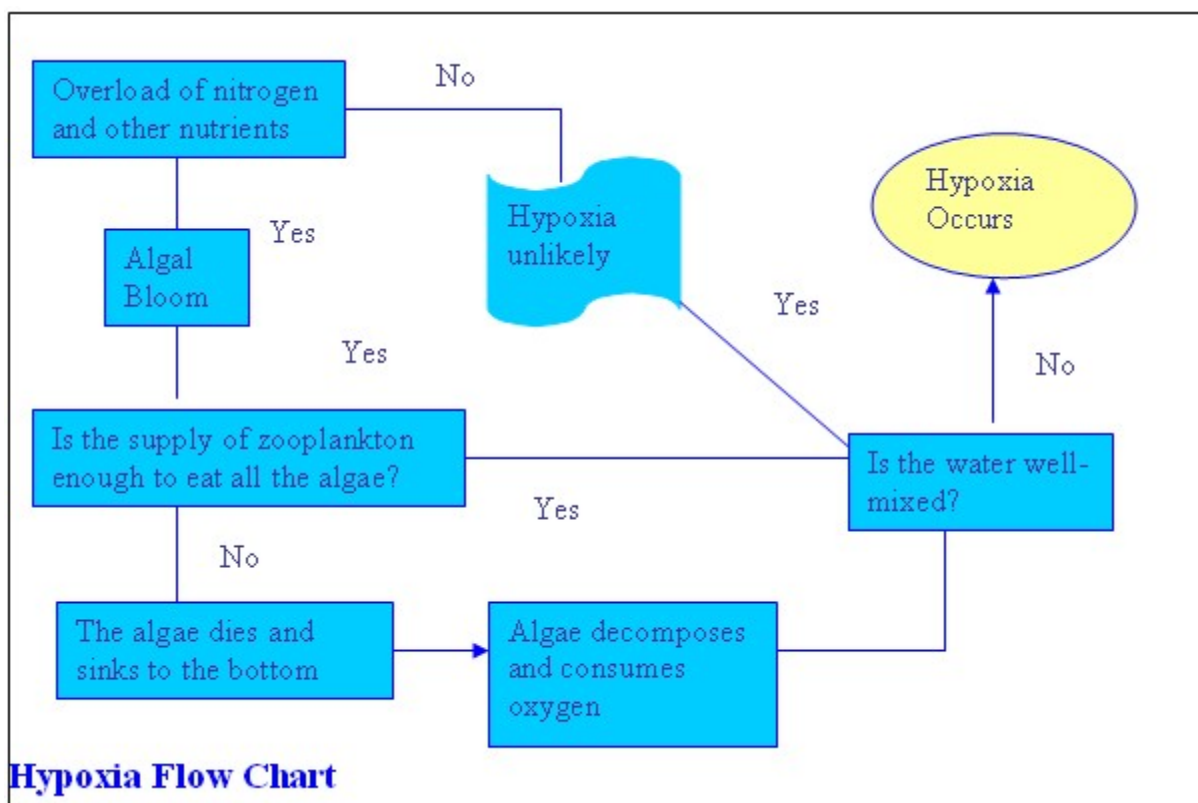
Lake Grove, Long Island Sound

formulating strategies to solve the problem. Excessive nitrogen loading is the cause of dangerously low oxygen levels, or hypoxia, that plague the Long Island Sound in the summer months each year.

Who can forget the mass lobster die-off in the summer of 1999? A recent symposium held at the Marine Sciences Research Center in Stony Brook examined this problem and hypothesized that hypoxic conditions and high water temperatures contributed greatly to the huge loss, resulting in ecological impacts and severe economic hardship for the local lobster industry. (Link to [Lobster die-off](#) to read more about this topic). Each summer we experience the same decrease in oxygen levels resulting in loss of habitat, fish and shellfish. So what is being done to reverse the Sound's summer blues?

Each sub-watershed must be characterized first. This entailed an evaluation of:

- ◆ Surface Water Characterization
- ◆ Ground Water and Stream Quality Characterization
- ◆ Regional Land Use
- ◆ Nitrogen Loading
- ◆ Stormwater Loading
- ◆ Pollution Sources
- ◆ Natural Resources



Once each embayment was characterized, any gaps in data were identified and recommendations

were made. A preliminary Priority List was generated to identify the level of severity and attention required for each sub-watershed.

Gathering of all of this data was then applied to best management practices for each sub-watershed to meet the TMDL goals for nitrogen. The management plans of municipal storm sewer systems were integrated into the recommendations as well.



Setauket Harbor Park

The Good News...

- ◆ The severity of hypoxia (lack of oxygen) has decreased in the Sound since the late 1980s.
- ◆ In 1998, the LISS adopted a 58.5 percent reduction target for nitrogen loads from human sources to the Sound by 2014, with interim five- and ten-year targets to assure steady progress.
- ◆ In 2001, the EPA approved Connecticut's and New York's plan, called a Total Maximum Daily Load (TMDL), for achieving the 58.5 percent nitrogen reduction from point and nonpoint sources of pollution.

- ◆ Since 1998, more than 572 acres have been restored in Connecticut and New York in the Long Island Sound watershed.
- ◆ As of 2005, upgrades to sewage treatment plants have decreased nitrogen discharges to the Sound by 20 percent from peak years in the early 1990s.
- ◆ Since 1998, more than 90 miles of river migratory corridors have been restored for anadromous fish passage by installing fishways and removing dams.
- ◆ The LISS awards grants up to \$5,000 for projects to educate and involve the public in the cleanup of the Sound. As of 2003, almost \$400,000 in grants have funded 100 projects, including curriculum development, teacher training, beach cleanups, educational posters, and summer programs for children.



Little Bay, West of Seatuket Harbor



Questions or comments on the North Shore Embayments Watershed Management Plan?

Send them to Laura Schwanof at lschwanof@eeaconsultants.com or call her at the Stony Brook office at (631) 751-4600.

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