

A Partnership to Restore and Protect the Sound

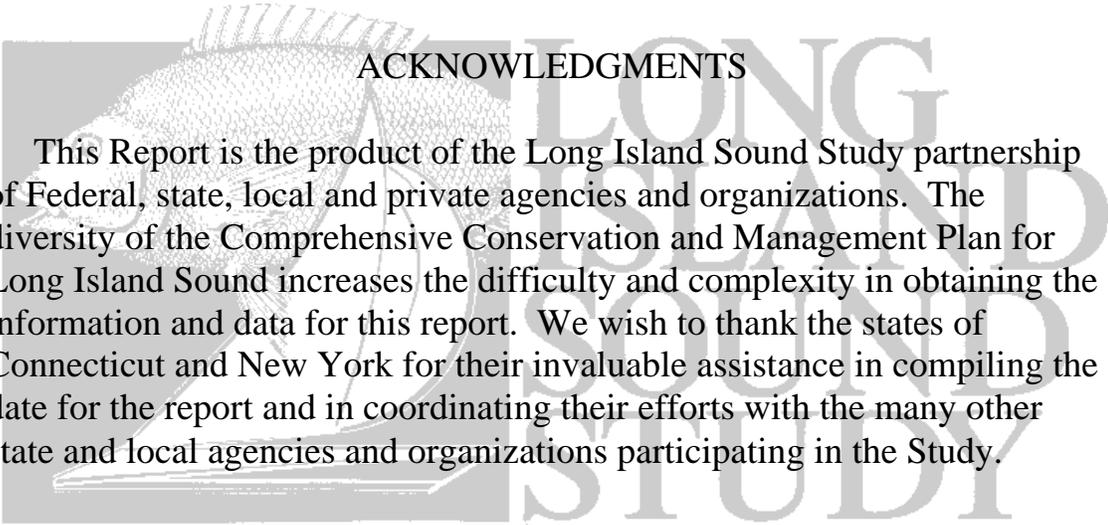
**2004
Comprehensive
Conservation and
Management Plan
Implementation
Tracking Report**

January — December 2004

**THE
LONG
ISLAND
SOUND
STUDY**

*A Partnership to
Restore and Protect
the Sound*

December 2005



ACKNOWLEDGMENTS

This Report is the product of the Long Island Sound Study partnership of Federal, state, local and private agencies and organizations. The diversity of the Comprehensive Conservation and Management Plan for Long Island Sound increases the difficulty and complexity in obtaining the information and data for this report. We wish to thank the states of Connecticut and New York for their invaluable assistance in compiling the data for the report and in coordinating their efforts with the many other state and local agencies and organizations participating in the Study.

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FOREWORD

This 2004 report documents the 11th year of implementation of the Long Island Sound Study (LISS) Comprehensive Conservation and Management Plan (CCMP) for Long Island Sound (LIS). This Report summarizes the continuing work of the LISS Management Conference partners in carrying out the CCMP.

The LISS Management Conference is sponsored by the U.S. Environmental Protection Agency (EPA), the New York State Department of Environmental Conservation (NYSDEC), and the state of Connecticut Department of Environmental Protection (CTDEP). Additional partners include:

- Interstate Environmental Commission (IEC);
- New England Interstate Water Pollution Control Commission;
- U.S. Department of the Interior Fish and Wildlife Service (USFWS);
- U.S. National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS);
- New York City Department of Environmental Protection (NYCDEP);
- U.S. Department of Agriculture Natural Resource Conservation Service (NRCS);
- New York State Department of State (NYSDOS);
- New York and Connecticut Sea Grant College programs;
- U.S. Army Corps of Engineers (ACOE);

- LISS Science & Technical Advisory Committee (STAC); and
- LISS Citizens Advisory Committee (CAC).

Many other federal, state, municipal, academic, and local public and private organizations contribute to implementation of the CCMP. Among these are the:

- U.S. Geological Survey (USGS);
- U.S. Department of Agriculture's Cooperative Extension Service;
- Connecticut Department of Agriculture Bureau of Aquaculture (CTDOA/BA);
- New York and Connecticut state Departments of Health;
- University of Connecticut (UConn); and
- State University of New York (SUNY).

Together, these Federal, state, local, academic, and citizen partners combine their efforts to achieve the common CCMP vision for the long-term health, restoration, and economic well-being of Long Island Sound, its watersheds and tributaries, and living marine and marine-dependent resources.

ABOUT THE 2004 REPORT

This 2004 CCMP Implementation Tracking Report continues the simplified model first piloted in 2000. The report is organized into seven sections, each corresponding to the seven priority management areas identified in the CCMP:

- 1) Continuing the Management Conference;
- 2) Hypoxia;
- 3) Pathogen Contamination;
- 4) Toxic Substances;
- 5) Floatable Debris;
- 6) Management and Conservation of Living Resources and Their Habitats; and
- 7) Public Involvement and Education.

Each of these sections contains a brief narrative *Overview* that highlights accomplishments of the Management Conference in that area in calendar year 2004.

The *Overviews* describe the environmental results, trends or indicators of progress for the CCMP priority area. *Long Island Sound 2003 Agreement* commitments are highlighted in the Overview sections, with more detailed reports on progress following. This section attempts to relate CCMP actions to real and measurable environmental progress. The program is striving to improve its environmental indicators and refine the relationships to management actions over time.

This report provides information in the 36 CCMP subcategories outlined in the Index to the report. As in prior reports, the charts

following each narrative section correspond to the appropriate table in the CCMP for each priority area.

The charts describe accomplishments and actions planned for next year. Appendix A-1 contains the entire set of 232 CCMP actions indexed to the detailed charts in the report.

An Annual Snapshot of Progress

Because of the inherent long-term nature of initiating and assessing the results of environmental restoration and improvement efforts, this report should be viewed as a one-year snapshot of accomplishments against the 36 action areas identified in the CCMP.

Environmental Indicators

The LISS has developed a set of 40+ environmental indicators for Long Island Sound, with an ultimate goal of linking progress on the CCMP to actual environmental improvements in the Long Island Sound ecosystem. In this way, environmental results may be used in the future to assess the effectiveness of CCMP actions, and the Management Conference will be in a better position to consider and adjust CCMP plans, actions, and resources according to the environmental results desired or achieved. The LISS environmental indicators are accessible on the new LISS website at: <http://www.longislandsoundstudy.net>

CONTINUING THE MANAGEMENT CONFERENCE

Implementing the CCMP is the combined responsibility of the Management Conference partners. Through their ongoing programs and day-to-day operations, and through federal, state, local, and private LIS funding initiatives and activities, CCMP priorities are assessed, implemented, and reported.

CCMP Strategy: An essential element of the Long Island Sound Study strategy to implement the CCMP was to continue the Management Conference partnership in carrying out the plan to restore and protect the Sound. The states and EPA signed LIS Agreements in 1994, 1996, and 2003, formally committing EPA and the states to the Management Conference partnership as the primary means of implementing the CCMP. Most of the original thirteen CCMP actions in this section continue to be key to the viability of the LISS partnership. Federal legislation in 1990 created the EPA Long Island Sound Office to bridge the bi-state, multi-agency, public/private efforts to restore and protect the Sound. In 2005 the 109th Congress is considering reauthorization of the LIS Restoration Act through 2009.

LIS 2003 Agreement Goal: *Support the LISS Management Conference partnership in communicating and coordinating action to restore and protect the Sound among federal, state, interstate, and local governments, educational institutions, private nonprofit organizations, the regulated community, and the public.* This section contains several continuing goals, including ongoing federal and state support in building partnerships to implement the CCMP, and to support the Science and Technical Advisory Committee, the Citizens Advisory Committee and Long Island Sound Office. The Agreement commits the LISS to convene within a five-year window to update progress and refine its goals through the Management Conference process.

2004 Highlights:

- Congress appropriated \$7.76 million for the LISS in 2004. Under CWA §119 EPA included \$477,400 in its 2004 budget for the LISS; and EPA's National Estuary Program allocated \$506,984 under CWA §320 for LIS. Congress added \$1.8 million in the Environmental Programs and Management appropriation, and \$4.9 million in EPA's State and Tribal Assistance Grants (STAG) program. A Congressionally mandated rescission of funds of .59 percent was applied across all 2004 appropriations.
- The states used STAG appropriations of \$2.48 million each to assist distressed communities in Connecticut in upgrading STPs for nitrogen control and in New York for CCMP implementation projects and to assist communities in restoring degraded habitats and upgrading storm water control systems.
- The Management Committee met in January, April, July, and October 2004. The Committee approved the addition of a new member, the New England Interstate Water Pollution Control Commission.
- The Science and Technical Advisory Committee met in February, June and October 2004. The STAC added several new members in 2004, rounding out its representation among scientists, managers, researchers and academics.
- The LISS Citizens Advisory Committee (CAC) continued to meet in March, June, September, and December 2004. The CAC welcomed Great Eastern Ecology, Inc. as a new member in 2004. In October 2004, the LISS held the first joint meeting of the STAC and CAC. The purpose of the meeting was to have the STAC and CAC work together to coordinate priorities and support for projects to implement the CAC. The CAC subsequently passed a resolution calling for an annual meeting of the STAC and CAC to continue this close working relationship.

SUMMARY OF CCMP MANAGEMENT ACTIONS: CONTINUING THE MANAGEMENT CONFERENCE

M-1. SUPPORTING IMPLEMENTATION (CCMP TABLE 50, P. 141)	
Key Elements: The CCMP committed the LISS to formally extend the Management Conference to guide CCMP implementation, and to continue its Citizens Advisory Committee as an integral part of the conference. The plan also called for the EPA LISO to continue and expand its efforts to coordinate among Management Conference participants in support of CCMP implementation by providing funding and staffing, conducting education, outreach, monitoring, and data management, and ensuring consistency with other federal and state goals and policies.	
2004 Description	2005 Planned Action
<p>1. EPA and Congress continued to provide Federal funding for the LISS in FY2004 under Clean Water Act Sections 119 and 320. The LISS program budget in 2004 was \$7.7 million after a Congressionally mandated rescission of funds of .59 percent. \$4.8 million of that amount was in EPA's State and Tribal Assistance Grants appropriation to support LIS CCMP implementation projects in New York and Connecticut, including assistance to distressed communities in Connecticut for STP upgrades.</p>	<p>The FY2005 President's Budget for EPA included \$473,000 for the LISO, with Congress earmarking an additional \$1.8 million and \$3.90 million in EPA appropriations for LIS. LIS NEP funds totaled \$510,000.</p>
<p>2. The LISS continued to provide funds for state program coordination and involvement and for the LISS public outreach and education, habitat restoration programs. In 2004, the LISS continued funding for two Long Island Sound Fellows to assist the research and scientific mission of the program through the Science and Technical Advisory Committee. Two new Fellows were selected, one each in New York and Connecticut.</p>	<p>Continue support as funding allows.</p>
<p>3. The Management Committee met in January, April, July, and October. The Committee approved the New England Interstate Water Pollution Control Commission (NEIWPC) as a new member, formalizing a longstanding relationship with the Management Conference. The Committee approved the establishment of a new subgrant program in 2004, the Long Island Sound Futures Fund, administered in partnership with the National Fish and Wildlife Foundation. The Committee approved an initial funding level for the LISFF of \$500,000.</p>	<p>The Committee will continue to meet in 2005 to address issues of concern to LIS. A special 2 day meeting is planned for July 2005.</p>
<p>4. The Science and Technical Advisory Committee (STAC) met in February, April and October 2004. The STAC held a special meeting on October 1, 2004 with the Citizens Advisory Committee, reviewing progress on LIS-funded research projects, and developing common understanding of priorities.</p>	<p>Continue STAC meetings in 2005. Continue annual joint meeting with the CAC.</p>
<p>5. The Citizens Advisory Committee continued to meet in March, June, September, and December 2004. In addition, the CAC attended a special joint meeting with the STAC at UConn Stamford campus in October. The CAC continued to advocate for development of a LIS stewardship system; continued research funding; continued state efforts to implement the nitrogen TMDL and habitat restoration strategy; and increased emphasis on toxics reductions. The CAC added a new organizational member in 2004: Great Eastern Ecology, Inc.</p>	<p>The CAC will continue to increase its representation and advocate for the full \$40 million appropriation for the LISS.</p>
<p>6. The EPA LISO continued to coordinate the efforts of the Management Committee, the Science and Technical Advisory Committee, and Citizens Advisory Committee. The LISO continued to support implementation efforts of LISS work groups, including the Nutrients Work Group, Nonpoint Source Work Group, the Connecticut River Work Group, the Habitat Restoration Team, Implementation Team, and Dredging EIS Work Group. The LISO continued coordination of the Management Conference, development of the annual budget and work plan, the LISS research agenda and Requests for Initial and Final Proposals in the LIS research fund, and CCMP Enhancements Projects.</p>	<p>The LISO will continue to support implementation of the CCMP and the Management Conference partners.</p>

ELIMINATING ADVERSE IMPACTS OF LOW DISSOLVED OXYGEN IN THE SOUND

The CCMP identified low dissolved oxygen (hypoxia) as the most significant water quality problem in LIS affecting critical life cycles of living marine resources. Since 1990, EPA and the states of Connecticut and New York have implemented a phased program to reduce human-caused nitrogen loads to LIS and improve dissolved oxygen levels to meet water quality standards.

of low dissolved oxygen on the aquatic habitat and living marine resources of the Sound by: 1) reducing nitrogen from sewage treatment plants (STPs) and other point sources; 2) reducing nitrogen loads from nonpoint sources; 3) continuing the management of hypoxia; 4) funding implementation of hypoxia management plans; and 5) monitoring and assessing hypoxic conditions in the Sound.

LIS 2003 Agreement Goal: *Eliminate the adverse impacts of hypoxia resulting from human activities.* The management goal is to establish Phase IV nitrogen reduction agreements to address atmospheric deposition and watershed management for portions of the Long Island Sound watershed outside of New York and Connecticut. Connecticut and New York are making progress in reducing point source nitrogen loads to the Sound and the LISS, through its Connecticut River work group, is continuing its work to identify and validate sources of nitrogen from upland states as an antecedent to developing formal agreements.

Environmental Indicators/Results/Trends: Total point source nitrogen loads in 2004 declined by 6,000 lbs/day from 2003 (see Figure 1). The maximum area of hypoxia (less than 3.0 mg/l dissolved oxygen (DO)) covered an estimated 202 square miles at peak, and lasted 60 days (see Figures 2 and 3).

2004 Highlights:

- The estimated nitrogen load from STPs in the LIS drainage basin in 2004 is approximately 153,973 lbs/day, a decrease of nearly 59,000 lbs/day from base levels. As of December 2004, New York's point source nitrogen load was 117,873 lbs/day, compared with 120,067 lbs/day in 2003; Connecticut's point source nitrogen load was 36,100 lbs/day compared with 39,902 lbs/day in 2003. Figure 1 shows the total point source nitrogen load trends since 1990.
- In 2004, the maximum area and duration of DO levels less than 3 mg/l observed in LIS was 202 mi² and 60 days. The 18 year averages are 205 mi² and 57 days. Figure 2 depicts the maximum areal extent of hypoxia. Figure 3 shows the areal extent and duration of hypoxia in LIS since 1987.
- Connecticut completed the second year of its Nitrogen Credit Exchange program. Thirty-seven of 79 participating STPs reduced nitrogen output below assigned permit limits, making them eligible to sell a total of \$2.43 million in nitrogen credits. In August 2003 the state was required to purchase the excess credits generated in 2002 from the towns with \$311,761 from its Clean Water Fund (CWF).
- The states of Connecticut, Massachusetts, Vermont, and New Hampshire, along with NEIWPC and EPA, continued discussions on the need to reduce nitrogen loading from the Connecticut River watershed to Long Island Sound. At the recommendation of the Connecticut River work group, the third of a three-year nitrogen monitoring program was funded by the LISS for the Connecticut River watershed and implemented in order to identify sources and quantify loads of nitrogen from the upland states.

Point Source Nitrogen Load to Long Island Sound 1994-2004

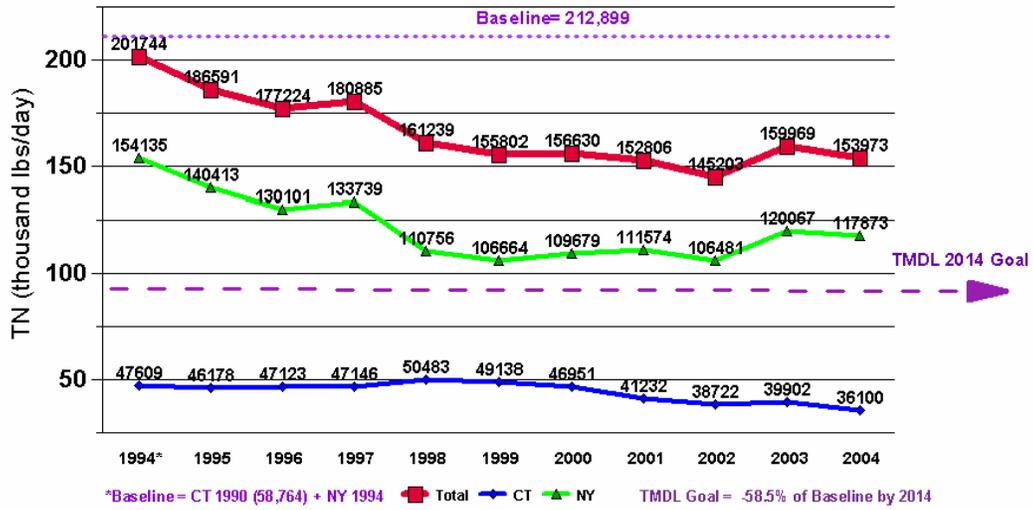


Figure 1

Dissolved Oxygen in Long Island Sound Bottom Waters

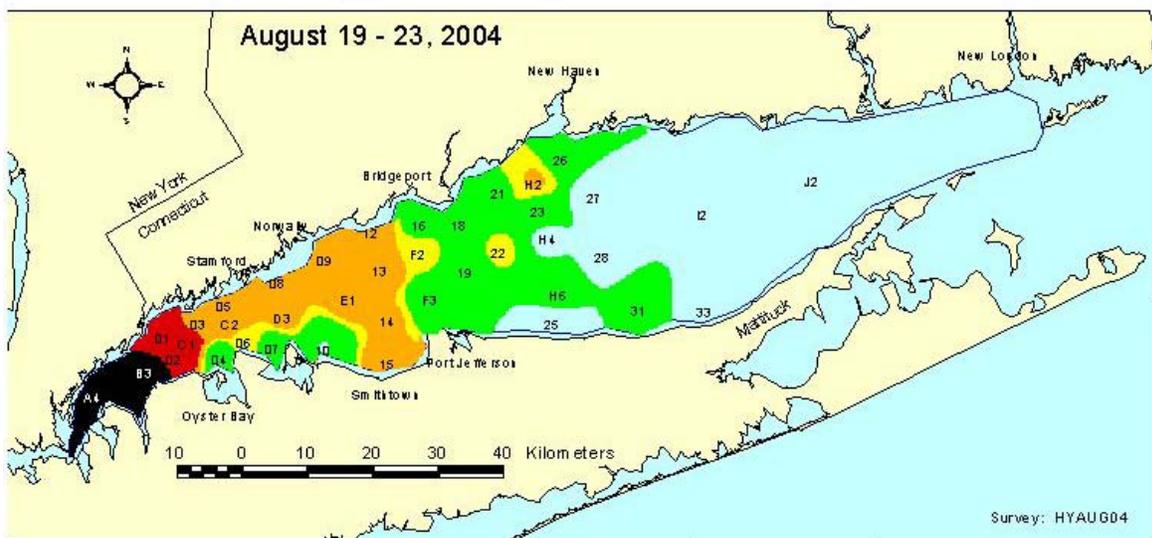
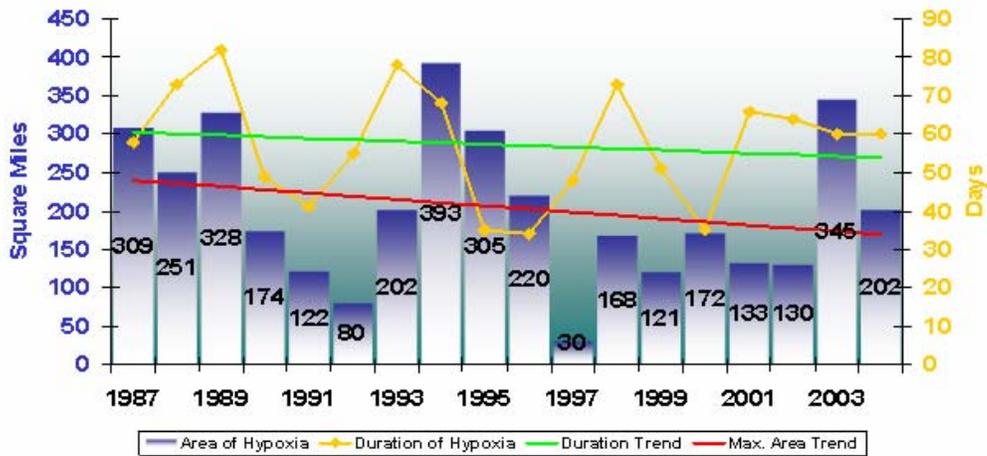


Figure 2

Maximum Area & Duration of Hypoxia in Long Island Sound 1987-2004



The red trend line indicates average area decline over time.
 The green trend line indicates average duration decline over time.
 *Hypoxia = <3mg/L D.O.

LISS Water Quality Monitoring Program

Figure 3

SUMMARY OF CCMP MANAGEMENT ACTIONS: HYPOXIA

H-1. REDUCING NITROGEN FROM SEWAGE TREATMENT PLANTS AND OTHER POINT SOURCES (CCMP TABLE 4, P. 32)

Key Elements: The states of Connecticut and New York committed to reducing nitrogen loads in their portions of the Long Island Sound basin using a mixed approach of STP retrofits, pilot studies and upgrades under existing permitting authorities. With adoption of the TMDL, state requirements to remove nitrogen loads have been formalized and expanded beyond the original commitments in the CCMP.

	2004 Description	2005 Planned Action
1.	The total estimated point source (end of pipe) nitrogen load to LIS in 2004 was 153,973 lbs/day, a decrease of 58,926 lbs/day from base levels. New York loads totaled 117,873 lbs/day compared with 120,067 lbs/day in 2003; Connecticut loads totaled 36,100 lbs/day compared with 39,902 lbs/day in 2003. The total reduction as of December 2004 was 26.7 percent below baseline levels and represents 47.3 percent of the total nitrogen reduction goal of 58.5 percent by 2014. There are 104 STPs that collectively discharge more than one billion gallons of treated effluent per day to the Sound.	Continue emphasis on achieving TMDL point source nitrogen reduction targets.
2.	In Connecticut as of December 2004, 35 municipal sewage treatment plants have completed upgrades including nitrogen removal at a cost of more than \$350M. Five STPs completed upgrades in 2004 - Bridgeport East, Bridgeport West, Bristol, Enfield, and Litchfield. Four municipal STPs currently have initiated more than \$110 million of upgrades including nitrogen removal — Jewett City, Stamford, North Haven, and Wallingford all under construction in 2004. Four municipal STPs have begun designs for upgrades including nutrient removal at costs totaling over \$55 million — Bristol, Cheshire, Groton, and Simsbury.	Continue to assist municipalities with upgrades to STPs.
3.	In 2003, NYSDEC modified the 14 SPDES permits for the Water Pollution Control Plants (WPCPs) in New York City. The six facilities that discharge to the East River have effluent permit limits consistent with the Long Island Sound TMDL for nitrogen. All 14 permits are in hearing.	The permittees will be required to develop a compliance schedule to identify the methods, operations, and/or facilities necessary to achieve compliance with the adjusted limits.
4.	NYSDEC signed a Consent Order for the four WPCPs in Westchester County on December 24, 2004 (Blind Brook, Mamaroneck, New Rochelle, Port Chester). The permits were issued and became effective January 1, 2005 with limits consistent with the Long Island Sound TMDL for nitrogen.	The Consent Order requires the permittee to develop and submit an engineering plan.
5.	The Village of Northport was awarded approximately \$1.1 million for UV and nitrogen removal upgrades. The design stage is complete and construction started in September 2003.	The projects are scheduled to be completed in Summer 2005.
6.	NYSDEC Public Noticed the nitrogen permit for the Town on North Castle in May 2004. A Consent Order is under negotiation.	Continue negotiations on Consent Order.
7.	Nitrogen removal and facility improvements have been completed at the Glen Cove STP. The project was funded by two NYS Bond Act grants for a total of approximately \$3.6 million. The project is complete and the plant is meeting 2014 nitrogen permit limits.	UV and chemical bulk storage system upgrades are planned for operation in 2005.
8.	The Port Washington Water Pollution Control District was awarded approximately \$11 million for a denitrification upgrade. The plant is continuing to run the Biological Nutrient Removal Demonstration Project that is treating 1 MGD (1/3 of the plant's flow).	Prepare design document in 2005; start construction in 2006; completion in 2009.

	2004 Description	2005 Planned Action
9.	<p>The twelve SPDES permits for the WWTPs on the north shore of Long Island that discharge into Long Island Sound have been modified to reduce discharge limits for nitrogen in accordance with the Long Island Sound TMDL analysis. Ten of the twelve permits have been issued; two are in hearing. The discharge limits are consistent with the 5, 10, and 15 year waste load allocations that are specified in the Zone Nitrogen Management Plans. Treatment plants affected are:</p> <ul style="list-style-type: none"> • Belgrave WPCD; (Permit issued April 2004) • City of Glen Cove WTP; (Permit issued April 2004) • Village of Great Neck WPCP; (Hearing requested and is pending) • Great Neck WPCD; (Hearing requested and is pending) • Oyster Bay WPCP; (Permit issued April 2004) • Port Washington WPCD; (Permit issued January 2005) • Village of Greenport WWTP; (Permit issued February 2004) • Town of Huntington STP; (Permit issued February 2004) • Village of Northport STP; (Permit issued February 2004) • Suffolk County Sewer District #1-Port Jefferson STP; (Permit issued February 2004) • Suffolk County Sewer District #6-Kings Park STP; (Permit issued February 2004) • Suffolk County Sewer District #21-SUNY at Stony Brook. (Permit issued February 2004) 	
10.	<p>CTDEP established a General Permit for Nitrogen Discharges and set up a Nitrogen Credit Exchange (NCE) Program in 2002. The second year of the NCE resulted in additional equalized nitrogen reductions with 37 STPs discharging below their assigned permit limits, making them eligible to sell a total of \$2.43 million in nitrogen credits in 2004 (based on their 2003 discharges). The 2004 report of the Nitrogen Credit Advisory Board is available at: http://www.dep.state.ct.us/wtr/lis/nitrocntr/2004annrpt.pdf.</p>	<p>Continue the Nitrogen Credit Exchange program and Nitrogen General Permit.</p> <p>The fiscal year 2005 priority list has identified over \$200 million in future nitrogen removal construction projects proceeding to design for CT during the 2005 fiscal year.</p>

H-2. REDUCING NITROGEN LOADS FROM NONPOINT SOURCES (CCMP TABLE 5, P.34)

Key Elements: The states of Connecticut and New York have broad authorities to manage nonpoint sources of pollution and have agreed in the CCMP to emphasize control of nitrogen in ongoing state and federal programs. These include state nonpoint source programs (CWA §319), the coastal nonpoint source control program (CZARA §6217), and stormwater permitting programs. Most of the site specific studies and activities identified in the CCMP have been completed. The states have committed to using nonpoint source control programs to begin reducing nonpoint sources of nitrogen and anticipate continuing those efforts as the primary means to meet the reduction goal specified in the TMDL.

	2004 Description	2005 Planned Action
1.	<p>Currently CTDEP is implementing 129 active §319 projects from FY99-2004 grants. Thirty-two new projects were funded under §319 in 2004 totaling \$2,544,611 including match, and 7 projects were closed out in 2004 totaling \$240,978 in §319 funds.</p>	<p>CTDEP will continue to emphasize LIS nitrogen control in the §319 grant process.</p>
2.	<p>In CT, new DEP regulations will require the sale of California-certified "low emission vehicles" or "LEVs" in Connecticut beginning with the 2008 model year. The DEP regulations were drafted in response to Public Act 04-84, which directed the DEP to establish these rules by December 31, 2004 in order to require automobile manufacturers to deliver cleaner cars into Connecticut. DEP proposed the legislation that led to the new regulations because of the numerous environmental and public health benefits achievable through adoption of the LEV II program in Connecticut. These benefits include:</p>	

	2004 Description	2005 Planned Action
	<ul style="list-style-type: none"> • a 25-30% further reduction in toxic air emissions (including benzene and formaldehyde) resulting in a 137-ton per year reduction in toxics; • a 15-20% further reduction in hydrocarbons resulting in a 5 ton per day reduction in hydrocarbon emissions; and • a 2% further reduction in carbon dioxide (CO2) emissions resulting in approximately 500,000 metric tons per year reduction. 	
3.	<p>CTDEP and the Town of Old Saybrook have begun remediation to address issues towards implementing a decentralized wastewater management program that will help meet nitrogen reduction needs for the town. Small scale management and treatment solutions are being proposed as an alternative to a centralized sewer system.</p>	<p>Through mediation, develop a final solution.</p>
4.	<p>CTDEP's aquifer protection regulations have been approved by the Connecticut General Assembly's Regulation Review Committee. The regulations are designed to provide protection for critical areas associated with Connecticut's highest yielding public water supply wells by regulating activities in aquifer areas that could contaminate public water supply, but have immense benefits for nonpoint source control as well since many of the same pollution sources are being managed, and many of the same best management practices come to bear.</p>	<p>Implement regulations.</p>
5.	<p>CTDEP has advertised an RFP to develop a nitrogen management plan for the Niantic River Basin using CZARA 6217 funds. The objective is to create a nonpoint source plan that will lead to nitrogen reductions protective of eelgrass beds and other impairments and meet EPA requirements for Watershed-based Planning. The plan will be a model for similar activity in other coastal embayments.</p>	<p>Select contractor and initiate project.</p>
6.	<p>With funding from LISS, CTDEP and USGS are implementing a project to develop nitrogen criteria that are protective, and will help restore, LIS eelgrass beds. The goal is to include eelgrass bed demise on CT's Section 303(d) list once management criteria are available to address the problem. Sources are primarily nonpoint in the eastern LIS embayments where eelgrass is still established. (also see L-9, page 17)</p>	<p>Steering Committee is set up and a student will be hired to provide technical support to the project</p>
7.	<p>CT's National Monitoring Program funded under Section 319 in the Jordan Cove watershed of eastern CT is nearing completion. This is a ten-year project, and the intent is develop a pair of neighborhoods, one using all appropriate best management practices (BMP) and comparing hydrology and pollutant loads to the other neighborhood, which is developed according to local codes. Results are very promising, with post development hydrology very similar to pre-development conditions in the BMP neighborhood. Partners have received many requests for presentations and lessons are incorporated into NEMO.</p>	<p>Complete field work, draft final report</p>
8.	<p>On January 9, 2004 the CTDEP approved and implemented its new Phase II MS4 storm water permit program. The registration for this permit is in two parts. The deadline for submission of Part A was April 9, 2004. The Part B registration was due July 9. There are 113 towns covered by this permit. As of the end of the year, 112 have submitted their Part A registration. Approximately 80 have submitted the Part B registration. All towns are developing their Stormwater Management Plans. Workshops and training were conducted during the year.</p>	<p>The first Annual Reports are due January 1, 2005. CTDEP will be conducting ongoing workshops and training to assist the towns in preparing and implementing their Stormwater Management Plans. Many towns will also be receiving software training to manage their programs.</p>
9.	<p>In the Thames River basin, water-quality sampling in the Quinebaug River and its tributaries in eastern Connecticut demonstrated a consistent and pervasive pattern of nutrient enrichment during water years 2000 and 2001. A final USGS Report- <i>Nutrient Enrichment, Phytoplankton Algal Growth and Estimated Rates of Stream Metabolism in the Quinebaug River Basin, Connecticut, 2000-2001</i> was submitted to CTDEP as part of a Clean Water Act Section 319-funded project. This report generated consensus for additional need of targeted water-quality sampling and analysis for the West Thompson Reservoir on the Quinebaug River in Thompson. That two-year USGS investigation began in 2003 and was ongoing in 2004.</p>	<p>A final report to CTDEP is expected in early 2005</p>
10.	<p>The Westchester County Department of Planning, along with 11 municipalities, under the auspices of Watershed Advisory Committee 7, continued development of a watershed</p>	<p>The plan is tentatively scheduled to be completed</p>

2004 Description	2005 Planned Action
management plan to control polluted stormwater in the Bronx River and Grassy Sprain watersheds. The plan will recommend actions to control nonpoint source pollution via municipal ordinances and comprehensive plans, streams and wetlands, stormwater management practices, and outreach and education. Information on the County's LIS watershed efforts may be found on their web page at: http://www.westchestergov.com/planning .	in 2005
11. Through LISS CT River Work Group, the states of Connecticut, Massachusetts, Vermont, and New Hampshire, along with NEIWPCC and EPA continued meetings in 2004 to discuss the need for reduced nitrogen loading from the Connecticut River Watershed to Long Island Sound. Information on the workgroup's efforts may be found on the project web page at: http://www.neiwpcc.org/ctrivernitrogenproject.htm .	The CT River work group will continue to meet to discuss options for reducing nitrogen loading from upland states
12. NYSDEC awarded \$300,000 to Suffolk County for a North Shore watershed management program. Managed by the Office of Ecology in the Suffolk County Department of Health, the program is intended to outline how Suffolk County will meet its nitrogen reduction goals through subwatershed management plans. A steering committee was formed in October 2004 and a contractor hired to perform the technical work.	Finalize the Suffolk County North Shore Embayment Watershed Plan.
13. The LISS Nonpoint Source Work Group has contracted with HydroQual, Inc. to develop a GIS based nonpoint source nitrogen tracking system. The system will be land use based and designed to determine compliance with the 10% NPS nitrogen load allocation for CT and NY in the TMDL.	Complete system
14. IEC conducted Ms4 outfall inspections during dry weather conditions on the north shore of Nassau County, New York. During 2004, 41 outfalls were inspected of which 14 were flowing. These observations were reported to NYS DEC, Region 1, for remediation.	Continue dry weather inspections during 2005.

H-3. CONTINUING MANAGEMENT OF HYPOXIA (CCMP TABLE 6, P. 39)

Key Elements: The actions specified in the CCMP primarily reference research, monitoring and modeling activities and the use of that information and those tools to improve understanding and management of hypoxia in the Sound. Much progress has been made in this area to provide the scientific basis for the TMDL and the TMDL specifies the implementation steps recommended in the CCMP to control hypoxia. Finally, the action to continue appropriate modeling and research and periodically review management plans is central to the adaptive management approach promoted in the TMDL.

2004 Description	2005 Planned Action
1. The states of New York and Connecticut continued to implement the LIS nitrogen TMDL through a comprehensive adaptive management strategy to reduce nitrogen loads, assess effects and improve estimates of loading.	Continue bi-state implementation of the TMDL through the General Permit program and Nitrogen Credit Exchange program in CT.
2. The LISS Nutrient Workgroup, in cooperation with the NY/NJ Harbor Estuary Program, continued applying the System-Wide Eutrophication Model (SWEM) to LIS. In 2004, a SWEM-based unit response matrix that identifies the relative impact of nitrogen from different geographic zones was completed. In addition, nitrogen, carbon, and water fluxes through the East and Harlem Rivers, and the Race were calculated on a monthly basis.	Continue to apply the SWEM to analyze hypoxia and eutrophication in the Sound.
3. The biennial 2003 LISS Research Request for Initial Proposals identified research on the processes leading to the eutrophication of Long Island Sound as a priority. Three research projects that focused on this topic were selected for funding in 2004 by the LISS: <ul style="list-style-type: none"> • <i>A Biological-Physical Numerical Simulation Model for the Investigation, Prediction & Management of Oxygen Production & Consumption in Long Island Sound: Data Analysis And Model Formulation.</i> (PIs: Dr. Nicole Goebel and Dr. Jim Kremer, UCONN, \$71,010) • <i>Natural Isotopic Tracers for Anthropogenic Nitrogen in Long Island Sound.</i> (PIs: Dr. Mark Altabet, UMASS, and Dr. Johan Varekamp, Wesleyan University, \$125,591). 	Continue to fund research to improve the understanding and management of hypoxia in the Sound as funding allows.

2004 Description		2005 Planned Action
	<ul style="list-style-type: none"> Assessment Of The Effects Of Bottom Water Temperature & Chemical Conditions, Sediment Temperature, Sedimentary Organic Matter (Type & Amount) On Release Of Sulfide & Ammonia From Sediments In Long Island Sound: A Laboratory Study. (PI: Dr. Carmela Cuomo, University of New Haven, \$80,186). 	
4.	<p>In 2004, work continued on the following LISS-funded research projects:</p> <ul style="list-style-type: none"> Phytoplankton Dynamics in LIS.: (PI: Dr. J.E. Ward, UCONN, \$157,360) Water Column Oxygen Production and Consumption; (PI: Dr. J. Kremer, UCONN, \$188,433) 	Final reports are due to the LISS in 2005.
5.	EPA awarded a grant to CTDEP, one of only 10 projects selected nationally, for piloting its water quality trading program. The \$85,000 grant will evaluate the success of the trading program in Connecticut during its first two years in operation.	Draft Report will be available for review in the first quarter of 2005

H-4. FUNDING TO IMPLEMENT HYPOXIA MANAGEMENT PLANS (CCMP TABLE 7, P. 41)

Key Elements: The CCMP envisioned fully-funded nonpoint source (CWA §319 and CZARA §6217) programs, federal and state funding of state revolving fund programs, and appropriation of additional federal funds for management, emphasizing the Phase III management efforts incorporated in the TMDL.

2004 Description		2005 Planned Action
1.	In 2004 the Connecticut Bond Commission awarded more than \$68 million of CWF financing for grants and loans for STP and stormwater upgrade projects.	Continue to administer awarded bond funds toward nutrient reduction projects benefiting hypoxia reduction.
2.	<p>The following New York communities received 2004 Environmental Protection Fund grants to help comply with the federal Clean Water Act's new Phase II stormwater controls and protect water quality:</p> <ul style="list-style-type: none"> The Town of North Hempstead will receive \$43,000 to conduct public awareness activities. The Village of Sea Cliff will receive \$100,000 to develop a public education and outreach campaign. The Town of Huntington, with Asharoken, Northport, Huntington Bay, and Lloyd Harbor, will receive \$47,500 to address illicit discharges and evaluate devices to improve Northport Bay for shellfishing. <p>The funding is being awarded to urban municipalities around the State to protect water quality by preventing local flooding, erosion from construction sites, and pollutant runoff from streets and other paved surfaces into local waterways.</p>	Obligations under the Bond Act for Long Island Sound have been completed.

H-5. MONITORING AND ASSESSMENT OF HYPOXIA (CCMP TABLE 8, P. 4)

Key Elements: The CCMP recognized the importance of continuing and expanding monitoring efforts to answer fundamental questions on the health of LIS and to identify trends and changes that may be related to management actions. Most of the recommended monitoring was to be directed towards oxygen and nutrients because of the hypoxia problem in LIS. In addition, several specific monitoring/research projects were listed, most of which were completed shortly after the CCMP was released. Lobsters were identified for special attention because of disease problems that pre-dated the 1999 lobster die-off in Western LIS.

2004 Description		2005 Planned Action
1.	In Summer 2004, hypoxic conditions (<3mg/l DO) in LIS were estimated to have extended for a period of 60 days and covered a maximum area of 202 square miles compared to the 18 year averages of 57 days and 205 square miles.	Continue CTDEP ambient monitoring of LIS.

2004 Description	2005 Planned Action
<p>2. The LISS partners continued ambient monitoring of LIS in 2004:</p> <p>CTDEP continued its ambient monitoring of LIS stations in 2004. CTDEP expanded its scope of monitoring parameters to support the changing ecosystem perspective. CTDEP modified its summer sampling strategy. Currently, 17 stations are monitored on a monthly basis, year-round and 25-30 stations are added for bi-weekly hypoxia monitoring from June through September. Maps and summaries are available on the CTDEP website at: http://dep.state.ct.us/wtr/lis/monitoring/lis_page.htm.</p> <p>NYCDEP performed ambient monitoring of NY waters in Western LIS.</p> <p>IEC continued summer hypoxia monitoring in LIS by weekly measurements of DO, temperature, salinity, chlorophyll a at 21 stations, and at a subset of stations, samples were collected for phytoplankton and Pfiesteria in 2003. IEC made weekly data transmissions to LISO, CTDEP, NYCDEP, NYSDEC, CSHH and HydroQual. The IEC Annual Report details all monitoring activities. All IEC data are entered into the EPA database, STORET.</p>	<p>Continue the ambient monitoring program.</p>
<p>3. CTDEP and NYSDEC through Stony Brook University continued participation in EPA's National Coastal Assessment (NCA) in 2004. In addition to standard water quality parameters, sediment samples were collected once from one-half of the number of fixed (sampling point) stations in LIS. As part of CT's sampling plan for NCA, a zooplankton identification project, initiated in 2003, is continuing. NCA is also providing funding to analyze water samples for photopigments, which is an inexpensive means to identify presence of key phytoplankton groups.</p>	<p>In Summer 2005 CT and NY will continue to participate in the NCA by recording water quality parameters and collect sediment samples from the other half of the fixed (sampling point) stations</p>
<p>4. The UCONN Department of Marine Sciences at Avery Point, Connecticut, continued to operate and maintain a real-time water quality monitoring network, MYSound through a LISS grant funds through September 2004. The MYSound stations monitor surface and bottom waters for dissolved oxygen, temperature, salinity and selected other parameters at five specific sites. The MYSound website address is: http://www.mysound.uconn.edu. UCONN will combine MYSound with the new Long Island Sound Integrated Coastal Observing System (LISICOS). The primary objective of LISICOS is to provide accurate nowcasts and forecasts of circulation and the consequent chemical, biological and particulate transport fundamental to issues underlying the management of LIS.</p>	<p>UCONN will combine MYSound with the ocean observing system in the MACOORA region. (Mid-Atlantic Coastal Ocean Observing Regional Association)</p>
<p>5. The 2003 Long Island Sound Study Research RFP identified research on the processes leading to the eutrophication of Long Island Sound as a priority. The following project, which will investigate the effect that hypoxia has on toxic contaminants, was selected for funding in 2004 by the Long Island Sound Study:</p> <ul style="list-style-type: none"> • <i>Temporal and Spatial Changes in Copper Speciation and Toxic Metal Concentrations in Long Island Sound: Effect of Changes in Water Temperature and Dissolved Oxygen Levels.</i> PI: Dr. Sergio Sañudo-Wilhelmy, Stony Brook University. 	<p>Continue to fund research to improve the understanding and management of hypoxia in the Sound as funding allows.</p>
<p>6. In response to EPA's November 2000 revised DO standards for saltwater in the Virginian Province (Cape Cod to Cape Hatteras), NYSDEC continued to prepare a rulemaking that would include revised standards for dissolved oxygen in marine waters, as well as new standards for ammonia for marine waters, additional standards for human health protection, and other changes. The proposed rule is currently under review by the Governor's Office of Regulatory Reform.</p>	<p>NYSDEC anticipates release for public notice in 2005, with any formal adoption following in 9-12 months.</p>
<p>7. In 2004, the LISS approved funding for ferry water quality monitoring programs in eastern (Orient Point, NY to New London, CT) and western (Port Jefferson, NY to Bridgeport, CT) Long Island Sound. The following grants were awarded:</p> <ul style="list-style-type: none"> ▶ <i>Ferry-based Observations for Science Targeting Estuarine Research in Long Island Sound</i> (\$49,067) PI: Dr. Daniel Codiga, Univ. of Rhode Island ▶ <i>Ferry-based Marine & Atmospheric Observing System</i> (\$99,981) PI: Dr. Robert Wilson, Stony Brook University. 	<p>The LISS has funded these monitoring programs through September 2005. A second year of funding will be considered based on results of the initial year and the availability of LIS funds in 2005.</p>

CONTROLLING MAJOR SOURCES OF PATHOGENS

Pathogens can cause illness in people exposed through bathing in, or consuming fish or shellfish from contaminated waters. Pathogen contamination results in closed beaches, fisheries, or shellfish areas, hurting local economies and damaging public perception of the ecological health of the Sound.

Overall CCMP Strategy: As sources of pathogens come under better control, ambient water conditions improve and human and environmental exposures lessen. The CCMP identifies a seven part strategy to control pathogen contamination to LIS from: 1) combined sewer overflows (CSOs); 2) nonpoint sources (NPS); 3) sewage treatment plants (STPs); 4) vessel discharges; and 5) individual on-site systems/discharges. The final two elements of the strategy are to control pathogen contamination through: 6) public education; and 7) monitoring and assessment. As the public becomes educated concerning the impact of personal behaviors on the environment, i.e., improper disposal of pet wastes, inappropriate feeding of wildlife, access to boat pumpouts, changes in such behaviors may benefit the Sound.

LIS 2003 Agreement Goal: *Increase the area for shellfish harvesting and eliminate bathing beach closures while maintaining protection of human health.* There are several goals in this section of the Agreement, including nomination of No Discharge Areas (NDAs) in Connecticut and New York, decreasing the acreage of shellfish beds closed due to pathogen contamination, and minimizing and eliminating chronic beach closures due to pathogen contamination. EPA approved Connecticut's request for NDA designation of the Stonington/Pawcatuck River area in 2004, and Connecticut has submitted an application for NDA designation from Groton to Guilford in 2005. No action has been taken on New York NDA designations as of this writing.

Environmental Indicators/Results/Trends: Current LIS environmental indicators for pathogens include the number of beach closure days and number of vessel pumpout stations. There were 597 LIS beach closure days reported in 2004 in Connecticut (183, down from 224 in 2003) and New York (414, up from 380 in 2003), approximately 2 percent of the total beach days. Most closures are due to rainfall levels that require action by local health departments to close beaches as a health precaution.

2004 Highlights:

- CT and NY implemented new programs to address EPA's Phase II requirements for storm water from municipal separate storm sewer systems in urban areas and for construction sites disturbing one or more acres. In April 2004 CTDEP issued a final permit with modifications to its construction storm water permit. The most significant change was the lowering of the threshold for coverage under the permit from 5 acres to 1 acre.
- In January 2004 CTDEP approved and implemented its new Phase II MS4 storm water permit program. Workshops and training were conducted during the year. Connecticut anticipates spending \$800 million over the next 20 years to eliminate combined sewer system overflows in the state.
- New York City continued its \$1.5 billion comprehensive program to abate CSOs, scheduled for completion by 2006. Facility planning and preliminary design for CSO abatement of discharges to tributaries of the East River and Western Long Island Sound continued. **Construction of one major CSO retention facility on Flushing Creek will reduce impacts to Flushing Creek, the East River, and western Long Island Sound and is scheduled for completion by 2004.**

SUMMARY OF CCMP MANAGEMENT ACTIONS: PATHOGEN CONTAMINATION

P-1. CONTROLLING PATHOGEN CONTAMINATION FROM COMBINED SEWER OVERFLOWS (CCMP TABLE 31, P. 83)

Key Elements: Many municipalities with older sewerage facilities have combined stormwater and sanitary systems. These systems overflow during rainfalls, causing untreated sewage to reach the Sound. Abatement of combined sewer overflows (CSOs) will reduce a major source of pathogens to the Sound. CSO abatement programs are underway in New York and Connecticut.

	2004 Description	2005 Planned Action
1.	<p>New York City continued:</p> <ul style="list-style-type: none"> • developing waterbody/watershed facility plans for the East River and its tributaries: the Bronx River, Westchester Creek, Hutchinson River, Alley Creek (Little Neck Bay), Flushing Creek and Flushing Bay. As part of the CSO Long Term Control Plan (LTCP) project, the goal of the waterbody/watershed plans is to protect the applicable water quality standards and designated uses of these waters through the control of combined sewage overflows (CSOs) and other discharges of sewage. This effort specifically addresses pathogen controls for the City's current CSO abatement plans and evaluating opportunities for improvements in the plans, and includes a review of existing and attainable recreation water uses affected by pathogens. NYCDEP submitted a draft waterbody / watershed facility plan to NYSDEC in March 2004 for the Bronx River. • construction of its Flushing Creek CSO Retention Facility to provide storage capacity of 43 million gallons (28 MG in the tank and 15 MG in upstream sewers) that will abate CSO discharges to the head end of Flushing Creek. Phase 1 construction of the underground structural elements of the tank is complete. Phase 2 construction of the mechanical and above-ground portion of the facility is ongoing. Construction is progressing toward beneficial use of the storage facility. • work on the Alley Creek CSO Facilities Plan to substantially eliminate street flooding and sewer surcharging and to abate CSO discharges into Alley Creek within the CSO outfall TI-008 drainage area through drainage system improvements and activation of a 5 million gallon storage facility. Design for the reactivation of the Old Douglaston Pump Station to convey stored CSO to the Tallman Island treatment plant neared completion. • planning for the Hutchinson River CSO abatement facility that will abate CSO discharges to the River. Field investigations and design work continued, although a relocation of a portion of the conduit has been required to gain public approval, thus necessitating redesign efforts. Efforts continued on ULURP and CEQR tasks. A modified facility plan was submitted to NYSDEC. • planning for its Alley Creek drainage area improvements. This comprehensive watershed improvement project has several components including drainage area improvements and CSO abatement facility construction. Construction of the drainage area improvement continued. • planning for its Westchester Creek CSO Retention Facility that will abate CSO discharges at Outfall HP-25 to Westchester Creek. Design work continued. A modified facility plan was submitted to NYSDEC. Site acquisition, ULURP and CEQR activities continued. • planning for maximizing wet weather flow to its Wastewater Pollution Control Plants (WPCPs) through operation optimization. Wet weather operation plans (WWOPs) have been developed for the Hunts Point, Wards Island, Bowery Bay, Newtown Creek, Tallman Island, and Red Hook WPCPs to reduce CSO discharges to the East River portion of Long Island Sound. These WWOPs were submitted to the NYSDEC. WWOPs have also been developed for the 	<p>Continue development of waterbody/watershed facility plans as approvable CSO Long Term Control Plans that meet the requirements specified in EPA's CSO Control Policy.</p> <p>Continue construction.</p> <p>Continue drainage system improvements and initiate construction of CSO facilities.</p> <p>Continue ULURP and CEQR activities.</p> <p>Continue drainage area improvements and initiate construction of CSO facilities.</p> <p>Continue design activities and site acquisition. Complete ULURP and CEQR activities.</p> <p>Respond to any NYSDEC comments on the WWOPs, and incorporate any updates required due to any changes in facility plans. Continue to operate the facilities to increase treated flow</p>

	2004 Description	2005 Planned Action
	wet-weather facilities now operating (the Corona Avenue Vortex Facility) or under construction (the Flushing Creek and Alley Creek CSO Storage Facilities).	volumes to the maximum extent possible.
	<ul style="list-style-type: none"> • review of existing and attainable recreation water uses affected by pathogen bacteria for the City's CSO facility and watershed-based planning projects for the Upper East River, its tributaries, and the City's waters of western Long Island Sound through its Use and Standards Attainment (USA) Project. This effort specifically addresses pathogen controls for the City's current CSO abatement plans and evaluating opportunities for improvements in the plans - a preliminary water body/watershed plan has been developed for the Bronx River that addresses primary and secondary contact recreation water uses in the Bronx River. NYC submitted a modified facility plan to NYSDEC for the Bronx River area, which indicated that the CSO retention facility as being reviewed under the USA Project produced limited water quality benefits. • providing upgrades to several treatment plants along the East River to increase their ability to process wet-weather flows. Significant headworks upgrades were completed at the Hunts Point WPCP in 2004. Pumping upgrades and installation of throttling gates are also underway at the Bowery Bay and Newtown Creek WPCPs. • updating its Comprehensive City-Wide CSO Floatables Plan as part of the CSO Long Term Control Project with the submittal of a draft, updated Floatables Plan to NYSDEC in December 2004. • conducting the Sentinel Monitoring Program to detect pathogen levels throughout New York Harbor. In the event that high levels of fecal coliform are detected, a shoreline survey of the impacted area is conducted to find the source of the pathogens and to take appropriate steps (such as to find and disconnect illegal sanitary connections to storm sewers). • as a non-federal sponsor of the USACE Bronx River Ecosystem Restoration project, providing water quality data, modeling analyses and the development of the Bronx River Watershed Management Plan to the US Army Corps of Engineers (USACE). 	<p>Continue USA evaluations on the upper East River and its tributaries. Continue review of recreational use attainability and finalize the Bronx River Waterbody/Watershed Plan under the USA Project.</p> <p>Continue headworks upgrades at the Bowery Bay, Newtown Creek, Wards Island, Tallman Island, and Hunts Point treatment plants.</p> <p>Respond to NYSDEC comments on the updated Floatables Plan and continue floatables control planning in individual waterbodies/watersheds as determined through LTCP development.</p> <p>Continue the Sentinel Monitoring Program as necessary.</p> <p>Continue to participate in the USACE Ecosystem Restoration project as necessary.</p>
2.	The Connecticut State Bond Commission awarded \$6.9M toward CSO projects statewide in 2004.	Connecticut anticipates spending \$800 million over the next 20 years to eliminate combined sewer overflows.
3.	The City of New Haven is continuing to implement its approved (2002) Long Term Control Plan (LTCP) for the containment of a 2-year storm and elimination of the City's 22 CSOs by separating the City's storm water and sanitary sewer systems.	The City proposes to eliminate remaining CSOs over the next 14 years at a cost of \$180 million. Construction of a 5.5 million gallon CSO storage tank will be completed by spring. The City will also spend \$8 million on more sewer separation projects.
4.	The City of Bridgeport, Connecticut LTCP is under review by CTDEP in 2004. The project is divided into several geographical areas. In 2004 construction for area G-1 began. Contract G-2 is currently under CTDEP review. The relining contract to eliminate infiltration and inflow on the sewer that runs under Bunnells Pond was completed in 2004.	CTDEP expects to act on the LTCP in 2005. Construction for area "G" is expected to continue in 2005. A Clean Water Fund grant application for \$3.9M is awaiting Bond Commission approval. All work in the G area is now expected to be complete by 2008.
5.	The Town of Norwich, Connecticut began work on its LTCP in 2004.	The LTCP is expected to be acted upon by DEP in 2008.

P-2. CONTROLLING PATHOGEN CONTAMINATION FROM NONPOINT SOURCES (CCMP TABLE 32, P. 84R)

Key Elements: Nonpoint source runoff, including urban stormwater runoff, is one of the most significant sources of pathogen contamination in Long Island Sound. Pathogens in urban stormwater runoff can originate from many sources, presenting a management challenge. Methods of controlling pathogens from nonpoint sources include best management practices; permitting activities; changes in building codes; consent agreements; and technical assistance and education.

	2004 Description	2005 Planned Action
1.	In November 2003 CTDEP issued a public notice of intent to modify the construction storm water permit. The final permit was issued on April 8, 2004. The most significant change was the lowering of the threshold for coverage under the permit from 5 acres to 1 acre.	CTDEP will continue to administer this permit including review, inspections and enforcement as it has since 1992.
2.	In January 2004 CTDEP approved and implemented its new Phase II MS4 storm water permit program. The registration for this permit is in two parts. The deadline for submission of Part A was April 9, 2004. The Part B registration was due July 9. There are 113 towns covered by this permit. As of the end of the year, 112 have submitted their Part A registration. Approximately 80 have submitted the Part B registration. All towns are developing their Storm Water Management Plans. Workshops and training were conducted during the year.	The first Annual Reports are due January 1, 2005. We will be conducting ongoing workshops and training to assist the towns in preparing and implementing their Storm water Management Plans. Many towns will also be receiving software training to manage their programs.
3.	TMDLs for indicator bacteria were developed for Sasco Brook, Mill River, and Rooster River. Indicator bacteria can be viewed as a surrogate for storm water pollution, which can carry toxic chemicals to receiving streams (See also Toxic Substances). Implementation of bacteria TMDLs will involve identifying storm water controls that will be targeted at reducing pollution loads to rivers and stream draining to Long Island Sound.	Approval of these TMDLs by EPA is expected in early 2005. After approval, CTDEP will establish and monitor for the TMDLs.
4.	The NYSDEC Phase II storm water implementation plan involves permitting many storm sewer systems that discharge to Long Island Sound. NYSDEC issued the new storm water Phase II general permits in 2003. Regulated storm water dischargers submitted a Notice of Intent by March 10, 2003. Information on the Phase II program in New York is posted on the NYSDEC website: http://www.dec.state.ny.us/website/dow/PhaseII.html	Continued oversight and implementation of the program.
5.	<p>NYSDEC issued the following Environmental Protection Fund grants in 2004:</p> <ul style="list-style-type: none"> • \$65,000, Hempstead Harbor Protection Committee, to implement strategies identified in the Hempstead Harbor Water Quality Improvement Plan, including a storm water pollution abatement plan for Glenwood Road/Powerhouse Drain and coordination of local ordinances and enforcement for Hempstead Harbor water uses. • \$285,000, Town of North Hempstead, for two projects to implement sediment control options, including the installation of sediment collection units and spillway modifications, to decrease non point source pollution in Roslyn Pond in the Village of Roslyn (\$150,000); and to implement nonpoint source controls for the six acre, tidally influenced Mill Pond in the Village of Port Washington. The project will include storm water collection units, sediment retention and spillway modifications (\$135,000). • \$75,000, Glen Cove to develop a water quality improvement plan for the 213 acres surrounding Glen Cove Creek, as a supplement to the Glen Cove Waterfront Revitalization Plan. The project is intended to improve surface water quality and flushing in the creek and restore wetlands. Revitalization of the site will increase recreational boating, water-dependent and water- enhanced activities, and passenger ferry operations. • \$50,000, Village of Mamaroneck, to update its 1984 Local Waterfront Revitalization Program (LWRP) to reflect recently identified nonpoint source pollution challenges. The project will conduct planning and construction activities to manage flooding, erosion sedimentation and storm water pollution. The Department of State's Division of Coastal Resources administers EPF 	

2004 Description		2005 Planned Action
	matching grants to local governments for the preparation and implementation of LWRPs and intermunicipal water body management plans, development of coastal education programs, creation of blueway trails and urban waterfront redevelopment.	
	<ul style="list-style-type: none"> \$228,000, Long Island Sound Watershed Intermunicipal Council, for the creation of a new storm water district aimed at improving water quality in Long Island Sound. The storm water district covers 12 Westchester County municipalities that will develop a maintenance program to reduce pollution and improve water quality in the Sound. The district will also sponsor educational activities and efforts to preserve open space. 	
6.	<p>On July 15, 2003 CTDEP issued modifications to its industrial permit and CT is the only state in the nation with a Stormwater Permit for Commercial sites with more than 5 acres of impervious surface, such as shopping malls. On November 1, 2003 CTDEP issued a public notice of intent to modify the construction permit.</p> <p>On January 9, 2004 CTDEP approved and implemented its new Phase II MS4 storm water permit program.</p>	The MS4 Permit will be issued in 2004. Once the MS4 permit is issued, CTDEP will hold workshops to train municipal officials in the requirements of the permit.
7.	The LISS Small Grants program funded a grant to Harbor Watch/River Watch at Earthplace in Westport, Connecticut to continue an on-going water quality monitoring study on the Aspetuck River. The focus of the study is investigating point and nonpoint sources of <i>E. coli</i> bacteria. The volunteers will be from two local high schools.	The information collected will be shared with CTDEP and the Westport and Easton health and environmental departments.

P-3. CONTROLLING PATHOGEN CONTAMINATION FROM SEWAGE TREATMENT PLANTS (CCMP TABLE 33, P. 85)

Key Elements: If operating properly, sewage treatment plants contribute a relatively small percentage of pathogens to the Sound. However, malfunctions, illegal sewer hookups, and wet weather overflows can cause problems at STPs.

2004 Description		2005 Planned Action
1.	Stamford, CT's STP is operating under a State Consent Order to upgrade, expand and implement nitrogen removal capabilities, to be substantially complete by 2005. By an additional Consent Order, the plant converted from chlorine disinfection to UV disinfection in May 2003.	As of November 2004, the plant Upgrade is 60% complete; different process units will be on line during the next 16 months.
2.	The Jewettt City, CT STP installed ultraviolet (UV) disinfection during 2004.	For 2005 Manchester will be completing a UV conversion project.
3.	<p>In 2004, IEC:</p> <ul style="list-style-type: none"> conducted 27 unannounced effluent surveys at CT and NYS WPCPs that discharge into the LIS portion of the Interstate Environmental District. These surveys are conducted to check compliance with SPDES permits and IEC Water Quality Regulations. Pathogens monitored include fecal and total coliforms. IEC found nearly 100 percent compliance with the existing discharge permits. Additional samples were analyzed for fecal streptococcus and enterococcus in support of TMDL development. chaired the Regional Bypass Work Group (RBWG) to address unplanned bypasses of raw and partially treated sewage, i.e., treatment plant upsets, broken pipes due to age, or construction mishaps. The RBWG developed a model to predict which areas may be affected by a particular bypass. From 1998-2003, the number of events has been consistent, ranging from 94 in 1998 to a peak of 115 in 2001 and 101 in 2003. During 2004, 210 bypass events were reported to the Commission; 3 percent of the events occurred in Long Island Sound and its embayments; 64 percent occurred in the East River. 	<p>Continue to conduct effluent surveys at CT and NY WPCPs.</p> <p>Continue to chair the RBWG.</p>
4.	The Village of Mamaroneck sought bids for two major projects valued between \$500,000 and \$750,000 to fix leaking sewer lines that have caused widespread water	It is anticipated that the project will be completed during 2004.

	2004 Description	2005 Planned Action
	contamination. The first project will replace several hundred feet of sewer pipes on local streets, and the second project will repair 132 sites of sewer inflow and infiltration that were identified in a Westchester County report seven years earlier. Mamaroneck's underground sewer system connects sewage pipes to the county sewage treatment plant.	
5.	The City of Glen Cove, New York has begun construction of an ultraviolet treatment system for its STP under a 2003 Clean Air/Clean Water Bond Act award of \$1.02 M. On October 21, 2003 the BNR portion of the project came on-line. The Act also provided \$100,000 for creation of retention basins and plantings to reduce stormwater runoff effects to Cedar Swamp Creek, which drains to Hempstead Harbor and to LIS.	
6.	<p>In December 2002 New York announced \$4.4M in state funding for four wastewater treatment projects to assist the Town of Huntington, the Village of Northport, the City of Glen Cove and the Belgrave Water Pollution Control District in protecting and improving water quality in Long Island Sound through construction of ultraviolet disinfection systems at the first three facilities:</p> <ul style="list-style-type: none"> ▪ The UV system for the Town of Huntington was scheduled for construction during 2004. The Town completed the design of the UV disinfection system and construction is now scheduled to begin in early 2006. ▪ The Belgrave UV system was under design in 2003, which was completed in 2004. 	<p>Construction for the Belgrave UV system is scheduled to begin in early 2005.</p> <p>Construction of the UV system for the City of Glen Cove is now scheduled to begin in early to mid-2006.</p> <p>The UV system for the Village of Northport was completed in early 2005 and has since been on line.</p>

P-4. CONTROLLING PATHOGEN CONTAMINATION FROM VESSEL DISCHARGES (CCMP TABLE 34, P. 86)

Key Elements: Although not a primary source of pathogens in the Sound, vessel discharges can be a cause of local water quality problems in poorly-flushed embayments. Creation of vessel No-Discharge Zones, use of best management practices, and increasing the number of vessel pumpout stations are major actions to manage pathogen contamination from vessel discharges.

	2004 Description	2005 Planned Action
1.	<p>CTDEP received \$764,652 from the USFWS Clean Vessel Act (CVA) Pumpout grants program in 2004 for coastal projects. By the end of the 2004 boating season there were 88 total pumpout stations (including thirteen boats) and 22 dump stations, (including one floating rest room) at 89 boating facilities. A directory of pumpout stations and boats can be found on the CTDEP website at: www.dep.state.ct.us/olisp/cva/cva.html, along with a variety of information about Connecticut's Clean Vessel Act program.</p>	<p>A decision on Federal FY 2005 funding for CT is anticipated in April 2005. CT proposes to construct one stationary pumpout and provide further O&M funding.</p>
2.	<p>A goal of the Long Island Sound 2003 Agreement was: <i>By 2003, nominate vessel no-discharge areas for the Pawcatuck and Mystic Rivers in Connecticut and for all the Long Island Sound embayments in New York.</i></p> <p>EPA approved CTDEP's designation of portions of Fishers Island Sound and harbors including the Mystic River as a No Discharge Area (NDA) in 2004. An application requesting EPA approval of the designation of portions of Long Island Sound and its navigable tributaries from Guilford east to Eastern Point Groton as a NDA was submitted for EPA approval in 2005.</p> <p>A survey of vessel pump-out stations in harbors in the NYS portion of Long Island Sound was initiated in 2003, and is almost completed. The pump-out station survey is a prerequisite to nominating an area as a No-Discharge Zone. When/if it is determined that an adequate number of pump-out stations are present to handle boat traffic in an embayment, then it may be nominated. NEEDS UPDATING, AND STATUS OF NDZs IN NY.</p>	<p>Work continues on development of applications for federal approval of the designation of the remaining coastal waters of Connecticut as a No Discharge Area.</p>
3.	<p>New York State has received a \$450,900 grant from the U.S. FWS's CVA Pumpout Program to support programs that construct, renovate and maintain</p>	<p>Implementation of the grant</p>

2004 Description	2005 Planned Action
<p>marine pumpout facilities for recreational boaters. Pumpout station locations are posted on the NY Sea Grant website at: http://www.cce.cornell.edu/seagrant/pumpouts/lipumpouts.html. UPDATE?</p>	<p>program in 2004.</p>
<p>4. <i>EarthPlace</i> in Westport, Connecticut received continued LISS Small Grant funding in 2004 to study indicator bacteria in the Silvermine River. <i>EarthPlace</i> established eight monitoring sites and determined that a small tributary is responsible for the elevated inputs of bacteria.</p>	

P-5. CONTROLLING PATHOGEN CONTAMINATION FROM INDIVIDUAL ON-SITE SYSTEMS/DISCHARGES (CCMP TABLE 35, P. 87)

Key Elements: When appropriately sited, functioning properly, and well-maintained, septic systems should not be a source of pathogens to the Sound. When not properly sited or maintained, they may fail and become a source of pathogens. Both state and local governments must play a role in managing pathogen contamination from individual on-site systems.

2004 Description	2005 Planned Action
<p>No activity reported.</p>	

P-6. CONTROLLING PATHOGEN CONTAMINATION THROUGH PUBLIC EDUCATION (CCMP TABLE 36, P. 88)

Key Elements: In many cases, simple lifestyle changes can reduce or eliminate a source of pathogen contamination in the Sound. Upon available funding, the CCMP called for development and implementation of a public education plan, targeting specific audiences, in cooperation with federal, state and local public outreach experts and environmental educators.

2004 Description	2005 Planned Action
<p>1. Boater education continued to be a focus of the CTDEP CVA program. CTDEP staff attended boat shows with displays and contacted individual boaters. CTDEP staff displayed outreach materials at the annual meeting of the Connecticut Harbor Management Association and the annual Connecticut Marine Trade Association Environmental Workshop.</p>	<p>Implement base work plan in 2005. In addition an interactive computer/video kiosk is under development.</p>
<p>2. In 2004 the LISS continued to distribute its four-part poster series highlighting nonpoint source pollution problems. The posters humorously illustrate four common nonpoint pollution problems, including runoff from car washing, lawn fertilization, leaking automotive oil, and pet waste. The posters may be seen at: http://longislandsoundstudy.net/publications.htm#posters</p>	<p>Continue to reprint and distribute materials as appropriate.</p>
<p>3. In 2004 the New York Sea Grant Nonpoint Education for Municipal Officials (NEMO) Program continued to advance Long Island local governments' implementation of effective PH II storm water management programs. NYSG NEMO conducted workshops and provided, materials, consultation and technical support with regard to selecting best management practices, revising local laws, improving municipal facilities' pollution prevention techniques and mitigating the impacts associated with construction activity and land development. Additionally, NYSG NEMO facilitated efforts to strengthen or initiate intermunicipal efforts to protect and restore the LIS.</p>	<p>Expand delivery of the NYSG NEMO Program throughout L.I.. Hire two additional Water Quality Educators. Conduct workshops, scoping sessions and consultations concerning such topics as septic system management and animal waste control.</p>

P-7. MONITORING AND ASSESSMENT OF PATHOGENS (CCMP TABLE 37, P. 89)

Key Elements: Monitoring of indicator bacteria helps assess the success of the pathogen reduction activities called for in the CCMP. Monitoring and assessment are essential to improved understanding of pathogen contamination in the Sound.

	2004 Description	2005 Planned Action
1.	<p>During 2004 there were 597 beach day closures out of a total of 25,440 beach days at the 240 monitored beaches on Long Island Sound from Memorial Day to Labor Day.</p> <p>Connecticut: 183 beach-day closures at private and municipal beaches; for a total of 183 lost beach days in Connecticut.</p> <p>New York: 415 beach-closure days in the New York portion of Long Island Sound. All of the closures occurred in Westchester, Nassau and Suffolk Counties, which lost, respectively, 137, 233, and 45 beach days. A number of the Suffolk closures can be attributed to the Suffolk County Health Department's adoption of the new EPA <i>enterococcus</i> testing standards.</p>	<p>CT municipalities, regional health districts, CTDOHS and CTDEP will continue to monitor for bacteria. NY state, city, town and county monitoring for pathogens will continue in 2005.</p>
2.	<p>Connecticut's Department of Public Health received \$224,560 in EPA FY2004 Beach Act funding for implementing elements of the program in Connecticut. The CT DEP, in partnership with the CT DPH, samples state beaches and CT DPH analyzes the samples.</p> <p>New York's Department of Health received \$359,215 in EPA FY2003 Beach Act funding to support program implementation state-wide; a portion of these funds will benefit LIS beaches. NEEDS UPDATING</p>	<p>Expect continued EPA funding for Beach Act monitoring in 2005. Beach Act funding for NY is projected at \$354,580; for CT \$224,290.</p>
3.	<p>The Connecticut Department of Agriculture, Division of Aquaculture (CTDOA/DA) continued its annual monitoring of shellfish beds for pathogens, providing invaluable information to the shellfish industry and the public on the classification and condition of shellfish beds.</p>	<p>Continue to monitor shellfish beds for health and viability.</p>
4.	<p>IEC:</p> <ul style="list-style-type: none"> • continued to conduct its tri-state water quality monitoring program and summarized its results in its 2004 Annual Report. The Report, Tri-state Environmental District, describes the status of plant upgrades and construction in the tri-state environmental district. IEC conducted its annual boat inspection trip in a portion of the Interstate Environmental District in August 2004. Attendees representing all levels of government and citizen groups viewed the upper East River and western Long Island Sound during a 6-hour tour. IEC continued to improve its website at www.iec-nynjct.org. • conducted dry weather inspections of MS4s. For the period January 1 through December 31, 2004, 14 inspections were completed on the north shore of Nassau County, NY, and 14 flowing MS4s under dry weather conditions were reported to NYS DEC, Region 1 for remediation. • continued pathogen monitoring in the NY-NJ Harbor Complex. Influent and effluent monitoring at WPCPs was conducted for <i>fecal</i> and <i>total coliforms</i>, <i>fecal streptococcus</i>, and <i>enterococcus</i>. Stormwater monitoring was conducted to characterize New Jersey loads to the NY-NJ Harbor Complex. • coordinated development of a monitoring plan for pathogen track down in the Byram River. The QA/QC monitoring plan was approved by EPA, Region 1. Monthly ambient water quality monitoring began in May 2003; dry weather discharges were discovered on both the New York and Connecticut sides of the river. Upstream and inland track down for dry weather flow and illegal hook-ups was conducted during 2004. Remediation is under way. 	<p>Continue preparation of the annual report, which is a statutory requirement due annually on January 24; continue the municipal WPCP monitoring; conduct the annual boat inspection trip in August 2005.</p> <p>IEC will continue dry weather MS4 inspections in 2005.</p> <p>IEC will continue pathogen monitoring in support of TMDL development.</p> <p>IEC will continue pathogen monitoring, laboratory analysis and data sharing during 2005 under dry weather conditions only in the Byram River.</p>

2004 Description	2005 Planned Action
<p>5. The Village of Mamaroneck, NY, is updating its 1984 Local Waterfront Revitalization Program to reflect recently identified nonpoint source pollution challenges. The project will conduct planning and construction activities to manage flooding, erosion sedimentation, and storm water pollution. Funding for this project is from a \$50,000 Environmental Protection Fund grant.</p>	
<p>6. With assistance from Cornell Cooperative Extension, and a \$50,000 Environmental Protection Fund grant, the Town of Southold, NY, is developing a water body management plan for creeks connecting to LIS and the Peconic Estuary. The project includes inventory and assessment of all town storm water infrastructure.</p>	
<p>7. Suffolk County, NY, has begun using <i>enterococcus</i> testing to determine if beaches are safe for swimming. The standard for <i>enterococcus</i> is generally more restrictive than the standard for <i>coliform</i> bacteria, which had been in use in New York State for over 40 years.</p>	
<p>8. Shellfish bed openings/closures in NY are still based on <i>fecal coliform</i> tests. NY shellfish bed acreage changes for 2004 are as follows:</p> <ul style="list-style-type: none"> • Conscience Bay, 171 acres downgraded to uncertified from certified; • Mt. Sinai Harbor, 82 acres downgraded to seasonally certified from certified; • Flax Pond, 8 acres downgraded to uncertified from certified. 	<p>NYSDEC will continue to monitor shellfish beds during 2005.</p>

PROTECTING THE SOUND FROM THE ADVERSE EFFECTS OF TOXIC SUBSTANCES

Toxic substances can cause adverse human and ecosystem health effects, and can result in significant negative economic impacts on the value of the natural resources of the Sound.

CCMP Strategy: The CCMP strategy to address toxic contamination in LIS has five principal elements: 1) controlling and preventing toxic contamination from all sources; 2) addressing sediment contamination; 3) improving human health risk management; 4) monitoring and assessing toxic contaminants; and 5) conducting research to investigate toxic contamination.

LIS 2003 Agreement Goal: *Eliminate toxicity or bioaccumulation impacts on living resources by reducing contaminant inputs and cleaning up contaminated sites, and manage risk to humans from seafood consumption.* There is one action item with a 2004 target date in this section of the Agreement: *By 2004, EPA, in conjunction with the Army Corps of Engineers, will complete the Environmental Impact Statement (EIS) for the designation of dredged material disposal sites in Central and Western Long Island Sound.* EPA published the final EIS in April 2004, extending the public comment periods through November 2004. The final EIS was published in the Federal Register in May 2005.

Environmental Indicators/Results/Trends: The Long Island Sound Study report, *SoundHealth 2003* reported that toxic emissions in the region and to the Sound have been declining over the last 25 years due to increasingly stringent environmental regulation. Historical contaminant levels as measured in sediments and in living marine resources show a downward trend, which is particularly evident for banned or controlled chemicals such as DDT and chlordane. Today, the remaining sources of toxic chemicals to the Sound come from sewage treatment plants and industrial discharges, which are regulated; and from urban stormwater and atmospheric deposition, which are more difficult to control. Regulatory programs strive to reduce chemical discharges and minimize toxicity of effluents. However, the contaminants released in the past remain in the sediments of Long Island Sound long after the discharges cease.

2004 Highlights:

- EPA issued the final Environmental Impact Statement (EIS) for the designation of open water dredged material disposal sites in Western and Central Long Island Sound.
- CTDEP announced that the sale of new mercury thermostats is banned in Connecticut, effective July 1, 2004. As part of the Mercury Education and Reduction Act, mercury thermostats and other products containing mercury, may no longer be sold or distributed in Connecticut.
- As of May 2004, sale of lead sinkers of ½ ounce or less is prohibited in New York State. The ban includes all sales, including catalog and internet orders between out-of-state fishing tackle companies and consumers in New York State. Preventing the sale of small lead sinkers will protect waterfowl from harmful lead contamination that occurs if the sinkers are ingested.
- Eight northeast states signed a resolution calling for regional action to reduce air pollution from open, uncontrolled burning of household trash. Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, Rhode Island, Vermont and New York supported this measure, which also was signed by EPA's New York and Boston office Regional Administrators.

SUMMARY OF CCMP MANAGEMENT ACTIONS: TOXIC SUBSTANCES

T-1. TOXIC CONTAMINANT SOURCE CONTROLS AND POLLUTION PREVENTION (CCMP TABLE 21, P. 65)

Key Elements: Permit programs and enforcement activity for both direct and indirect discharges, including toxicity testing of those discharges, are responsible for greatly reducing toxic substance loads over the past 25 years. The LISS's priority management recommendation for toxic substances is to continue these successful activities, all of which are funded under current programs. Other programs that are designed to prevent pollution and reduce pollutant loads must also be supported as part of a comprehensive program to manage toxic contamination in the Sound.

	2004 Description	2005 Planned Action
1.	<p>The Willimantic River was removed from the 2004 List of Water bodies Not Meeting Water Quality Standards because monitoring data showed that aquatic life use support goals are being achieved. Draft TMDLs were developed for sodium and turbidity in Burrs Brook and whole effluent toxicity in the Upper Naugatuck River. Adoption is expected in early 2005 for both of these TMDLs. In 2004, work has continued to determine the sources of aquatic life impairments in the Hockanum River.</p> <p>TMDLs for indicator bacteria were developed for Sasco Brook, Mill River, and Rooster River. Indicator bacteria can be viewed as a surrogate for storm water pollution, which can carry toxic chemicals to receiving streams. Implementation of bacteria TMDLs will involve identifying storm water controls that will be targeted at reducing pollution loads to rivers and stream draining to Long Island Sound.</p>	<p>Follow-up monitoring will be conducted to measure progress of TMDL implementation.</p> <p>TMDL adoption is expected in early 2005</p>
2.	<p>CTDEP developed a plan to continue water quality improvements in a five-mile stretch of the Naugatuck River near Thomaston. The proposed plan, which is part of a larger strategy to improve the overall health of the Naugatuck River and Long Island Sound, has been designed to address a number of factors impacting water quality in the river, focusing on the health of biological communities and the measures being taken to restore those communities. In this stretch of the Naugatuck, more sensitive aquatic species have been replaced by more pollution tolerant species, indicative of a water quality problem. CTDEP has developed a management plan, or Total Maximum Daily Load analysis (TMDL) designed to restore impaired waters by focusing on reducing loads of known pollutants. The purpose of the TMDL is to quantify the maximum amount of a pollutant a water body can absorb without the pollutant adversely impacting that water body. The plan will be used as a basis for allocating the discharge of pollutants to the river among all the sources within the five-mile stretch. The primary issue facing the recovery of the Upper Naugatuck is the health of aquatic communities along that stretch of the river and the impact toxics discharged to the river are having on those communities. Over the last decade, CTDEP has been engaged in a major effort to restore the Naugatuck River. As the result of multi-million dollar sewage treatment plant upgrades, dam removals, the installation of fish passageways and ladders, and habitat improvement projects, the Naugatuck now supports a wide variety of recreational opportunities.</p>	
3.	<p>In 2004, 78 of 84 Connecticut STPs passed toxicity testing, two less than as last year but different plants. Facilities are reported as not passing toxicity test when there are two consecutive failures or three failures during a one-year period for the past year.</p> <p>Glastonbury WPCF Jewett City WPCF Windsor Poquonock WPCF South Windsor WPCF Stonington Mystic WPCF</p> <p>Stonington Pawcatuck WPCF had non-passing tests in 2004. The two Stonington facilities are near the LIS coast.</p>	<p>As more STPs upgrade their facilities, the expected goal of 100% discharge passing the toxicity test will be achieved.</p>
4.	<p>Connecticut's efforts to reduce the introduction of hazardous substances into the environment from non-point sources are seen in its state-wide household hazardous waste collection program. In 2003 30,460 residents took part in household hazardous</p>	<p>CTDEP will continue working to reduce the amount of toxic substances released to the</p>

2004 Description	2005 Planned Action
<p>waste collections in Connecticut. This represents ~3.4 percent of households in Connecticut. While this participation rate is slightly down from the past two years, it is still indicative of a strong commitment from Connecticut residents to properly dispose of their hazardous waste. This commitment extends to Connecticut's municipalities. Of the 169 municipalities, 150 had access to at least one household hazardous waste collection.</p> <p>CTDEP announced that the sale of new mercury thermostats is banned in Connecticut, effective July 1, 2004. As part of the Mercury Education and Reduction Act, mercury thermostats and other products containing mercury, may no longer be sold or distributed in Connecticut.</p>	<p>environment. CTDEP will continue to work with regional and national associations to reduce waste toxicity, including efforts to implement the New England Governors/Eastern Canadian Premiers <i>Mercury Action Plan</i>. CTDEP will develop programs for the separation and recycling or proper disposal of wastes that contribute to toxicity, such as consumer electronics and appliances, household batteries, mercury-containing lamps (including fluorescent light bulbs), and thermostats.</p>
<p>5. CTDEP kicked off Connecticut's largest urban school bus retrofit project in the City of New Haven. The Clean School Bus Program is an important part of CTDEP's overall efforts to address diesel emissions from school buses. This initiative includes the use of cleaner fuels and innovative technology to reduce harmful emissions from school buses in New Haven.</p> <p>The New Haven Clean School Bus pilot program will combine a multi-faceted approach, including low emission fuels and state-of-the-art pollution control features. To educate students about air pollution and diesel reduction efforts, an air quality curriculum will be implemented in middle school science classes throughout the City of New Haven. With a grant of \$99,000 from EPA DEP will work with science teachers in New Haven to implement an air quality curriculum to complement the school bus retrofit project.</p> <p>The New Haven Clean School Bus Program will require multiple partners including: the New Haven Public Schools, the Mayor's office, DEP, First Student, the Northeast States for Coordinated Air Use Management (NESCAUM), and Department of Motor Vehicles (DMV) in seeking to reduce particulate emissions from the diesel fuels used by school buses.</p> <p>To further advance emission reductions, a clean fuel additive produced by Clean Diesel Technology known as a Fuel Borne Catalyst (FBC) will be added to the already in place Ultra Low Sulfur Diesel (ULSD). At a minimum, fine particulates and carbon monoxide are expected to be reduced by approximately 40 percent, and hydrocarbons by 45 percent. In addition, a small reduction in nitrogen oxides is expected.</p>	<p>The Clean School Bus Program will be implemented throughout the New Haven school system and will include improvements to all 182 of the school buses in the First Student Inc. fleet used by elementary, middle and parochial schools in the city. Implementation of the program is targeted for the 2004/05 academic year. The school buses will be adapted over the upcoming months to use a cleaner fuel additive in conjunction with the ultra-low sulfur diesel fuel. Additional pollution control technology will be installed on each school bus to reduce emissions from the diesel engine. Results of this project will be used to promote the DEP's Clean School Bus initiative into other urban school districts such as Bridgeport and Hartford.</p>
<p>6. As part of a \$9.7 million statewide grant funding program to assist communities with the cost of closing inactive municipal landfills, the Town of Smithtown, NY, has received a grant of \$2.0 M to construct gas venting and collection systems, construct barrier protection and topsoil layers, and install gas and storm water management and leachate collection systems. The Town of Smithtown Landfill is a 23.5-acre site located in Kings Park, NY.</p>	
<p>7. The Milton Point Firehouse, in Rye, NY, has installed a water/oil separator to control contaminants from runoff from equipment washing operations from reaching Blind Brook and Milton Harbor.</p>	
<p>8. The Town of North Hempstead, NY, received a \$6,861,511 rollover of a previous Clean Water State Revolving Fund (SRF) short-term, interest-free loan of \$6,863,756. The loan will finance a landfill capping system for the Port Washington L-5 landfill to protect groundwater quality by reducing the volume of leachate generated. The Clean Water SRF, administered by the New York State Environmental Facilities Corporation and the State Department of Environmental Conservation, offers short-term interest-free loans and long-term reduced interest rate financing for eligible water pollution prevention projects. The Clean Water SRF, administered by EFC and the State Department of Environmental Conservation (DEC), offers short-term interest-free loans and long-term</p>	<p>The capping is complete with the exception of some punch list work and additional methane collection work that is needed.</p>

2004 Description		2005 Planned Action
	reduced interest rate financing for eligible water pollution prevention projects.	
9.	As of May 2004, sale of lead sinkers of ½ ounce or less is prohibited in New York State. The ban includes all sales, including catalog and internet orders between out-of-state fishing tackle companies and consumers in New York State. Preventing the sale of small lead sinkers will protect waterfowl from harmful lead contamination that occurs if the sinkers are ingested.	
10.	In New York State, legislation was enacted to ensure the proper management of waste tires throughout the state. It requires NYSDEC to prepare and implement a comprehensive plan designed to abate all noncompliant waste tire stockpiles in the state. One of the five largest noncompliant waste tire stockpiles is located in Smithtown, in Suffolk County. Funding for this program is provided through a \$2.50 fee added to each new tire purchased. Fees are deposited into a Waste Tire Management and Recycling Fund to be used for the cleanup of waste tire stockpiles and to develop markets for newly generated waste tires. To prevent the creation of new waste tire stockpiles in the state, Empire State Development is engaged in developing sustainable markets for tires that have reached the end of their useful life. Already firms have begun developing facilities in New York that will handle hundreds of thousands of discarded tires every year.	NYSDEC expects proposals to handle the discarded waste tires at the facilities named. The discarded tires must be used in a beneficial manner to the greatest extent possible as required by the Management and Recycling Act.
11.	New York City, through the Department of Environmental Protection (NYCDEP), continued its Industrial Pretreatment Program (IPP). Under this program, metals discharges Citywide have fallen by about 70 percent over the last 14 years.	Continue the IPP.
12.	New York City, through the Department of Sanitation (DSNY), publishes guidelines describing what may be discarded in regular garbage and how to dispose of items containing hazardous household wastes. In addition, in 2004 DSNY began a study to characterize collected refuse, in part to determine what types of hazardous substances are being collected with acceptable refuse.	Continue public education and outreach to promote the proper handling of hazardous household wastes.
13.	New York State has joined seven other northeast states in signing a resolution calling for regional action to reduce air pollution from open, uncontrolled burning of household trash. Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, Rhode Island and Vermont joined New York in supporting this measure, which also was signed by New England's regional administrator for the U.S. Environmental Protection Agency (EPA) and the EPA's regional administrator for New York and New Jersey.	

T-2. ADDRESSING SEDIMENT CONTAMINATION (CCMP TABLE 22, P. 67)

Key Elements: To begin the process of remediating sediments, LISS will conduct further assessments of toxic contaminant distribution in sediments of western Long Island Sound and embayments identified as having elevated toxic contaminant burdens. Based on these assessments, it will be possible to determine the feasibility, value, and cost of remediating contaminated sediments, where remediation may be necessary.

2004 Description		2005 Planned Action
1.	The Long Island Sound 2003 Agreement action item for this area is: <i>By 2004, EPA, in conjunction with the Army Corps of Engineers, will complete the Environmental Impact Statement for the designation of dredged material disposal sites in central and western Long Island Sound and, by 2008, will complete the EIS for designation of dredged material disposal sites in eastern Long Island Sound.</i> Under the EIS process for designation of dredged material disposal sites in LIS under MPRSA, in 2004 EPA issued the final draft EIS for Central and Western LIS. The EIS and other reports are available on the EPA New England Region website: http://www.epa.gov/region01/eco/lisreg/rpfs.html .	EPA and ACOE will proceed with additional work pending the availability of funding.
2.	The Town and Village of Harrison, NY, received a \$4,554,000 Superfund Brownfields grant to clean up contamination at the Beaver Swamp Brook site, which they plan to transform	

	2004 Description	2005 Planned Action
	into a public park. The site consists of wetland and upland areas next to Beaver Swamp Brook. Cleanup includes excavation of about 9,900 cubic yards of contaminated soil and sediment. In parts of the wetland, one foot of sediment will be removed and replaced with clean soil. In the upland part of the site, two feet of contaminated soil and waste will be removed, a liner will be installed and the area will be backfilled with clean soil.	
3.	In the City of Glen Cove, NY, contaminated soil from the Li Tungsten site has been removed and the city is close to settlement with the EPA on the removal of the soil from the Captain's Cove site. Both sites are located adjacent to Glen Cove Creek.	
4.	The Long Island Power Authority and Connecticut Light & Power have agreed to rebuild a group of seven power cables, collectively known as the 1385 Cable, which runs from southwestern Connecticut to Northport, NY. The 1385 Cable, which currently has oil-based cooling fluid, has been damaged by boat anchors. The new cable will be of solid construction, obviating potential spills.	The cable is expected to be completed by the Summer of 2007.

T-3. IMPROVING HUMAN HEALTH RISK MANAGEMENT (CCMP TABLE 23, P. 68)

Key Elements: The objective of human health risk management is to determine the likelihood that exposure to a toxic substance will have adverse impacts on human health and to estimate the degree of the effects. In the case of Long Island Sound, the states of Connecticut and New York have issued advisories on consumption of selected seafood taken from the Sound. By improving communication of consumer advisories, it is anticipated that public health risk will be improved.

	2004 Description	2005 Planned Action
1.	<p>The Long Island Sound 2003 Agreement action item for this area is: <i>By 2003, New York and Connecticut will meet to jointly review their approaches for Long Island Sound fish consumption advisories and to discuss a process to achieve the goal of consistent fish consumption advisories for Long Island Sound.</i></p> <p>Connecticut's current LIS fish consumption advisory is for PCBs in striped bass, bluefish, and lobster hepatopancreas; the CT fish advisory is posted on the CTDOH website: http://www.dph.state.ct.us/Publications/BCH/EEOH/fishweb02.pdf.</p> <p>New York's current LIS fish consumption advisory is for PCBs in bluefish and American eels from LIS, for PCBs in striped bass from LIS west of the Wading River; and for PCBs, cadmium, and dioxin in crab and lobster hepatopancreas. The New York fish consumption advisory is posted on the NYSDOH website: http://www.health.state.ny.us/nysdoh/environ/02fish.pdf.</p> <p>The New York State Department of Health (DOH) issues advisories on eating sport fish and game because some of these foods contain chemicals at levels that may be harmful to health. These advisories are for sport fish and game that people take and are not for fish and game sold in markets. The health advisories are: (1) general advice on sport fish taken from waters in New York State; (2) advice on sport fish from specific water bodies; and (3) advice on eating game. The advisory tells how to minimize exposure to contaminants in sport fish and game and reduce associated health risks.</p>	<p>Project will continue in 2005.</p> <p>The advisories are updated yearly.</p>
2.	As of January 2004 commercial pesticide applicators are required to use consistent contract features when entering into a lawn care contract, and provide notification language and visuals when treating an area with pesticides. The New York State Environmental Board (a 16-member group of state agency heads and representatives of the environmental community, citizen groups, business and industry) approved this revision to state regulations to help protect public health and the environment by enhancing notification requirements for commercial pesticide lawn applications.	The notification requirements for marker features will take effect on January 1, 2005, to provide certified pesticide applicators with time to change current signage.
3.	New York State joined a growing number of other states in adopting legislation that recognizes the importance of labeling and responsibly managing the waste from mercury-added consumer products. The state's new law stipulates the following:	

2004 Description	2005 Planned Action
<ul style="list-style-type: none"> * Products with mercury content must be labeled. * Waste from products containing mercury must not be incinerated. * Waste from products containing mercury must be managed separately from other solid waste according to regulations developed by NYSDEC. * Sales of mercury thermometers and novelty products containing mercury are restricted. * Purchase and use of elemental mercury by primary and secondary schools is prohibited. * Sales of elemental mercury except for specific research, dental and manufacturing uses are limited. * Recommendations on reducing mercury pollution will be made by an advisory committee. 	

T-4. MONITORING AND ASSESSMENT OF TOXIC CONTAMINANTS (CCMP TABLE 24, P. 71) Key Elements: The LISS toxic contaminant monitoring program will focus on water, sediment and tissue media. The data collected from the monitoring program will be used to answer questions about resource and human health risks and sources of toxic contaminants.	
2004 Description	2005 Planned Action
1. The Long Island Sound 2003 Agreement goal for this area is: <i>By 2003, update the Long Island Sound Contaminants of Concern list after considering National Coastal Assessment monitoring results and other sources of data.</i> A draft of the updated Contaminants of Concern list was prepared by the LIS Fellows in 2004, and is under review by the LISS Science and Technical Advisory Committee (STAC).	One of the new LIS Fellows will finalize the update in 2005 and the LISS STAC will review the revised list.
2. NYSDEC, through the Waste Management and Reduction Institute of Stony Brook University, and CTDEP continued participation in the EPA-sponsored National Coastal Assessment monitoring program in 2004. Elements of the existing NYCDEP harbor water quality survey, the LIS ambient water quality monitoring program, Suffolk County DOHS and the Town of Hempstead water quality monitoring programs have been integrated with the National Coastal Assessment. The program is monitoring and assessing water and sediment quality parameters and biota in LIS.	Continued participation in 2005 is planned in NY waters of LIS by using a combination of LISS and EPA funding.
3. NYCDEP is cooperating with the NYSDEC Containment Assessment and Reduction Project (CARP), a \$30 million effort to quantify the sources and ambient levels of toxic contaminants in New York Harbor's water, sediments, and biota. The goal of the project is to develop a total maximum daily load (TMDL) for these contaminants.	Continue cooperation with CARP.

T-5. RESEARCH TO INVESTIGATE TOXIC CONTAMINATION (CCMP TABLE 25, P. 73)

Key Elements: Toxic contaminants identified in Long Island Sound are numerous; their pathways to the Sound are varied, and their effects on the environment, marine life and human health are not fully understood. These factors must be understood if effective management is to be accomplished. The CCMP identified these needs are identified as recommendations, though continuation of work begun by LISS through the EPA Long Island Sound Office and other parties should recognize these recommendations as priority research topics.

2004 Description		2005 Planned Action
1.	The following LISS research project, selected for funding in 2001, is ongoing: <ul style="list-style-type: none"> <i>New Approaches For Assessing Mutagenic Risk of Contaminants in LIS</i>, Stony Brook University, (Dr. Ann McElroy, PI) [\$99,561] 	The final report is due in March 2005.
2	Through the 2003 Long Island Sound Study Research Grant Program, the following project was selected for funding in 2004 by the EPA-Long Island Sound Study, Connecticut Sea Grant, and New York Sea Grant partnership: <ul style="list-style-type: none"> <i>Temporal And Spatial Changed In Copper Speciation And Toxic Metal Concentrations In Long Island Sound: Effect Of Changes In Water Temperature And Dissolved Oxygen Levels</i>. (Dr. Sergio Sañudo-Wilhelmy, PI, Stony Brook University). 	Continue to fund research on toxic contaminants, as funding allows, in order to accomplish effective management.

REDUCING FLOATABLE DEBRIS IN THE SOUND

Litter, debris, and trash floating in LIS coastal waters and washing up on LIS shorelines is unsightly and can be a nuisance to, or hazard for boaters, beach-goers, bathers, fishermen, and other recreational or commercial LIS users. Floatable debris can harm wildlife and living marine resources.

CCMP Strategy: Floatable debris contributes to unsightly, unsanitary, or unhealthy beach and shoreline conditions, and can adversely affect environmental quality and the health of living marine resources, water-dependent birds, and other aquatic life. This type of pollution can reduce the market value of shoreline property, affecting the regional economy, and can also adversely affect public perception of the health of the Sound. This CCMP priority area identifies two principal management actions: 1) controlling floatable debris from combined sewer overflows (CSOs) and storm sewers; and 2) increasing floatable debris cleanup efforts.

LIS 2003 Agreement Goal: *Assure a viable Long Island Sound watershed that supports vibrant and healthy aquatic life, and minimizes the negative effects of erosion, sedimentation, and flooding on the Sound and its tributaries and embayments.* There is one action item in this section: *Connecticut and New York will identify the amount of impervious surface in their respective portions of the watershed, based on available land use/land cover data. Through watershed planning efforts the states will encourage municipalities to adopt limitations on impervious surfaces, with an overall goal of minimizing increases in impervious cover to a rate consistent with population change.* LISS funding was awarded in 2003 to the University of Connecticut to begin impervious surface mapping. The two-year project is ongoing, and preliminary results are expected to be reported in 2005.

Environmental Indicators/Results/Trends: Programs in place to control sources of debris to the Sound include regional/statewide anti-litter campaigns, beach cleanup and adopt-a-spot programs, municipal Clean Marinas and Clean Vessel Act activities, street sweeping, refuse pick-up and recycling programs, solid waste facility management practices, public awareness campaigns, and enforcement of local ordinances.

2004 Highlights:

- As a result of National Beach Clean Up Day in September 2004, thousands of volunteers from Connecticut and New York removed thousands of pounds of debris from many LIS beaches and recreational sites. In New York, 1,430 volunteers removed 88,267 pounds of debris from 76 miles of beaches. In Connecticut, 411 volunteers collected 2,734 pounds of debris on 16 miles of coast.
 - The amount of litter entering area waters from New York City has continued to decrease from 1995 baseline levels through the City's street sweeping efforts. The percentage of streets rated Acceptably Clean was 86 percent in 2003, compared to 77 percent in 1995. The percentage of streets rated Filthy in 2003 was 1.7 percent, down from a 1995 level of 4.9 percent.
 - CWA 319 grant funds are used to provide Clean Marina Cost-Share Assistance Grants.
- Five projects were completed in 2004 including: dustless vacuum sanders, a high-volume, low-pressure spray gun, used oil furnaces, and a recycling parts washer. CTDEP certified three Clean Marinas marinas and hosted a compliance open house in 2004.
- CTDEP and the Connecticut River Estuary Regional Planning Agency (CRERPA) partnered to reprint 5,000 "boater waste wheels" that were developed with funds from the LISS Small Grants program in 2003. CRERPA is partnering with CTDEP's Clean Boater Program to distribute this outreach material to state boaters.

SUMMARY OF CCMP MANAGEMENT ACTIONS: FLOATABLE DEBRIS

F-1. CONTROLLING FLOATABLE DEBRIS FROM CSOs AND STORMWATER SEWERS (CCMP TABLE 38, P. 96)

Key Elements: Ongoing programs conducted by state and municipal governments to reduce floatable debris; and long-term CSO abatement and NPDES stormwater permitting programs are key to controlling debris.

2004 Description	2005 Planned Action
<p>1. Connecticut's <i>Clean Marina</i> program includes a recreational boater outreach and education component, part of which addresses control of solid waste on boats. Seasonal Boating Education Assistants distributed "Clean Boating Packets" to Connecticut's boaters at marinas and boat launch ramps. Laminated <i>Clean Boating Tips</i> cards detail methods to minimize the environmental impacts of common boating practices are part of the program. DEP certified 3 Clean Marinas in 2004. CTDEP hosted a series of informational meetings and a compliance open house in 2004.</p> <p>CWA 319 grant funds are used to provide Clean Marina Cost-Share Assistance Grants. Five projects were completed in 2004. These projects include: dustless vacuum sanders, a high-volume, low-pressure spray gun, used oil furnaces, and a recycling parts washer.</p>	<p>Marina compliance classes are planned for 2005 in addition to continued implementation of a "Clean Marina Small Grants" program. CTDEP will continue to distribute "Clean Boating Packets".</p> <p>CTDEP will continue to award grants on a first-come, first-served basis until CWA 319 funds are depleted.</p>
<p>2. New York City continues to implement actions for reducing floatables in its harbor waters and neighboring water bodies, including Western Long Island Sound. In 2004 New York City:</p> <ul style="list-style-type: none"> • continued to improve the effectiveness of its catch basins to prevent street litter from entering harbor waters through its ongoing re-inspection and re-hooding program; • continued to increase the number of hooded catch basins through re-construction of un-hoodable basins; • continued with planning, design and construction of CSO retention facilities for the East River and Western Long Island Sound that will include discharge volume reductions and screening to reduce floatables discharges to these waters. NYCDEP's comprehensive floatables planning is also continuing for reducing floatables discharges to non-tributary waters of the East River and the City's waters in Western Long Island Sound; • evaluated its current <i>Interim Floatables Containment Program</i> to identify methods of improvement to maximize CSO floatables capture throughout the City including the upper East River and several of its tributaries. Made improvements in the existing program in 2004. Ongoing facility improvements and maintenance activities continued throughout 2004 to improve the efficiency of collection; and • continued to retrieve debris from local waters from CSO and non-CSO sources. The Interim Floatables Containment Program features CSO containment booming and skimming in the City's tributaries and open waters of the East River and Western Long Island Sound. 	<p>Continue re-inspections.</p> <p>Continue construction of new basins.</p> <p>Continue to develop waterbody/watershed plans during which the need for additional floatable controls will be evaluated.</p> <p>Assess the effects of the improvements made in the Interim Program and evaluate potential changes to the program.</p> <p>Continue to operate control program.</p>
<p>3. In 2004 New York City collected debris from the floatables containment system in Little Bay near the Throggs Neck Bridge as part of its Interim Floatables Containment Program. The system is located on Tallman Island WPCP CSO outfall TI-013 and includes an outfall extension channel and an end-of-pipe netting system.</p>	<p>Continue to collect debris from this facility in 2005.</p>
<p>4. As part of its continuing long-term CSO planning efforts, New York City is progressing with development of a long-term plan to increase the amount of wastewater flow conveyed to and treated at the Tallman Island WPCP during wet weather. More detailed facility planning, design and construction will be required before this action will be affected.</p>	<p>Develop a contract to provide for detailed facility planning, design and construction bidding.</p>

2004 Description	2005 Planned Action
<p>5. As part of the Use and Standards Attainment Project, New York City developed a preliminary waterbody/watershed plan for the Bronx River. Among other things this plan recommends additional actions to control CSO and non-CSO floatables in the Bronx River. The City intends to initiate additional facility planning studies to further develop those actions.</p>	<p>Initiate design activities for floatables control facilities for Hunts Point CSO Outfalls #004, #007 and #009 on the Bronx River in accordance with the Bronx River waterbody/watershed plan. New York City will develop a contract to conduct additional facility planning activities.</p>

F-2. INCREASING FLOATABLE DEBRIS CLEANUP EFFORTS (CCMP TABLE 39, P. 99)

Key Elements: Anti-litter educational campaigns, annual beach clean-ups, litter control demonstration projects and storm drain stenciling programs are part of effective debris prevention and control programs.

2004 Description	2005 Planned Action
<p>1. <i>National Beach Clean Up Day</i> in September 2004 resulted in thousands of volunteers from New York and Connecticut picking up thousands of pounds of debris at many beaches and recreation area sites on LIS. In the LIS watershed in New York, 1,430 volunteers collected 88,267 pounds of debris from more than 76 miles of beaches. In Connecticut, 411 volunteers collected 2,734 pounds of debris on 16 miles of coast. Beach cleanup data is available on the Ocean Conservancy website at: www.coastalcleanup.org.</p>	<p>Save the Sound, Inc., in cooperation with the CT Sea Grant program and the American Littoral Society in New York will promote National Clean Up Day in 2005.</p>
<p>2. The LISS Small Grants program awarded a \$5,000 grant to the Northeast Chapter of the American Littoral Society in New York to assist in conducting its annual beach cleanup program on Long Island Sound beaches in 2004.</p>	
<p>3. The amount of litter entering area waters from New York City has continued to decrease from 1995 baseline levels through the City's street sweeping efforts. The amount of streets rated <i>Acceptably Clean</i> was 86 percent in 2003, compared to 85 percent in 2002 and 77 percent in 1995. The number of streets rated <i>Filthy</i> in 2003 was 1.7 percent, an increase from 1.5 percent reported in 2002, but down from a 1995 level of 4.9 percent.</p>	<p>Continue street sweeping programs.</p>
<p>4. In July 2004, CTDEP announced that the cleanup of Long Island Sound continues to be a priority of the DEP and the Storm Drain Stenciling Program provides the opportunity for every Connecticut resident to raise public awareness and understanding of how their daily activities impact water quality. Rivers and storm drains deliver most of the more than 5.6 trillion gallons per year of fresh water into the Sound. Every drop of water that goes down the storm drain eventually finds its way, untreated into Long Island Sound. That's why it is very important to keep substances such as motor oils, soaps, fertilizers, litter, leaves, and pet waste from entering the storm drains.</p> <p>CTDEP has distributed over 70,000 storm drain markers in 56 Connecticut municipalities, providing service projects for scout groups, schools, environmental education organizations, public works departments, and watershed and lake associations. Local non-profit, volunteer and educational groups can obtain free Storm Drain Marking kits from the Department of Environmental Protection's Office of Long Island Sound Programs which makes the kits available as a courtesy of the Long Island Sound Fund. Since the program was launched in 2002, DEP has received inquiries about this program from communities in other states, including New York, Massachusetts, and Texas. The kits are available on a first-come, first-serve basis while they last. Applications for storm drain markers can be found on the DEP web site: http://dep.state.ct.us/olisp/stormdrain/stormdrainmarker.pdf.</p>	<p>Continue the Storm Drain Stenciling Program in 2005.</p>

	2004 Description	2005 Planned Action
5.	After the success of the "boater waste wheels," reprinted by the Connecticut River Estuary Regional Planning Agency (CRERPA) with a grant from the LISS Small Grants Program, the Clean Marina Program reprogrammed some CWA Section 319 grant money to reprint 1,500 copies of the wheel. The wheel was distributed by CRERPA and seasonal DEP staff through the Clean Boater Program.	Continued distribution of any remaining "boater waste wheels.

MANAGING AND CONSERVING LIVING RESOURCES AND THEIR HABITATS

The overall abundance and diversity of habitats and living marine resources in the sound is a strong indicator of the health of the ecosystem. Years of neglect, mismanagement, and damaging actions have diminished these resources and habitats. The LISS partners promote actions to improve water quality and protect and restore critical habitats, and to reduce economic and environmental impacts from flooding, erosion, and runoff pollution.

CCMP Strategy: The CCMP identifies the following elements to preserve, protect and enhance LIS living marine resources and their habitats: 1) restoring and enhancing aquatic and terrestrial habitats; 2) protecting and acquiring habitat; 3) developing inventories and management strategies for aquatic and terrestrial habitats; 4) managing endangered and threatened species; 5) managing harvested species; 6) managing exotic and nuisance species; 7) educating the public; 8) developing databases; 9) conducting Sound-wide and site-specific research and monitoring; and 10) conducting living resources and habitat research.

LIS 2003 Agreement Goal: *Assure a healthy ecosystem with balanced and diverse populations of indigenous plants and animals, maintain or increase the abundance and distribution of harvestable species, and restore the ecological functions of degraded and lost habitats.* Two actions had 2004 target dates in this section: 1) *complete research and monitoring studies into the causes of the lobster mortality event in Long Island Sound and identify any management measures that could be implemented to prevent future mortality;* 2) *identify sites of outstanding and exemplary scientific, educational, or biological value.* A continuing goal is to report progress against the LISS habitat restoration goals (see below). Warmer water temperatures, low oxygen levels, and related stresses are the likely reasons for a massive die-off of lobsters in Long Island Sound in 1999, while the role of pesticides is being further investigated. The Stewardship Initiative Work Group completed work on an implementation strategy in 2004, and federal legislation to formally establish a Long Island Sound Stewardship Initiative was proposed in the 108th Congress; while the legislation did not pass, it has been reintroduced as the Long Island Stewardship Act of 2005 in the 109th Congress.

Environmental Indicators/Results/Trends: The primary environmental indicators for this priority area are the number of acres of coastal habitat restored and linear miles of river corridor reopened to anadromous fish passage. Of the goal to restore 2000 acres by 2008, the LISS has restored 486 acres as of December 2004. Of the 2008 goal to reopen 100 river miles to fish passage, more than 65 miles have been restored as of December 2004.

2004 Highlights:

- In 2004 the LISS Stewardship Work Group, composed of federal, state, and local agencies and organizations, sponsored a series of eight public meetings to educate the public about the Stewardship Initiative and present the results of the inventory of places along the Sound's coast with significant ecological, scientific or recreational value. The Stewardship Initiative is identifying priorities for land acquisition and protection, for increasing and improving public access, and for managing use conflicts. Save the Sound, Inc. (STS), Audubon New York (ANY), and the Regional Plan Association (RPA) continued to coordinate the work group, with technical assistance on ecological areas from the US Fish and Wildlife Service Coastal Program.
- In 2004, the LISS awarded grants for seven research projects addressing several key areas for LIS, including tidal wetland loss, food web dynamics, and eutrophication. The New York and Connecticut Sea Grant College programs provided additional funding for these projects. Two projects focused on tidal wetland loss. One project will investigate the role of nutrient enrichment in tidal wetland loss and the other project will use remote sensing

technology to delineate tidal marshes and their constituent species.

- Work concluded on six of nine LISS research projects that were selected for funding in 2000 and 2001. The three ongoing research projects focus on phytoplankton dynamics, salt marsh breeding sparrows, and the mutagenic risk of contaminants in the Sound.
- The New York and Connecticut Sea Grant College Programs, with the National Marine Fisheries Service, CTDEP, and NYSDEC, continued to coordinate and manage the LIS lobster research initiative. Twenty research teams in eight states completed their research in 2004. A fourth and last symposium was held in November 2004 at Stony Brook University. More than \$7.5 million of federal

and state dollars supported the on-going research, extension, and resource monitoring and assessment work.

- The Westchester County Department of Planning and Soil and Water Conservation continue to advance projects in their Long Island Sound Aquatic Restoration Program. The program has focused on the restoration of natural resources, especially streams and wetlands. By the end of 2004, 18 projects had been completed and 12 more were being planned and designed. Types of projects include: stream bank stabilization, stream restoration, freshwater and tidal wetland restoration, coastal dune creation, and pond restoration. Additional projects include structural elements to improve water quality by controlling polluted stormwater.

**SUMMARY OF CCMP MANAGEMENT ACTIONS:
MANAGING AND CONSERVING LIVING RESOURCES AND THEIR HABITATS**

L-1. RESTORATION AND ENHANCEMENT OF AQUATIC AND TERRESTRIAL HABITATS (CCMP TABLE 40, P.107)		
Key Elements: Continue and enhance programs to restore tidal wetlands and other habitats. Develop a strategy to inventory and prioritize habitat restoration and enhancement needs.		
	2004 Description	2005 Planned Action
1.	The LISS continued to support the New York and Connecticut habitat restoration coordinators and programs in 2004. The state coordinators provide technical assistance to municipal and local landowners and other partners in implementing the LISS habitat restoration plan. The NY State Habitat Coordinator position, however, remained vacant, with NYSDEC unable to fill the position. As a result, funding was provided to NEIWPC who will hire the Habitat Coordinator/	Continue base program funding for the LISS habitat restoration program coordinator positions. Hire and staff the NY coordinator through NEIWPC.
2.	The LISS Habitat Restoration Initiative - made up of representatives from CTDEP, NYSDEC, EPA, NOAA, NY Sea Grant, and USFWS - continued working toward the LISS goal of 2000 acres of coastal habitat restored and 100 river miles reopened to anadromous fish passage by 2008. In 2004, 23.8 acres of coastal habitat were restored and 10.8 river miles were reopened for fish passage. As of December 2004, the LISS has restored 486 acres and reopened more than 65 miles of riverine migratory corridor toward its restoration goals.	Continue habitat restoration work in 2005.
3.	CTDEP continues to award grants and participate in restoration of riverine migratory corridors (RMC) for anadromous fish in the streams and rivers of the state. CT projects include: <ul style="list-style-type: none"> • completion of a fish ladder at Dorr's Millpond Dam on the Saugatuck River, Westport, CT, which opened 1.8 miles of RMC. The fishway is a pool-and-weir design. • removal of the Chase Brass Mill Dam on the Naugatuck River in Watertown, CT, opening nine miles of RMC. The City of Waterbury and Clean Water Funds administered by CTDEP provided funding. 	Continue to work with partners to open additional fish passages and provide funding for design and construction of fish bypasses and ladders toward the LISS goal to restore 100 RMC miles by 2008.
4.	The Westchester County Department of Planning and Soil and Water Conservation continue to advance projects in their Long Island Sound Aquatic Restoration Program. The program has focused on the restoration of natural resources, especially streams and wetlands. By the end of 2004, 18 projects had been completed and 12 more were being planned and designed. Types of projects include: stream bank stabilization, stream restoration, freshwater and tidal wetland restoration, coastal dune creation, and pond restoration. Additional projects include structural elements to improve water quality by controlling polluted stormwater. In 2004, construction of the following projects was completed: <ul style="list-style-type: none"> • Edith Read Natural Park and Wildlife Sanctuary, Rye City, construction of a 10,000 square foot freshwater wet meadow for habitat diversity and educational purposes at this coastal sanctuary • Gardens Lake, Mamaroneck Town, construction of a sediment trapping basin at inlet to five-acre pond as first phase of comprehensive freshwater pond restoration project • Edith Read Natural Park and Wildlife Sanctuary, Rye City, restoration of a two-acre upland meadow by removing exotic, invasive plants, especially porcelain berry, and replanting with native grasses, sedges and wildflowers • Nature Study Woods, New Rochelle, restoration of a five-acre wetland buffer by removing exotic, invasive plants, especially Japanese knotweed and burning bush, and replanting with native grasses, shrubs and trees. <p>Program and project information and photographs can be viewed at: http://www.westchestergov.com/planning/environmental/AquaticRestorationSites/index.html</p>	Continue to develop and implement projects in 2005.
5.	Cost estimates and planning for work on the Sheldrake River complex, including work on Carpenter's and Dickerman's Ponds and the Gardens Lake (also known as the Duck Pond) has been underway throughout 2005. The plan in the Town of Mamaroneck on the Duck Pond is to	Construction work will start in 2006.

	2004 Description	2005 Planned Action
	dredge selected parts of Gardens Lake and create an aquatic bench with some of the material. This will become an emergent marsh for native plants and wildlife. The plans also call for four interceptors above the Duck Pond and a sediment catch basin where the river enters the pond.	
6.	<p>Connecticut continued to participate in the LISS Habitat Restoration Initiative and to restore degraded tidal wetlands through its existing programs. CTDEP has also established a Tidal Wetland Restoration Team that identifies annual work priorities. Tidal flow was returned to 4.7-acre Minore Marsh and to 2.1-acre Castle Rock Marsh in Branford, and to 13 acres of marsh at Mile Creek in Old Lyme. In 2003, restoration plans were developed for Coastal Barriers, i.e., Ocean Beach in New London and Waterford Town Beach in Waterford. Restoration grants for these two beaches were received through the NRCS Wildlife Habitat Incentive Program (WHIP). Projects have not yet begun, but Waterford is pursuing additional funding through the LIS License Plate Program to expand upon its original design. Water chestnut harvesting continued on the Connecticut River in the greater Hartford area in attempts to prevent its spread downstream into Ramsar wetlands and embayments. With assistance from the USFWS Silvio O. Conte Fish & Wildlife Refuge staff, and from faculty and students of the Two Rivers Magnet School in East Hartford, CT, almost 16 tons of water chestnut was removed from six locations in the Hartford area. Three new populations of water chestnut were discovered during the summer of 2004 - in the Windsor Locks Canal, in an unnamed cove of the CT River in Portland, and in Hamburg Cove in the Lower CT River in Lyme, CT (the first such population within the portion of the CT River designated as a Ramsar site of international importance).</p> <p>Connecticut continued to use the Coves and Embayments Program to fund preliminary engineering, design and construction for the restoration of degraded coves especially those dominated by tidal wetlands.</p>	Habitat restoration and invasive species control efforts will continue in 2005.
7.	In the last several years, CTDEP has implemented a series of experimental restoration projects on the Connecticut River including herbicide treatments and a variety of ditch plugging strategies (to restore tidal hydrology and elevate salinity and sulfide concentrations). CTDEP is monitoring the effects of these experimental restoration techniques upon brackish marsh restoration. In 2003, LISS provided CTDEP with a grant to continue and expand that monitoring into 2004 and 2005, which is being conducted by scientists at Connecticut College.	On-going
8.	In 2004, CTDEP used the following funding sources to implement habitat restoration projects: National Wetland Conservation Grant and Stewart B. McKinney funds (USFWS), Transportation Efficiency Act (FHWA), NOAA – Ducks Unlimited Funds, Trout Unlimited, NRCS, CT Corporate Wetland Restoration Partnership, CT LIS Cleanup Account Funds, Lynde Point Land Trust, Branford Land Trust, Castle Rock Condo Association, Save the Sound, The Nature Conservancy, Borough of Fenwick, Partners for Fish and Wildlife (USFWS), and CTDEP Clean Water Funds.	On-going
9.	The USFWS Coastal Program continued work with NYSDEC and other partners to study fish passage opportunities in the Oyster Bay area of Long Island.	Project pending assignment of staff.
10.	The USFWS Coastal Program assisted CTDEP, Coastal America, and corporations in exploring restoration opportunities and incentives to increase corporate participation in the Corporate Wetland Restoration Partnership (CWRP). The Coastal Program co-coordinated an event to celebrate and gain visibility for the Lynde Point marsh restoration in Old Saybrook, a project to which the CWRP contributed important funding. The Coastal Program also facilitated CWRP involvement (educational signage) for the Barn Island Wildlife Management Area.	Continue to work with the states, Coastal America and the corporate partners to expand the CWRP and implement priority restoration projects. The Coastal Program will help the CWRP as they plan an upcoming event to gain additional visibility for the CWRP.

L-2. HABITAT PROTECTION AND ACQUISITION (CCMP TABLE 41, P.110)

Key Elements: Maintain the effectiveness of permit programs (e.g. for wetlands, stormwater, dredging) to regulate use and development affecting aquatic resources and critical habitats. Expand acquisition programs and efforts to protect habitats from development and establish stewardship of areas of land and water of outstanding or exemplary scientific, educational, or biological value. Manage Federal wildlife refuges.

2004 Description	2005 Planned Action
<p>1. The LISS sponsored a series of eight public meetings in Connecticut and New York in February and March 2004 to educate the public about the Stewardship Initiative and present the results of the inventory of places along the Sound's coast with significant ecological, scientific or recreational value. Summaries of the meetings and information on the Stewardship Initiative are posted on the Long Island Sound Study website at: http://longislandsoundstudy.net/events/stewardship_04_more.htm</p>	<p>The LIS Stewardship Work Group will identify high priority recreation and ecological sites around the Sound, will hold public meetings on the draft site list, and will finalize identification of the inaugural stewardship sites.</p>
<p>2. New York City's CSO facility planning projects for the Hutchinson River, Westchester Creek, the Bronx River, Flushing Creek and Bay, and Alley Creek are continuing at various levels of planning, design, and construction. Once completed, the facilities will minimize CSOs and protect habitats in these tributaries to the East River and Western Long Island Sound.</p>	<p>Update project status and they proceed to and complete construction.</p>
<p>3. The NY Natural Heritage program updated its database to identify the subset of state lands that are known to support exceptional biodiversity concentrations. These areas can then be used by state agencies such as NYSDEC and the Office of Parks, Recreation, and Historic Preservation to establish a process for determining when Natural Heritage Area designations are appropriate on their properties. The number of locations of rare animals, rare plants, and significant natural communities in the biodiversity database is now 10,594. In NY Fiscal Year 03-04 to date, 74 new location records have been entered into the database and another 322 records have been updated with new information.</p>	<p>.</p>
<p>4. Suffolk County, NY and the Peconic Land Trust reached an agreement to purchase the last working farm in Setauket, NY. This will preserve approximately 30 acres of land.</p>	
<p>5. The Town of Southold, NY passed a new subdivision code defining and establishing criteria for conservation subdivisions. The Code allows property owners to sell development rights on part of their property without going through the entire subdivision process, and requires 60% on standard subdivisions.</p>	
<p>6. Voters in the Town of Oyster Bay, NY, overwhelmingly approved a \$30 Million environmental bond proposition. Half of the approved funds will go to open space acquisition and the other half will be used for parks improvements.</p>	
<p>7. NYSDEC is requesting proposals for grants that will fund projects aimed at improving fish and wildlife habitat and public access for hunting, fishing, trapping and other fish and wildlife related recreation and study. A total of \$100,000 is available to fish and wildlife habitat management and the improvement of public access for hunting, fishing, trapping and other fish and wildlife-related recreation and study. The grants will allow municipalities, not-for-profit corporations and individuals to carry out small scale projects that will benefit natural resources and the sportsmen and women of New York State.</p>	
<p>8. In Westchester County, NY, landowners have agreed to protect parcels scattered throughout Bedford, North Salem, Lewisboro and Pound Ridge. The Westchester Land Trust has secured conservation easements on properties ranging from 2.76 to 45 acres. Through the easements, landowners agree to give up development rights to the land trust.</p>	
<p>9. Connecticut's open space acquisition program goals are to acquire 10 percent of the state's land area as open space held by the state, and not less than 11 percent of the state's land area held by municipalities, water companies, or nonprofit land conservation organizations as open space. The state currently owns 231,949 acres in its system of</p>	<p>CT's goal is to preserve 673.21 acres of land as open space by 2023.</p>

2004 Description		2005 Planned Action
	state park, forest, wildlife, fishery, and natural resource management areas. CTDEP purchased a 144 acre parcel that abuts the Barn Island Wildlife Management Area from the Nature Conservancy (TNC) to expand the wildlife management area, with the bulk of the funding, \$1.0 million, from a USFWS grant under the National Wetlands Conservation Grant Program. Connecticut's Land Acquisition program also awards grants to communities and non-profit organizations to purchase and preserve open space. In 2004 over \$18.2 million was awarded to purchase 1,895 acres. Connecticut has set a goal to preserve 21% of the state's land as open space by 2023. Currently 479,234 acres have been preserved. This is 71% of the goal.	
10.	The USFWS Coastal Program continued work on the ecological component for the LIS Stewardship System in 2004. The FWS held meetings with resource experts from NY and CT and developed criteria for identifying important habitat areas throughout the Sound.	The FWS will complete the identification of the important habitat areas throughout Long Island Sound.
11.	The USFWS Coastal Program coordinated with CTDEP in developing a grant proposal for \$1.0 million for acquisition of 144 acres at Barn Island Wildlife Management Area. The team was successful, and the State of Connecticut received the full \$1.0 million from the Service's Coastal Wetlands Conservation Grant program. The Barn Island marshes are one of the most significant wetland research areas on the entire eastern seaboard of the US, with over 50 years of continuous ecological investigations.	Continue to work with CTDEP to determine potential new proposals that can be developed for acquisition or restoration in 2005.
12.	The USFWS Coastal Program assisted CTDEP and other partners in identifying important criteria for coastal area protection. The request for this assistance was based on CTDEP's pursuit of funding through NOAA's Coastal and Estuarine Land Conservation Program.	Continue assisting CTDEP in this grant program, as requested, by sharing expertise in ecological, GIS, or grant-writing realms.

L-3. INVENTORIES AND MANAGEMENT STRATEGIES FOR AQUATIC AND TERRESTRIAL HABITATS (CCMP TABLE 42, P.112)

Key Elements: Develop habitat management strategies for specific complexes or regions using a watershed perspective.

2004 Description		2005 Planned Action
1.	CTDEP continues to assist the CT Corporate Wetland Restoration Program (CWRP). In 2003 and 2004 the CWRP provided funds for the Lynde Point marsh restoration, the Jordan Millpond riverine migratory corridor and for signage for the recent Barn Island Wildlife Management Area acquisition.	Work will be ongoing in 2005.
2.	The New York Natural Heritage Program is mapping the natural communities within selected lands administered by the National Park Service in New York to enable and enhance future inventories, monitoring, and management of the natural resources found within these areas. The project is utilizing recent aerial photos and digital imagery to locate, identify, and map the natural communities of these areas, gather and analyze natural community data to develop a community classification for each of these areas, create maps of the natural communities present, provide attribute data (including plant species, cover, soil types, etc.) of the natural communities present, and assess the accuracy of the original mapping using Accuracy Assessment Protocols and refining the maps as necessary. The cost of the project is \$84,418 from the National Park Service.	The project is scheduled for completion by February 2005.
3.	In 2004 the LISS Habitat Restoration Team began work on the Riverine Migratory Corridor and Mollusc Reef habitat restoration modules. Modules that were previously completed focused on tidal wetlands, freshwater wetlands, submerged aquatic vegetation, coastal grasslands, and coastal barriers, beaches and dunes. The report <i>Technical Support for Coastal Habitat Restoration</i> was printed in November 2003 and distributed in 2004.	Continue work on these two modules, initiate work on the remaining five modules, and continue distributing the manual.
4.	The USFWS Coastal Program accepted a role with the Steering Committee of the Waterbird Working Group. This effort extends far beyond the watershed of the LIS, but data and material produced by the workgroup will be applicable throughout the LISS.	Continue supporting the working group via participation on the Steering Committee.

2004 Description		2005 Planned Action
5.	In 2004, the LISS awarded a grant to the Connecticut River Estuary Regional Planning Agency to identify and map the occurrences of riparian buffers along the main stem and major tributaries of the lower Connecticut River.	Complete mapping, distribute maps to all lower CT River communities; produce educational brochure about importance of riparian buffers.

L-4. MANAGING ENDANGERED AND THREATENED SPECIES (CCMP TABLE 43, P.116)		
Key Elements: Continue endangered species programs and develop lists of Long Island Sound endangered species to aid management programs		
2004 Description		2005 Planned Action
1.	NYSDEC's Natural Heritage Program updated its <i>Rare Plant List</i> in May 2004, which is posted at: http://www.dec.state.ny.us/website/dfwmr/heritage/plants.htm .	NYSDEC NHP will re-evaluate the list in 2005.
2.	In 2004 CTDEP prohibited the taking of alewives and blueback herring from inland and marine waters of the State of Connecticut. This action was initially taken in April 2002 and then extended in 2003 with an expiration date of March 31, 2004. The current action by DEP extends the prohibition through March 31, 2005. CTDEP has also been removing obsolete dams, opening many miles of river habitat to re-colonization by river herring. When dam removal is not possible, CTDEP builds fishways that allow fish to migrate past dams.	CTDEP will continue its other efforts to enhance river herring stocks by transplanting adult herring from streams with healthy runs into streams where runs have been eliminated or greatly depleted.
3.	In 2004 the LISS Small Grants program approved funding for The Maritime Aquarium at Norwalk for an extensive upgrade to its seal census Web site (www.sealcensus.org) to include information on seal ecology, the natural history of seals, results of scientific research done on the occurrence of seals in the Sound, and a designated area "chat room" for students involved in seal research to discuss their research.	Complete the project in 2005.

L-5. MANAGING HARVESTED SPECIES (CCMP TABLE 44, P.117)		
Key Elements: Ensure safe consumption and enhanced production of harvested species through fishery management plans, improved fish passage and habitat improvements. Support related programs such as oyster cultch placement, artificial reef development, dredging windows, and incidental take of nontarget species or entrainment/impingement at industrial facilities		
2004 Description		2005 Planned Action
1.	<p>In CT, several changes in the 2004 fishing season and minimum length sizes of several marine fish were implemented. The haddock stocks are rebuilding rapidly and commercial fishery restrictions have been eased. In CT, the minimum length for cod was reduced from 23 inches to 22 inches and the minimum length for haddock reduced from 23 inches to 19 inches. Previously, cod and haddock had an aggregate creel limit of 10 fish. Under the newly adopted rules, the creel limit for cod is 10 fish and the creel limit for haddock is eliminated. These changes will become effective December 17, 2004.</p> <p>The open seasons for recreational fishing for black sea bass have been changed to January 1st through September 7th and September 22nd through November 30th. These measures became effective August 5, 2004, and are necessary to meet the requirements of the interstate fishery management plan for black sea bass. This coast wide change was made to accommodate the desire to keep the recreational fishery open through the Labor Day weekend, meet recreational harvest limits required by the plan, and provide uniform open seasons in the region.</p>	Proceed with development of final regulations.

2004 Description	2005 Planned Action
<p>CT also adopted new fishery management measures for the recreational fishery for scup. The recreational creel limit and minimum length for scup will be: 20 fish at a 10-1/2 inch minimum length. There will now be two open seasons for scup: the first from July 23rd through October 12th, and the second from November 1st through December 31st, all dates inclusive. These measures will become effective May 24, 2004.</p> <p>On October 14, 2004, a public hearing was held to receive comment on proposed final regulations regarding these and other changes. However, because of procedural constraints, it is not possible for the final regulations to be formally adopted before the end of February. CTDEP will continue to change and incorporate new fishing regulations as needed to manage harvested species.</p> <p>Connecticut's limits will likely be very close to those being considered in New York, since New York is required to meet a 58% reduction in the harvest. The open season dates may coincide as well, especially from mid-July onward.</p>	
<p>2. New York State participates in the Interstate Fishery Management Program of the Atlantic States Marine Fisheries Commission (ASMFC), which adopts Interstate Fisheries Management Plans (FMPs) for individual species or groups of fish. NYSDEC changed recreational fishing regulations for summer flounder (fluke), scup (porgy) and black sea bass in 2004. These changes superseded 2003 regulations regarding these three species. The new regulations are as follows:</p> <ul style="list-style-type: none"> • Fluke: minimum length - 17 inches, possession limit - 3, open season - May 15 to September 6; • Porgy: minimum length - 11 inches, possession limit - 20, open seasons - June 16 to October 17 and November 1 to 30; and, • Black sea bass: minimum length - 12 inches, possession limit - 25, open seasons - January 1 to September 22 and October 8 to December 31. <p>Regulatory changes will achieve a 58 percent reduction for porgies and a 20 percent reduction for fluke. The FMP for black sea bass calls for annual adjustments to common coast-wide regulations that are calculated to hold the harvest within the allowed quota. The change in the open season for this species is aimed at minimizing the economic impact on recreational fishing operations from potentially closing both fluke and black sea bass immediately after Labor Day.</p>	

L-6. MANAGING EXOTIC AND NUISANCE SPECIES (CCMP TABLE 45, P.120)

Key Elements: Develop measures to prevent the introduction of undesirable species and implement a program to reduce the abundance of mute swans.

2004 Description	2005 Planned Action
<p>1. In 2004, the US Fish & Wildlife Service Coastal Program initiated work to identify the priority invasive species of concern in Long Island Sound. The LISS will coordinate with CT Sea Grant, which is developing an Aquatic Nuisance Species Management Plan for CT.</p>	<p>Narrow list to priority species on which management activities should focus.</p>
<p>2. GeesePeace, a Virginia-based non-profit corporation, received a federal grant to institute a Canada geese control program in Nassau and Suffolk County, NY. The program will consist of using trained border collies to chase geese away, coat geese's eggs in corn oil to prevent them from hatching, and educate the public to dissuade people from feeding the geese.</p>	<p>The Village of Roslyn is planning to utilize the services of GeesePeace in 2005.</p>
<p>3. Using funding from a Federal Aid in Wildlife Restoration grant, New York State has begun a study on status and ecology of mute swans in the state. This study would provide comprehensive information on the current status, distribution, ecology and conflicts associated with mute swans in New York. Despite the existence of feral mute swan populations for nearly a century, no formal studies of this species in New York have been documented. Results would provide a baseline and foundation for future management, including development and evaluation of population control programs, and provide additional site-specific information for use in prioritizing management efforts and informing the public about effects of this non-native species. Other useful information,</p>	<p>A comprehensive report is expected by 31 March 2006.</p>

2004 Description		2005 Planned Action
	such as a recommended protocol for population monitoring and limited data on response of mute swans to management activities will also be obtained.	
4.	In 2004, the LISS received the final report summarizing the findings of the 2003 National Coastal Assessment's rapid assessment survey in which it participated in 2003. This survey was coordinated by the Massachusetts Bays National Estuary Program and the Massachusetts Institute of Technology Sea Grant program, with support from EPA. In the Sound, the sampling was conducted from permanent docks and piers located in Mystic, Milford, and Stamford, CT. More than 30 species of invaders were found in Long Island Sound.	The final report summarizing the findings of the field sampling and detailing the species found was published in 2004. Project complete.

L-7. EDUCATING THE PUBLIC ABOUT THE PLANTS AND ANIMALS OF LONG ISLAND SOUND (CCMP TABLE 46,.120)

Key Elements: Educate the public about the plants and animals of Long Island Sound and elicit volunteers to assist with plants and animals monitoring programs.

2004 Description		2005 Planned Action
1.	CT Sea Grant developed a website on invasive species in Long Island Sound and developed informational cards to help marina operators cope with invasive species that biofoul their floating docks. The website is hosted by CT Sea Grant and linked to the LISS website.	Project is completed.
2.	The Connecticut Sea Grant College Program, with support from the LISS, continued to distribute the booklet, <i>Living Treasures: The Plants and Animals of Long Island Sound</i> . More than 25,000 copies of the booklet were printed, and about 12,000 have been distributed to teachers, schools, environmental organizations, aquariums, and to the public free of charge. Copies may be obtained by contacting CT Sea Grant College Program, http://www.seagrant.uconn.edu/publ.html .	Distribution will continue in 2005 as quantities are available.
3.	In 2004 the LISS Habitat Restoration Team distributed the report <i>Technical Support for Coastal Habitat Restoration</i> to municipalities, towns and other interested parties. The restoration manual is also available on the LISS website at: http://www.longislandsoundstudy.net/habitat/index.htm	Continue distributing the restoration manual.

L-8. DEVELOPING AN INFORMATIONAL DATABASE ABOUT LIVING RESOURCES AND THEIR HABITATS (CCMP TABLE 47, P.122)

Key Elements: Develop and expand informational databases on living resources and their habitats with an emphasis on GIS data for resource management

2004 Description		2005 Planned Action
1.	CTDEP reformatted many of its coastal data layers for incorporation into its intranet browser-based GIS project called ECO. CTDEP continues to work with the CT Dept. of Information Technology to make these data available to the public over the internet.	Ongoing.
2.	The UConn Marine Sciences Center (Dr. Kremer, PI) is conducting preliminary studies of southeastern (CT) coves to evaluate and model the impacts of nitrogen upon biological communities. CTDEP provided Dr. Kremer with a CWA Section 319 nonpoint source grant to further his nitrogen loading and modeling studies for shallow water systems.	

2004 Description		2005 Planned Action
3.	In 2004 the US Fish & Wildlife Service Coastal Program continued to develop a GIS database of important habitats located throughout Long Island Sound, as part of the Stewardship Initiative.	With NYS DEC and CT DEP, the US FWS will identify the highest priority habitat areas around the Sound.
4.	NYSDEC revised state freshwater wetland maps for Westchester County. The revised maps reflect an additional 3,370 wetland acres.	

L-9. SOUND-WIDE AND SITE-SPECIFIC RESEARCH AND MONITORING (CCMP TABLE 48, P.123)

Key Elements: Continue and enhance monitoring of living resource populations with an emphasis on fishery surveys, colonial water birds, submerged aquatic vegetation, and lobsters.

2004 Description		2005 Planned Action
1.	New York City's <i>Use and Standards Attainment Project</i> continued to conduct extensive biological sampling programs in the East River and its tributaries for ichthyoplankton, benthic and epibenthic biota, and fish. Sediment and water column sampling was conducted simultaneously. These programs are developing data for characterizing existing biotic abundance and diversity, and habitat. Use attainability is being evaluated and areas of opportunity are being identified for restoring, enhancing and protecting habitats in the East River, its tributaries, the Hutchinson River, Eastchester Bay, Alley Creek and Little Neck Bay in Western Long Island Sound.	Project is continuing.
2.	<p>The CTDEP marine fisheries program continued its fish trawl survey of Long Island Sound in 2004, funded with a "Federal Aid in Sport Fish Restoration" grant from the USFWS. Trawl survey maps and finfish survey results are posted on the CTDEP web at: http://dep.state.ct.us/burnatr/fishing/marineinfo/marineinfo2.htm#Trawl_Survey_Maps</p> <ul style="list-style-type: none"> A total of 202,888 finfish, lobster and squid weighing 19,057 kg were collected in 2004. Fifty-nine finfish species and thirty-five invertebrate species (or taxa) were collected from 199 tows conducted in 2004. The total fish species count of 59 is within the observed range of 50 to 70 species per year. One species (American plaice) was recorded for the first time in the trawl survey. Hickory shad and adult (age 1+) bluefish were at record high abundance in 2004 while menhaden, alewife and weakfish (YOY) were at near record high levels. Winter flounder and cunner were at record low abundance in 2004. American lobster abundance indices remained low, ranking 20th of 21 years in the spring survey and 17th in the fall. Adult scup abundance remains high relative to the long term mean while summer flounder abundance has declined from the high levels recorded between 2001 and 2003 to more average levels as observed in 2000. The Spring 2004 striped bass abundance index dropped from record abundance in 2002 but remains above average as the index has since 1995. The Spring 2004 survey index for tautog has remained essentially unchanged from 2003 at 0.54 fish/tow, remaining below the recent peak abundance of 0.9 fish/tow in 2002. <p>The abundance of several recreationally important species remains moderate to high including bluefish, striped bass and summer flounder. The increased abundance of hickory shad in recent years provides an additional recreational fishing opportunity, especially to near-shore anglers.</p>	Continue to conduct trawl and estuarine seine surveys.
3.	In 2004 the USFWS Coastal Program continued to develop a GIS database of important habitats located throughout Long Island Sound, as part of the LIS Stewardship Initiative.	With NYSDEC and CTDEP, the USFWS Coastal Program will identify the highest priority habitat areas around the Sound.

2004 Description		2005 Planned Action
4.	The LISS provided funding for the USFWS Coastal Program to map eelgrass beds in eastern LIS in order to evaluate trends in eelgrass acreage over time. An inter-agency agreement was developed with the National Wetlands Inventory Section of the USFWS.	The photographic flight and field verification will take place in Spring 2005.

L-10. LIVING RESOURCES AND HABITAT RESEARCH (CCMP TABLE 49, P.124)

Key Elements: Identify priorities for research to fill gaps in our understanding of the Long Island Sound ecosystem and to assist management of living resources.

2004 Description		2005 Planned Action
1.	In 2004, Dr. Chris Elphick continued work on his LISS-funded research project entitled "Salt-marsh Breeding Sparrows in Long Island Sound: Status and productivity of globally important populations." Information about his research is available on the Internet at http://www.eeb.uconn.edu/faculty/Elphick/sparrows/saltmarsh_sparrows.htm	Final report is due in 2005.
2.	The Long Island Sound Lobster Initiative held the fourth and final Lobster Symposium at Stony Brook University in October 2004. Scientists presented research results in a number of key areas. A summary of the findings is available on the Lobster Initiative website: http://www.seagrant.sunysb.edu/LILobsters .	Further investigate the role that pesticides played in the lobster die-off.
3.	The biennial Long Island Sound Research Conference was held at Stony Brook University on November 4-5, 2004. The theme of the conference was "Long Island Sound in Transition." Many research scientists presented results of their ongoing work on a variety of LIS research areas. Information on the conference is posted on the Long Island Sound Foundation website at: http://www.lisfoundation.org/lisconf_2004.html	Plan for the 2006 biennial LIS research conference.
4.	Through the LIS Research Grant Program, the following three projects were awarded EPA grants in 2004 through the LISS: <ul style="list-style-type: none"> • <i>Application of Remote Sensing Technologies for the Delineation & Assessment of Coastal Marshes & Their Constituent Species.</i> PIs: Dr. Daniel Civco, UCONN, and Dr. Martha Gilmore, Wesleyan University • <i>Food Webs In Long Island Sound: Review, Synthesis & Potential Applications.</i> PI: Dr. Roman Zajac, University of New Haven • <i>Understanding the Role of Nutrient Enrichment in Tidal Marsh Loss in Long Island Sound.</i> PI: Dr. Shimon Anisfeld, Yale University 	Report progress on ongoing research projects. The LISS will continue to fund research on the Sound's living resources as funding allows.

RAISING PUBLIC AWARENESS AND PARTICIPATION THROUGH EDUCATION AND OUTREACH

A significant factor toward long-term CCMP effectiveness is the ability to increase public awareness of and participation in day-to-day activities designed to protect LIS. Educating LIS watershed residents and increasing the number of people that take an active interest in protecting and restoring the Sound helps to nurture long-term stewardship ideals in local communities. As the Sound is restored to a healthier state, public support based on these ideals will help ensure continued progress.

CCMP Strategy: The CCMP public awareness and outreach strategy identifies six major elements: 1) increasing community awareness and stewardship; 2) promoting understanding; 3) facilitating public participation; 4) increasing communication and cooperation; 5) enhancing education at all levels; and 6) securing funding.

LIS 2003 Agreement Goal: *Promote an informed and educated constituency involved in community decisions affecting the ecological health of Long Island Sound and its living resources.* There are several action items in this section, including biennial reporting on the health of the Sound, establishing LIS curricula, offering LIS field/learning experiences for school children, and expanding the CAC. The LISS developed and issued *Protection and Progress* in 2004, which summarized progress of the LISS over the last two years in implementing the CCMP.

Environmental Indicators/Results/Trends: Changing human behavior to improve the environment is an inherent goal of any environmental education and public outreach program. While it is difficult, at best, to estimate the direct effects of these programs on the population, several indirect indicators can be used. Demand for information on the health of the Sound from students, educators, researchers, managers, and the public continues to increase. The LISS world wide website has grown in the number of site visits over the last several years. The LISS Small Grants public participation program continues to receive more applications for projects than it can fund; LIS education and outreach projects continue to complete important environmental work valued far in excess of their cost.

2004 Highlights

- LISS outreach and education program staff responded to more than 370 information requests, developed and staffed displays at 11 events that reached more than 1,250 people; and conducted four presentations reaching about 75 people. CTDEP produced three issues of the LISS-funded publication, *Sound Outlook*.
- The LISS Web site continued to be a popular site to view information about Long Island Sound. The longislandsoundstudy.net web site was seen by about 7,335 visitors a month in 2004, who viewed about 10,200 web pages a month. More than 200 people requested LISS information and materials through the web site e-mail address, 'feedback@longislandsoundstudy.net.'
- The LISS published its first Biennial Report, *Protection and Progress*, which highlighted the efforts of Long Island Sound Study's partners to implement the Comprehensive Conservation and Management Plan in 2003-2004.
- LISS outreach and education staff conducted or supported many workshops, seminars, symposia, and conferences on LIS issues in various locations throughout the LIS area during 2004.

- Through 2004, the LISS public information and education Small Grants Program has funded 120 educational, informational, and habitat restoration projects totaling over \$475,000. These projects assisted hundreds of teachers and thousands of school children, and produced more than 20,000 pieces of LIS literature. In 2004, the LISS funded 18 small grants projects totaling more than \$70,000.
- The CTDEP Long Island Sound License Plate Fund distributed more than \$286,000 in 2004 for 19 projects that benefit LIS in the following four categories: Education and Outreach, Habitat Restoration, Public Access, and Research. A list of past awards is available on the CTDEP web site at <http://dep.state.ct.us/olisp/index.htm>.
- CTDEP has provided more than 72,400 storm drain marker kits to date as part of a joint effort between the LIS Fund and NOAA to provide more source pollution education for towns (especially Phase II) and other environmental education institutions.

SUMMARY OF MANAGEMENT ACTIONS: PUBLIC INVOLVEMENT AND EDUCATION

E-1. COMMUNITY AWARENESS AND STEWARDSHIP (CCMP TABLE 51, P.146)		
Key Elements: The CCMP emphasizes existing and enhanced public involvement and education programs at local, regional and national levels to promote understanding and management of LIS. The development of informational materials for specific audiences, including printed materials, public exhibits, educational curricula, and research programs was identified as a primary outreach and education mechanism.		
	2004 Description	2005 Planned Action
1.	<p>The LISS Outreach Program:</p> <ul style="list-style-type: none"> • Responded to more than 370 information requests, developed and staffed displays at 11 events that reached more than 1,250 individuals; and conducted four presentations reaching about 75 individuals. • produced and distributed more than 4,500 copies of the LISS <i>UPDATE</i> newsletter; the two issues covered the LISS research program, vanishing LIS wetlands, the lobster mortality event, the dredging draft environmental impact statement, invasive species, the stewardship system, and National Estuary Day events. • assisted in producing and distributing three issues of the CTDEP LIS newsletter <i>Sound Outlook</i> to a circulation of 2,844 in addition to making it available on the CTDEP website. The Sound Outlook page averages 130 hits per month. 	Staff will continue to respond to requests for information, provide presentations, staff displays at events, and publish the newsletter and other pertinent materials.
2.	LISS distributed copies of the 2003-2004 Long Island Sound Study report, <i>Protection and Progress</i> , to federal, state, and local officials, LISS committee members, and people interested in the LISS CCMP. Copies were also distributed to more than 100 libraries on Long Island. The report highlighted projects that exemplified work being done to fulfill the goals of the CCMP. It was the first report of its type done by LISS.	Continue distributing copies of the biennial report. Staff also will be working on a new edition of Sound Health, its indicators report.
3.	LISS distributed copies of the Habitat Restoration technical manual, published in late 2003, to municipalities, and habitat restoration resource managers in the Long Island Sound community. Habitat restoration specialists from around the country who learned of the manual on the LISS Web site also received copies.	Staff may be adding additional chapters to the manual, highlighting local restoration project
4.	LISS developed and distributed a stormwater pollution runoff brochure to complement its popular set of posters. 10,000 copies of the brochures were printed and distributed to municipalities. Municipalities also will be given the option of creating their own version of the brochure with their logo on it.	A stormwater runoff page also will be created on the LISS web site.
5.	The LISS communications staff transferred the <i>LIS Plants and Animals</i> slide show to a Power Point® presentation.	The LISS presentation will be updated with new photos.
6.	Boater education continued to be a focus of the CTDEP CVA program. CTDEP staff attended boat shows with displays and contacted individual boaters. CTDEP staff displayed outreach materials at the annual meeting of the Connecticut Harbor Management Association and the annual Connecticut Marine Trade Association Environmental Workshop.	Implement base work plan in 2005. In addition an interactive computer/video kiosk is under development.
7.	CTDEP continued to provide technical assistance and outreach to municipalities regarding coastal management and coastal nonpoint source pollution. Several fact sheets from the <i>Connecticut Coastal Management Manual</i> are made available upon request.	Additional coastal management and coastal nonpoint source program workshops are planned in both coastal and non-coastal towns.
8.	The "Focus on the Coast" workshop for coastal municipalities was finalized in conjunction with the University of Connecticut's NEMO program, Sea Grant, and The Nature Conservancy, to highlight the need to protect submerged aquatic vegetation, tidal wetlands, and migratory fish.	"Focus on the Coast" workshops and materials will continue to be made available. A coastal nonpoint source website will be developed by CTDEP, as well as pamphlets explaining the various components of the state's coastal nonpoint source program.

2004 Description		2005 Planned Action
9.	The New England Estuarine Research Society (NEERS), in cooperation with the Connecticut Sea Grant College Program, the LIS Foundation, the LIS Councils and Assembly, UCONN, CTDEP, and the New York Sea Grant Institute and EPA, continued planning for the 2004 biennial LIS research conference. The Biennial Long Island Sound Research Conference was held in November at SUNY Stony Brook.	
10.	The Marine Science Research Center at Stony Brook, with funding from New York Sea Grant, placed monitoring equipment on the Bridgeport Port Jefferson Ferry the PT Barnum. The project web site, www.stonybrook.edu/soundscience displays the monitoring data. There is also a video monitor kiosk on the ferry for passengers to learn more about LIS.	This project is ongoing. The Management Committee approved funding in 2004 to continue the project for one year.
11.	The NY Sea Grant Program annually coordinates the review of the LISS Small Grants program, assembling a team of federal, state, and citizen partners to review proposals and make funding recommendations. In 2004, the US Fish and Wildlife Service, CTDEP, NYSDEC, EPA, and CAC participated on the Small Grants Program review team, helping to determine the most effective projects to fund as it they relate to programs, projects, and products that educate and involve the public in the protection and restoration of Long Island Sound and its watershed.	Continue the Small Grants Program review team.

E-2. PROMOTING UNDERSTANDING (CCMP TABLE 52, P.147)

Key Elements: An important component of the Public Involvement and Education priority of the CCMP is keeping the partner agencies and municipalities informed and abreast of LIS issues. It was the intent of the CCMP to have the states of Connecticut and New York incorporate LIS information into all related programs wherever possible. All coastal municipalities are to be provided with information on CCMP implementation and how it would affect their cities and towns. Additionally, the partners are to provide briefings to user groups and assess and support opportunities for training and educating the environmental decision making community and regulated community on LISS CCMP actions.

2004 Description		2005 Planned Action
1.	The LISS issued a number of press releases to publicize important events affecting LIS: <ul style="list-style-type: none"> • <i>Long Island Sound Study Announces Research Grant Awards: Seven Research Projects Receive Total of \$850,000—Dec. 9, 2004.</i> • <i>Long Island Sound Study Announces Fellowship Recipients: Graduate Students to Assist LISS Science Committee—Dec. 3, 2004.</i> • <i>Summaries of the 2005 Projects Awarded Long Island Sound Study Small Grants—Nov. 2, 2004.</i> • <i>Long Island Sound Summit to Highlight Strategy to Protect Underwater Resources: Acclaimed Marine Author/Illustrator Will Give Keynote Address—Nov. 1, 2004.</i> • <i>Graduate Students can Apply to Become Long Island Sound Fellows—July 1, 2004.</i> • <i>\$70,000 in Small Grants Available for Educational Work on Long Island Sound—June 7, 2004.</i> • <i>LISS Sponsors Local Stewardship Initiative Public Meetings—Feb. 12, 2004.</i> 	Continue to issue press releases as needed.
2.	The Long Island Sound Study web site was seen by about 7,335 visitors per month in 2004, viewing about 10,200 web pages each month.	The LISS communications team will continue to work to update the website in 2005, and further encourage the use of the internet to communicate with the public.
3.	CTDEP LISS Outreach staff continued as contributing editor of <i>Sound Outlook</i> , the CTDEP Long Island Sound newsletter funded through a LISS grant. This newsletter is a cooperative effort between the Coastal Zone Management and National Estuary Programs at the state level. <i>Sound Outlook</i> has a circulation of 2,844 and is available on the CTDEP web site: http://dep.state.ct.us/olisp/soundout/soundout.htm . The <i>Sound Outlook</i> web page receives an average of 130 hits per month. Staff contributed seven articles and assisted in editing other articles.	Continue to publish <i>Sound Outlook</i> and cooperate with the LISS newsletter <i>UPDATE</i> .

E-3. FACILITATING PUBLIC PARTICIPATION (CCMP TABLE 53, P.148)

Key Elements: The intent of the CCMP in terms of public participation is that "the public must be involved in setting policy for the Sound . . . as well as participating in the cleanup of the Sound through hands-on activities." The LISS partners are to provide financial and technical support for such activities as beach cleanups, habitat restoration projects, and storm drain stenciling. The EPA and states of Connecticut and New York are to promote citizen involvement in educational and volunteer monitoring activities in and around the Sound and providing technical assistance as needed.

2004 Description		2005 Planned Action
1.	The LISS funded 18 small grants projects totaling over \$70,000 in 2004. The American Littoral Society, LI Seaport and EcoCenter, The Waterfront Center, Earthplace, Solar Youth, Residents for a More Beautiful Port Washington, Hempstead Harbor Protection Committee, Town of Huntington, Housatonic Valley Association, Connecticut Sea Grant, Sea Research Foundation, Western Suffolk BOCES, Long Island University at Post, and Yale University's Peabody Museum received small grants funding for environmental education and implementation projects and programs for teachers and students.	LISS Small Grants funded 16 projects for 2005.
2.	The New York Sea Grant program distributed 31 Long Island Sound stencils with the message, <i>Don't Dump, Drains to Long Island Sound</i> , to two groups.	Continue to distribute brochures and stencils to interested groups. Explore offering the plastic markers rather than stencils in 2005.
3.	The CTDEP Long Island Sound License Plate Fund provided \$117,893 in 2004 for education grants.	
4.	The CTDEP has provided over 72,400 storm drain marker kits as of December 2004 as part of a joint effort between the LIS Fund and NOAA to provide more source pollution education for towns (especially Phase II) and other environmental education institutions.	CT DEP plans to continue to provide free storm drain marker kits in 2005, available in English or Spanish.
5.	The LIS Citizens Advisory Committee (CAC) met in January, March, June, September and December 2004 to identify and address issues concerning LIS and CCMP implementation. The CAC: <ul style="list-style-type: none"> increased its membership base by adding <i>Great Eastern Ecology, Inc.</i> as a new member; hosted a special meeting in October 2004 with the LISS STAC to discuss issues of mutual concern and to promote better communication and coordination between the two groups; approved 2004 budget and work plans and recommended budget and work plan priorities to the Management Committee for 2005; briefed members of Congress on LIS priorities and problems in January 2004 as part of the Clean Water/Jobs coalition. 	Quarterly meetings are planned for 2005.

E-4. INCREASE COMMUNICATION AND COOPERATION (CCMP TABLE 54, P.150)

Key Elements: The CCMP commissioned the EPA and the states of Connecticut and New York, in combination with a Management Conference public outreach workgroup, to help coordinate ongoing governmental and non-governmental public outreach efforts. During the CCMP implementation phase, and thereafter, the partners are to encourage private and non-profit groups to continue to develop and implement LIS educational and outreach programs.

2004 Description		2005 Planned Action
1.	CTDEP LISS outreach staff continued to provide technical information and resources (about LIS and LISS CCMP actions) to CTDEP agency staff and to other state and federal agency partners to facilitate cooperation and outreach with each other and the public at large.	Continue to provide information and resources to state and federal agency staff.

2004 Description		2005 Planned Action
2.	CTDEP LISS Outreach Staff participated in the Atlantic Northeast Coastal Indicators Workshop meetings in January 2004 and assisting as facilitator of the Climate Change breakout sessions with follow-up outreach products for coastal development and climate change.	Remain available to assist in any regional indicator outreach projects.

E-5. ENHANCE EDUCATION AT ALL LEVELS (CCMP TABLE 55, P.151)

Key Elements: A key objective for the LISS involvement and education program is to develop, among the citizens of CT and NY, a long-term sense of environmental appreciation for and understanding of the Sound by enhancing educational opportunities at all age levels. The States of Connecticut and New York are to work with appropriate school districts in their respective states to develop Long Island Sound educational materials to integrate into existing primary and secondary school curricula. The partners are to encourage natural history museums and nature centers to promote LIS issues within their programs and provide support for teacher training and workshops integrating LIS issues.

2004 Description		2005 Planned Action
1.	CT Sea Grant continued the LIS Mentor Teacher Program. Three teams (9 certified teachers) of "mentor" teachers (grades K-4, 5-8, and high school) with experience in using LIS in their classroom curricula were established through an application process. After attending a planning session, the teachers were asked to prepare and offer a one-day workshop for their peers to demonstrate effective "tried and true" ways to incorporate age-appropriate information on the Sound into the classrooms.	Continue in 2005.
2.	NY Sea Grant, as a member of the Executive board of the NYS Marine Education Association (NYSMEA), distributed new LISS materials to members and kept them informed of LISS activities. Staff assisted with planning the NYSMEA annual conference.	Staff will continue on the Board and distribute information. Staff will also assist with the organization of the yearly conference to be held at Dowling College, June 3 - 5, 2005.

E-6. SECURE FUNDING (CCMP TABLE 56, P.152)

Key Elements: Connecticut, New York and the EPA are to publicize grant opportunities whenever possible and to encourage all organizations associated with the public involvement and education effort, both governmental and non-governmental, to take advantage of the various grant programs available that provide funding for educational activities and products. Private sector funding should also be sought when and wherever possible and identify other grant programs for which LIS projects would be eligible.

2004 Description		2005 Planned Action
1.	The CTDEP Long Island Sound License Plate Fund distributed more than \$286,000 in 2004 for 19 projects that benefit LIS in the following four categories: Education and Outreach, Habitat Restoration, Public Access, and Research. A list of past awards is available on the CTDEP web site at http://dep.state.ct.us/olisp/index.htm .	CTDEP issued a Request for Proposals for 2005. Grants of up to \$25,000 will be awarded in June.
2.	Since the inception of the LISS Small Grants Program, the LISS has provided funds for 116 projects totaling more than \$466,000. These projects assisted hundreds of teachers and thousands of school children, and produced over 20,000 pieces of literature. In 2004, the LISS provided grant funds totaling \$70,000 for 18 projects.	16 projects will be underway in 2005.
3.	In 2004 The CTDEP announced \$164,922 in grants awarded to coastal municipalities and regional planning agencies in Connecticut. Through DEP's Office of Long Island Sound Programs, six projects received grants to address coastal planning issues such as stormwater management, waterfront redevelopment, and coordinating shellfish and boating management. Nearly all of the grants seek to identify and map coastal resources, and develop guidelines for their protection.	These six grants will provide the recipients with an opportunity to improve their existing coastal planning programs, as well as assess innovative approaches to several emerging issues

	2004 Description	2005 Planned Action
	<p>The funding for the grants was made possible through an increased federal grant allocation from the NOAA Office of Ocean and Coastal Resource Management. In the past two years, DEP has awarded more than \$400,000 to 13 municipalities or regional planning agencies. These grants will provide the recipients with an opportunity to improve their existing coastal planning programs, as well as to provide for more public education and outreach opportunities about various emerging issues along the coast.</p>	<p>along the coast.</p>
4.	<p>LISS staff continued to make available information and announcements from a number of grant programs sponsored by Federal or state agencies, including NOAA, USFWS, EPA research and regional or special educational grant programs, NYS Clean Air/Clean Water Bond Act, and CT License Plate/Clean Water Fund programs. A new section was added to the website to highlight available grants.</p>	<p>Coordination and distribution of information will continue in 2005.</p>

Long Island Sound Study Comprehensive Conservation and Management Plan Actions

CONTINUING THE MANAGEMENT CONFERENCE

M1-1. Formally extend the Management Conference for a minimum of five years to continue coordination and oversee implementation of the management plan. The Citizens Advisory Committee will remain part of the Management Conference structure.

M1-2. Continue and expand the role of the EPA Long Island Sound Office, consistent with the requirements of the LIS Improvement Act of 1990. Funding is available in FY 1994, but will be required in future years.

M1-3. Continue state program coordination and involvement in the Management Conference. Funding is available in FY 1994, but will be required in future years.

M1-4. Maintain public involvement and education efforts with an added focus on local government involvement. Funding is available in FY 1994, but will be required in future years.

M1-5. Establish delegation of authority to allow the EPA Long Island Sound Office to support projects of studies as authorized by the Long Island Sound Improvement Act.

M1-6. Advocate modification to Clean Water Act § 320(g)(2) to allow the EPA to provide base funding through cooperative agreements to National Estuary Programs that complete their management plans.

M1-7. Develop a coordinated monitoring plan to assess the effectiveness of implementation, considering innovative approaches and building upon existing programs.

M1-8. Coordinate data management efforts between Long Island Sound and New York-New Jersey Harbor Estuary Program (HEP), including support for a system wide data manager.

M1-9. Modify the current structure of the LISS as needed to oversee implementation of the plan.

M1-10. Ensure that the LISS is consistent with existing state coastal zone management (CZM) policies.

M1-11. Incorporate relevant elements of the plan into the state CZM program for federal consistency review.

M1-12. Continue to support and enhance data management, analysis and reporting.

M1-13. Prepare an annual progress report on implementation including recommendations to redirect efforts.

HYPOXIA

H1-1. The states of New York and Connecticut will continue their point and non-point source permitting and enforcement programs as a primary mechanism of pollutant load reduction. Fundamental to the direction of these programs are the states' water quality standards and classifications that provide the basis for management policies and decisions.

H1-2. The state of New York will ensure compliance with the consent order to upgrade the Newtown Creek plant to provide secondary treatment with biological nutrient removal retrofit modifications.

H1-3. The state of Connecticut will freeze nitrogen discharges and, if appropriate, explore opportunities to reduce nitrogen discharges at three industrial facilities with significant nitrogen discharges.

H1-4. The municipalities in the states of Connecticut and New York will implement biological nutrient removal retrofits to reduce the load of nitrogen to the Sound on an interim basis.

H1-5. Conduct feasibility studies and pilot demonstrations for nitrogen removal at 13 of its [NYC] 14 sewage treatment plants, with actual design for Newtown Creek.

H1-6. Westchester County will investigate sludge re-handling at their four facilities to determine if opportunities exist for nitrogen load reduction.

H1-7. The state of New York will continue to seek to reach agreement with Belgrave, Great Neck East Shore, Huntington, Oyster Bay, Port Washington, and Kings Park on permit modifications for implementing the no net increase in nitrogen policy.

H2-1. The states of Connecticut and New York will continue to use their existing authority to manage non-point source pollution and appropriate federal grants such as CWA§ 319, 604(b), and 104(b) to carry out projects that will help prevent increases and, to the extent practicable, achieve reductions in the non-point source loads from high priority drainage identified in the CT and NY portions of the watershed.

H2-2. The states of CT and NY are developing their coastal non-point source control programs, as required by §6217 of the Coastal Zone Management Act.

H2-3. The states of CT and NY will continue to implement general storm water permit programs to control the discharge of storm water from industrial, construction, and municipal activities, in accordance with EPA's national program regulations. These permits will regulate discharges from construction activity greater than five acres and from eleven industrial categories.

H2-4. The states of CT and NY will continue to implement their existing permitting programs, such as the inland and tidal wetland programs, to address non-point nutrient control with respect to LIS management needs, as appropriate.

H2-5. The states of CT and NY will implement the requirements of the reauthorized Clean Air Act to achieve additional nitrogen emission controls. Major actions include reduction of nitrous oxide emissions through adoption of statewide enhanced vehicle inspection and maintenance programs and stricter emission controls for stationary sources such as power plants.

H2-6. The EPA will make non-point source management of nitrogen and other pollutants identified by the LISS, through wetlands and riparian zone protection as well as best management practices implementation, high priorities for funding under §319, 104(b), and 604(b) of the Clean Water Act.

H2-7. Investigate expansion of storm water permitting programs to regulate communities with populations fewer than 100,000 that border Long Island Sound within high priority management zones.

H2-8. In cooperation with the state of New York, Westchester County is developing a non-point source management plan that will include implementing best management practices for non-point source nitrogen control, monitoring their effectiveness and establishing a Westchester County management zone (or bubble) for assessing compliance with the nitrogen load freeze.

The LISS will explore extending the bubble concept to other management zones throughout Connecticut and New York state portions of the Long Island Sound drainage.

H2-9. Westchester County will implement the recommendations of the County Executive's Citizens Committee on Non-point Source Pollution in Long Island Sound.

H2-10. Point and non-point nitrogen load estimates will be made in the City of Stamford to assess feasibility of a point/non-point source *trading* program. A cost-effective mix of management options will be proposed that may be used to help decide how nitrogen reduction targets can be met once they are established.

H2-11. New York state will pursue the expansion of the State Building Code to include provisions for erosion and sediment control and storm water practices for all construction activities in order to prevent increases in non-point nitrogen runoff.

H2-12. Provide technical assistance to coastal municipalities to address impacts of hypoxia in their municipal regulations and plans of development, as required by law.

H2-13. Advocate the use of the June nitrate test on agricultural lands to ensure that fertilizer applications to crops do not exceed crop needs.

H2-14. In addition to continuing general storm water permitting programs, the state of New York should determine if the general permit adequately regulates nitrogen from activities subject to national storm water regulations.

H2-15. Explore the expansion of current requirements for federally licensed or permitted projects to obtain a water quality certification in New York to protect water quality from sources of pollution to include all projects adjacent to wetlands and other sensitive areas (e.g., adjacent to wetlands) or those that exceed a minimum size (e.g., greater than one acre).

H2-16. The states of Connecticut and New York should develop a habitat restoration plan that includes a list of potential project sites and priorities. Wetland projects that are in close proximity to priority nitrogen management areas should be highlighted.

H2-17. Evaluate Maryland's *Critical Areas* regulations and the reported nutrient reduction benefits and make recommendations of the potential value of a similar program for Long Island Sound.

H3-1. The LISS will complete work on the LIS 3.0 model and the necessary management scenario projection runs.

H3-2. Develop LIS 3.0-based dissolved oxygen targets and nitrogen load reduction targets for each management zone.

H3-3. Establish a firm timetable for achieving, within 15 years, the load reduction targets by zone, with progress measured in five year increments.

H3-4. Develop zone-by-zone plans to achieve the nitrogen load reduction targets.

H3-5. Encourage and support development of innovative, cost-effective technologies to reduce point and non-point sources of nitrogen.

H3-6. Periodically recalibrate LIS 3.0 to reflect the changing conditions of the Sound and use it to explain these changing conditions and to evaluate proposals to modify the management plan, as necessary.

H4-1. Increase funding of the Connecticut and New York State Revolving Fund Programs to meet statewide wastewater control needs, including Long Island Sound nitrogen control needs.

H4-2. Appropriate \$50 M to fund a *Long Island Sound Challenge Grant Program*, a significant portion of which would be used to ensure that the Phase III nitrogen control efforts get off to a fast start with full local government cooperation.

H4-3. Fully fund the non-point source control programs under §319 of the Clean Water Act and §6217 of the Coastal Zone Act Reauthorization Amendments to support additional non-point source management activities.

H5-1. The states of Connecticut and New York, New York City, and the Interstate Sanitation Commission will monitor dissolved oxygen and nutrients in Long Island Sound, its major tributaries, and key sewage treatment plants.

H5-2. Develop a coordinated monitoring plan to assess the effectiveness of implementation, considering innovative approaches and building upon existing programs.

H5-3. As part of a combined National Estuary Program Action Plan Demonstration Project and a CTDEP Long Island Sound Research Fund project, the EPA and the state of Connecticut will complete a demonstration project designed to evaluate and quantify the benefits of a riparian zone in the denitrification process.

H5-4. The state of Connecticut, through its Long Island Sound Research Program, has solicited proposals to identify the role of riverine transport in attenuating the load of nitrogen delivered to the Sound in the Housatonic or Naugatuck Rivers. If an acceptable proposal is identified, it will be a priority for funding in 1994.

H5-5. The state of Connecticut, through its Long Island Sound Research Program, will continue to fund atmospheric deposition monitoring of nitrogen at two coastal locations through May, 1994.

H5-6. The EPA Office of Research and Development will continue to develop regional dissolved oxygen criteria for marine and estuarine waters.

H5-7. The NYSDEC will complete its initial study on the effects of hypoxia and disease on Long Island Sound lobsters.

H5-8. Continue long-term dissolved oxygen and nutrient monitoring of the Sound, its major tributaries, and key sewage treatment plants.

H5-9. Continue to monitor finfish and crustaceans of the Sound with emphasis on determining population response to low dissolved oxygen.

H5-10. Continue to monitor the effects of hypoxia on disease of lobsters.

PATHOGEN CONTAMINATION

P1-1. Continue CSO implementation and update overall management plans to assure implementation addresses bathing beach and shellfish closures and is consistent with water quality standards.

P2-1. Implement the state nonpoint source management initiatives supported from Section 319 funding

P2-2. Develop state coastal nonpoint source control programs, as per Section 6217 of the Coastal Zone Management Act to address the nonpoint source pathogen load from the LIS coastal zone.

P2-3. Implement general storm water permit programs to control the discharge of storm water from industrial, construction, and municipal activities, as per EPA regulations.

P2-4. Provide technical assistance to coastal municipalities to address impacts of pathogens in their municipal regulations and plans of development, as required by state law.

P2-5. Pursue changes of the State Building Code to include provisions for storm water management.

P2-6. Initiate a pilot program to control storm water discharges using enforceable instruments (i.e., permits or consent agreements). Connecticut and New York will evaluate the effectiveness of the pilot program for more widespread implementation.

P2-7. Expand current requirements for federally licensed or permitted projects to obtain a water quality certification to include all projects in sensitive areas or where a contaminant or parameter is found to exist at or exceeding a threshold value.

P3-1. Minimize malfunctions of treatment systems and eliminate dry weather overflows and illegal hookups to storm sewers through aggressive management programs. Ensure prompt notification and response and take quick enforcement action.

P3-2. Identify and take priority enforcement actions to control wet weather overflows from sewers caused by excessive infiltration and inflow.

P3-3. Implement a beach and shellfish closure action plan to take immediate corrective and priority enforcement actions addressing improperly treated municipal discharges. Preventable incidents involving beaches and shellfish areas will be emphasized.

P4-1. During the permitting process, minimize the impacts of boat dockage facilities and temporary live-aboard anchorages by considering their proximity to productive and certified shellfish waters, existing boat channels, wetlands, and critical habitat areas, and tidal flushing.

P4-2. Consider the impacts of vessel discharges through appropriate resource management and recovery programs and limit or condition the siting or operation of boating facilities as necessary to minimize such impacts.

P4-3. New York and Connecticut will apply to the EPA to create vessel *No Discharge* areas in specific embayments and harbors after ensuring the sufficient availability of pump-out stations and treatment facilities.

P4-4. New York state has identified Huntington and Lloyd Harbors as areas requiring additional protection and the EPA has Public Noticed its tentative determination that there are adequate pump-out facilities in these areas.

P4-5. Connecticut, through a 319 grant, will ensure completion of a marina and mooring area water quality assessment guidance document. Connecticut has also completed a marinas *best management practices* project report for nonpoint sources of pollution, which may be used to develop requirements for use of certain best management practices at marinas. New York state will review these documents for potential incorporation into state management programs.

P4-6. Complete regulations to require pump-out facilities as required by, and in accordance with, state law.

P4-7. The states of Connecticut and New York have received funding from the Federal Clean Vessel Act to conduct a pump-out needs survey, determine the effectiveness of existing facilities, develop and implement plans for construction of additional pump-out stations by marinas and prepare education/information plans.

P4-8. Collect information on sewage discharge controls in Long Island Sound, disinfection chemicals used, boater education and sewage treatment plant acceptance of pump-out wastes. Evaluate availability of treatment capacity for pump-out wastes and secure commitments from municipalities to accept these wastes.

P5-1. Connecticut and New York are coordinating management actions with local governments when on-site septic systems are found to be failing and impacting shellfish growing areas and bathing beaches.

P5-2. Continue and enhance management actions with local governments when on-site septic systems are found to be failing and impacting shellfish growing areas and bathing beaches.

P5-3. Evaluate existing septic system controls (including system monitoring, required maintenance and repair and replacement of failing systems) to determine if they are sufficient to protect coastal ecosystems and recommend changes to local governments.

P6-1. Develop and implement a public education plan, targeting specific audiences, in cooperation with federal, state and local public outreach experts and environmental education.

P7-1. Review existing data and reports and the recommendations of the Monitoring Workshop to identify shell fishing or bathing area in need of further assessment.

P7-2. Perform bacterial surveys of harbors and embayments to identify contaminated shellfish areas and potential sources of pathogens as required by the National Shellfish Sanitation Program.

P7-3. Use seasonal or conditional certification of shellfish harvest areas, as may be warranted by water quality variations, under guidelines provided by the National Shellfish Sanitation Program.

P7-4. Meet annually with health directors of coastal municipalities to refine monitoring and bathing beach closure protocols and share information

P7-5. Evaluate existing monitoring programs and, as necessary, make recommendations for enhancements.

P7-6. Conduct a workshop to determine appropriate and consistent methods for bathing beach monitoring and laboratory analysis and work to adopt, if feasible, common methods.

P7-7. Implement the recommendations of the LISS Monitoring Plan to enhance pathogen monitoring.

P7-8. Develop and conduct a dry and wet weather sampling program for specific drainage basins. Both states will evaluate this pilot program for possible expansion.

P7-9. Assess the impacts of identified point and nonpoint sources and assign priorities to areas where management actions are most likely to be beneficial. Priority criteria will include viability of the resource, feasibility and cost-effectiveness of management. Enhance state bacterial surveys of harbors and embayments to identify contaminated shellfish areas and potential sources of pathogens.

P7-10. Support the efforts to develop a better understanding of the relationship between pathogen indicators and the risk to public health such as the National Indicator Study.

P7-11. Along with supporting the National Indicator Study, investigate funding for a regional epidemiological survey to determine the relationship between waters of varying indicator quality and public health.

TOXICS CONTAMINATION

T1-1. The states of Connecticut and New York and the Army Corps of Engineers will continue to regulate dredging and the disposal of dredged sediments through the existing permit programs.

T1-2. The states of Connecticut and New York and the EPA will continue their pretreatment programs to ensure that toxic discharges to sewage treatment plants are controlled. The states of Connecticut and New York, through their Pollution Discharge Elimination System Programs, will continue to ensure that facilities comply with their permit limits.

T1-3. The states of Connecticut and New York and the EPA will apply pollution-prevention techniques, as appropriate, to both direct and indirect discharges of toxic substances by emphasizing wastewater minimization, recycling of wastewater, and alternative processes and chemicals to reduce toxicity and toxics loads and to minimize effects on all environmental media.

T1-4. The states of Connecticut and New York will review municipal and industrial discharge permits to surface waters to reduce the allowable concentrations of toxic pollutants from the previous permitted values.

T1-5. The LISS will encourage adequate funding to continue and expand pollution prevention site visit programs targeting industrial dischargers to the Sound and its tributaries.

T1-6. As part of the NY-NJ Harbor Estuary Program, total maximum daily loads, wasteload allocations for point sources, and load allocations for nonpoint sources will be developed to ensure that water quality standards for mercury are met in the Harbor, the East River, and Long Island Sound.

T1-7. As part of the New York - New Jersey Harbor Estuary Program, the states of New York and New Jersey will establish water quality-based effluent limits for copper, mercury, and six other toxic metals, as necessary. Permits will be subsequently modified.

T1-8. Support education on the environmental impact of using home, garden, and commercial hazardous chemicals and pesticides and continue to provide guidance on how to minimize use of these chemicals and properly dispose of them through household hazardous waste collection.

T1-9. Evaluate mass loadings of toxic contaminants and determine their relationship to ambient water and sediment quality.

T1-10. Identify and assign priorities to toxic substances which should be banned from use and for which *virtual elimination of discharge* should be the goal.

T2-1. The LISS will review the National Oceanic and Atmospheric Administration (NOAA) 1991 sediment chemistry and toxicity survey results of harbors and embayments, when available in the Spring 1994.

T2-2. The LISS will provide a preliminary review of the data on sediment contamination on a site-by-site basis. State and federal experts will evaluate the problem at each site and recommend additional assessments needed to fully characterize the problem, ascertain the need for and feasibility of remediation and prepare a remediation plan.

T2-3. The City of Glen Cove plus their Review Committee will evaluate the contamination of Glen Cove Creek.

T2-4. The LISS will review and evaluate sediment remediation approaches developed in the Great Lakes ARCS Program and HEP.

T2-5. Conduct further assessments and develop site plans addressing the feasibility, technical approach, cost and value of conducting remediation activities for Black Rock Harbor and Glen Cove Creek, where data may be sufficient to conduct case study analyses. Recommend other harbors for characterization and feasibility studies to be conducted at a rate of two harbors per year.

T3-1. The LISS will advocate the coordination between the states of Connecticut and New York to review health risk and advisory recommendations and formulate plans to ensure consistency.

T3-2. Develop strategies for controlling loadings of contaminants for which seafood consumption advisories have been issued.

T3-3. Develop a strategy for identifying toxic substances of human health risk concern in Long Island Sound seafood species and tolerance levels for those substances.

T4-1. The mussel watch and benthic surveillance components of NOAA's Status and Trends Program and the EPA's Environmental Monitoring and Assessment Program provide regular and systematic sampling of contaminant levels in the Sound.

T4-2. A monitoring workshop was held to integrate findings of the LISS and develop a comprehensive, Soundwide monitoring plan for toxic substances.

T4-3. Under the auspices of the New York- New Jersey Harbor Estuary Program (HEP), the U.S. Army Corps of Engineers has agreed to develop a work plan and budget to develop system wide models for PCBs, mercury, and other toxic pollutants that will provide the technical foundation for comprehensive efforts to eliminate these contamination problems in the Sound-Harbor-Bight system. The Corps of Engineers and other participants have agreed to seek the funding necessary to complete these models. Special attention will be directed to fully account for nonpoint sources of mercury.

T4-4. Monitoring initiatives will be coordinated with the EPA Regional - Environmental Monitoring and Assessment Program (EMAP) to further the understanding of sediment toxicity and benthic community structure gradients in western Long Island Sound.

T4-5. Conduct site-specific characterization surveys of water, sediment and biota in harbors where active sources of toxic substances are believed to persist at a rate of two harbors per year.

T4-6. Identify sources and sites of PCB loadings to the Sound ecosystem from in-Sound and NY-NJ Harbor Estuary sources. Focus on reducing and eliminating PCB loadings on a priority basis, concentrating on areas of known contamination such as Black Rock Harbor.

T4-7. Monitor contaminant levels in selected estuarine organisms to ascertain their effects on the biology of the species and their effects on the edibility of the species.

T4-8. Implement the recommendations from the LISS Monitoring Plan to improve contaminant monitoring.

T5-1. The relationship between organism body burdens and their toxic response needs to be investigated as an important mechanism of toxic impact.

T5-2. Trophic level transfer and bioaccumulation effects of contaminants up the food chain need to be quantified to better manage both the aquatic community and human health risk.

T5-3. While toxicity testing of sediments and waters is an efficient means of identifying toxicity problems, the relationship between toxicity and specific causative agents needs to be determined.

T5-4. Evaluate the use of an ecological risk assessment approach, demonstrated in the LISS Black Rock Harbor Action Plan Demonstration Project, for more widespread application to identify toxicity and its sources in embayments and harbors of the Sound.

T5-5. Continue to monitor finfish and crustaceans of the Sound with emphasis on determining population response to low dissolved oxygen.

FLOATABLE DEBRIS

F1-1. Continue implementation of long-term CSO abatement programs to manage or eliminate all CSO areas remaining in the Long Island Sound region.

F1-2. Control discharge of stormwater from industrial, construction, and municipal activities in accordance with EPA's national program regulations.

F2-1. Continue to implement the *Pack It In/Pack It Out* anti-litter campaign.

F2-2. The New York-New Jersey Harbor Estuary Program has developed detailed short- and long-term floatable debris action plans for the New York-New Jersey Harbor.

F2-3. National Beach Cleanup Program. As part of this program, annual cleanups of Long Island Sound shorelines have taken place since 1988. This program costs \$10,000 per year per state to coordinate and support volunteer efforts.

F2-4. Continue to implement *Clean Streets/Clean Beaches* anti-litter campaign.

F2-5. Conduct a demonstration project to encourage proper solid waste handling and recycling at five marinas.

F2-6. Expand involvement in *Coastweeks* program to include a second beach cleanup in the spring, prior to the beach season.

F2-7. Continue to coordinate volunteers to paint stenciled messages on storm drains, such as *Don't Dump - Drains to Long Island Sound*.

F2-8. Maintain clean beaches and minimize resuspension of debris back into Long Island Sound waters by: -Cleaning beaches in the evening to prevent resuspension overnight; -Using solid waste receptacles with lids instead of the open mesh type; -Providing recycling containers in convenient locations; -Using environmentally responsible containers for food and beverages at concession stands.

F2-9. Distribute a directory of volunteer groups in the Long Island Sound watershed that work on projects and activities to reduce marine debris.

F2-10. Encourage the public and manufacturers to promote recycling, use less packaging, and substitute products made from degradable material whenever possible.

F2-11. Encourage marina operators to accept responsibility for litter control and recycling.

F2-12. Require floatation materials that are resistant to decomposition and fragmentation.

LIVING RESOURCES AND THEIR HABITATS

L1-1. Connecticut, New York, and federal agencies will continue to pursue restoration of degraded habitat.

L1-2. Through Connecticut's coastal permit programs and consistency with the CT Coastal Management Act, applicants may be required to protect, restore or enhance aquatic resources.

L1-3. Connecticut preparing a tidal wetland management plan that includes an identification of potential wetland restoration sites.

L1-4. Connecticut will continue the Coves and Embayments Restoration program to restore degraded tidal and coastal embayments and coves.

L1-5. Connecticut, New York, and federal agencies currently administer programs for the restoration of habitats other than tidal wetlands such as dunes, submerged aquatic vegetation, and coastal woodlands.

L1-6. New York is phasing out, and Connecticut prohibits, maintenance ditching of mosquito ditches in favor of selective use of open marsh water management techniques to control mosquitos and restore pools and ponds on tidal wetlands.

L1-7. Coastal America, a cooperative effort of several federal agencies, is conducting a study in Connecticut to evaluate the impacts of transportation facilities upon ten tidal wetland sites. This study is sponsored by the CTDEP and undertaken by the USACE. When the study is completed, restoration plans will be developed for those sites where a transportation facility is shown to be the cause of degradation. Restoration is expected to be implemented through a combination of ISTEA, Water Resources Development Act, Long Island Sound Cleanup Account funds, New York's Environmental Protection Fund, and, where appropriate, natural resources damages recovered under CERCLA or OPA90.

L1-8. Connecticut's Coves & Embayments Program will complete nine restoration projects in progress and commitments to begin three new projects.

L1-9. Connecticut and New York should continue to pursue the use of funds from the following programs, and explore additional funding sources, to support restoration and enhancement activities described in the previous recommendation: The Land and Water Conservation Fund, the Intermodal Surface Transportation Efficiency Act (ISTEA) Enhancement Program, the Partners in Wildlife Program, § 319 of the Clean Water Act, Army Corps of Engineers Section 22 Planning Funds, the Water Resources Development Act, National Coastal Wetlands Conservation Grants, the North American Waterfowl Management Plan, Connecticut's Long Island Sound Cleanup Funds, and the Coastal Zone Management Act.

L1-10. The rapid displacement of native brackish and fresh tidal plant communities on the Connecticut River has been identified as the single most significant habitat problem in this estuary. A specific restoration program for the control of common reed in these tidal wetlands needs to be implemented to check and reverse the spread of common reed and develop the most efficient means of effecting this restoration. Control techniques need to be evaluated for the full range of wetland habitat types on the river. Baseline surveys will be established and post-control monitoring over multiple years will be conducted.

L1-11. New York should continue to phase out maintenance ditching for mosquito control. These programs should receive additional support for selective use of open marsh water management techniques to control mosquitos and restore pools and ponds on tidal wetlands.

L1-12. Obtain long-term funding for Connecticut wetland restoration staff.

L1-13. Connecticut and New York should develop a restoration plan for the full range of coastal terrestrial and estuarine aquatic habitats adjacent to and in Long Island Sound. The restoration plan will include a list of potential restoration projects and a priority listing of projects to be implemented. Preliminary sites identified for future restoration in New York include: City Island (\$300,000); Pelham Bay Park (\$400,000); Wading River (\$50,000); Sunken Meadow Creek (\$50,000); Crab Meadow (\$50,000); and Mattituck Creek (\$100,000). Other sites in New York where costs have not been estimated include Pugsley Creek, Udall's Cove, Oak Neck Creek, Frost Creek, and East Creek. Connecticut has estimated that ten priority sites could be restored for \$750,000, or approximately \$75,000 per site.

L1-14. New York should strengthen their capabilities for implementing programs that restore degraded habitats. This should be undertaken in cooperation with the implementation of the Long Island Sound Regional Coastal Management Plan.

L2-1. The states of Connecticut and New York and the USACE will continue to implement their permit programs and coastal consistency provisions of states' Coastal Management Programs to regulate use and development of aquatic resources and critical habitats such as tidal and freshwater wetlands, intertidal flats, submerged aquatic vegetation beds, beaches, and dunes.

These programs also regulate dredging and the disposal of dredged sediments at designated sites in Long Island Sound. Open water disposal is only permitted at the designated open water sites and may only occur if the disposal will not cause adverse impacts to estuarine organisms.

L2-2. Connecticut will continue to reduce habitat degradation caused by storm water runoff projects (e.g. chronic dilution effects and sedimentation) through the goal of retaining the first one-inch of runoff.

L2-3. Connecticut and New York have programs to acquire by easement, fee simple acquisition, or other means habitats important for populations of plants and animals. These programs include the development of priority listings for acquisition and protection.

Connecticut and New York have land acquisition and management programs that use state funds and federal fund programs such as the Land and Water Conservation Fund, the National Coastal Wetland Conservation Program, and the North American Waterfowl Management Plan to protect and acquire coastal lands and wetlands.

L2-4. The USFWS maintains a national system of refuges, which includes the Stewart B. McKinney National Wildlife Refuge in Connecticut (i.e., Salt Meadow, Chimon Island, Sheffield Island, Goose Island, Milford Point and Falkner Island Units) and Long Island National Wildlife Refuge Complex in New York (i.e., Oyster Bay and Target Rock units).

L2-5. Congress has authorized the creation of the Silvio Conte Connecticut River National Fish and Wildlife Refuge within the Connecticut River Watershed for the purpose of conserving, protecting and enhancing the Connecticut River Valley populations of plants, fish, and wildlife; preserving natural diversity and water quality; fulfilling international treaty obligations relating to fish and wildlife; and providing opportunities for scientific research and education.

L2-6. Connecticut has established a Migratory Bird Conservation Stamp Program, the proceeds of which can be used for acquisition and management. The newly created state income tax form check off for endangered species, natural areas preserves, and watchable wildlife creates a fund that can be used for the identification, protection, conservation, management, and education activities related to the above listed wildlife and habitats.

L2-7. Create a Long Island Sound Reserve System consisting of areas of land and water of outstanding or exemplary scientific, educational, or biological value to reflect regional differentiation and variety of ecosystems and to include representatives of all of the significant natural habitats found in the Sound. Where appropriate, sites will be selected from existing lands and wetlands held for conservation purposes so that acquisition funds will be directed towards those lands in private ownership that are needed to complete the reserve system.

The primary activities in the recommendation include site identification (2 years) and site protection through the development of management plans, acquisition where necessary, and site management.

L2-8. Connecticut and New York should continue to acquire or protect through less than fee simple means, significant coastal habitats through funding sources such as the Land and Water Conservation Fund, the National Coastal Wetland Conservation Program, the North American Waterfowl Management Plan, Connecticut's Recreation and Natural Heritage Trust Program, Connecticut's Migratory Bird Conservation Stamp Program, New York's Environmental Protection Fund, and, where appropriate, natural resource damages recovered under CERCLA or OPA90.

L2-9. Acquire and protect those sites that are considered for acquisition in the New York State Open Space Conservation Plan. Sites include Oyster Bay Harbor (\$5 million); Porpoise Channel (\$2 million); Plum Point (\$1 million); Udall's Cove (\$8 million). Other sites on Long Island Sound that are among the state's highest priority acquisition sites include: Bronx River Trailway, Udall's Ravine, Alley Creek (\$750,000); Long Creek and Mattituck Creek (\$340,000); Premium River (\$750,000); and Cedar Beach Creek (\$186,000).

L2-10. Acquire and protect those sites that are considered priorities for acquisition in Connecticut. The Great Meadows site is the highest priority. (See also Ongoing Programs portion of this table in the CCMP.)

L2-11. Encourage activities of existing Long Island Sound-specific land trusts and encourage formation of new trusts, to seek donations and easements of localized habitat areas for the plants and animals of Long Island Sound.

L3-1. Connecticut, New York and The Nature Conservancy will continue the Natural Diversity Database in Connecticut and the Natural Heritage Program in New York. These programs collect, maintain, and update information pertaining to significant terrestrial and aquatic habitats.

L3-2. The USFWS will continue the Southern New England-New York Bight Coastal and Estuary Project. The project focuses on assessing and monitoring the regional geographic distribution and population status of a large number of key species called *Species of Special Emphasis* and their habitats including evaluating the threats to physical integrity of these habitats and the viability of species populations. Primary objectives are to determine and delineate those regionally important habitats and species populations requiring both immediate and long term protection, conservation, enhancement, and restoration.

L3-3. The NYSDEC will, on a pilot basis, develop a site-specific habitat management strategy for the Oyster Bay/Cold Spring Harbor complex. Phase II will entail implementation of the identified strategy.

L3-4. Connecticut is identifying wetland complexes of statewide significance and general wetland protection strategies for areas located in Long Island Sound and the Connecticut River. This project has been funded by the EPA under §104(b) of the Clean Water Act.

L3-5. Develop a nomination document to recommend the designation of the Connecticut River estuary as a *Wetland of International Importance* for the purpose of establishing a formal designation of this area to recognize the ecological significance of this ecosystem and to foster increased protection of its significant habitat complex and living resources.

L3-6. Develop a strategic plan for the estuarine portion of the Connecticut River that will identify habitat and species issues/problems, monitoring, and research needs and recommendations to foster increased protection of this nationally significant ecosystem.

L3-7. Develop and periodically update a list of significant habitats, habitat complexes, and sensitive areas for protection and management. When completed, habitat management plans will be developed for these areas. In New York this should be undertaken in cooperation with the implementation of the NYSDOS Long Island Sound Regional Coastal Management Plan.

L3-8. Expand the Southern New England-New York Bight Coastal and Estuary Project to: 1) include the watersheds of Long Island Sound; and 2) reexamine the habitat complexes previously identified in Long Island Sound based upon the most current listing of Species of Special Emphasis. Examine the complexes more carefully to fine tune the management recommendations and implement these recommendations through state, county and municipal agencies.

L3-9. Federal habitat programs should develop a watershed approach to protection of living resources of Long Island Sound and their habitats, such as development of a Connecticut River/Long Island Sound Management Unit by the USFWS.

L3-10. Designate portions of the Connecticut River estuary as a National Estuarine Research Reserve. A reserve designation will result in promoting research that is directed towards resource management issues and provide facilities and programs for public education and interpretation.

L4-1. Connecticut, New York, and federal agencies will continue to implement their Endangered Species Programs in order to protect endangered and threatened species that live in and adjacent to Long Island Sound.

L4-2. Develop a list of endangered and threatened invertebrates. Maintain and update the diversity database. Periodically revise the list of threatened and endangered species. Expand the monitoring program, identify essential habitats, and develop recovery plans.

L4-3. Develop legislation or regulations in New York state that will minimize disturbance to the essential habitats of rare plants and animals.

L4-4. Revise and publish a list of rare and sensitive species associated with the coastal lands and waters of Long Island Sound.

L5-1. Development and implementation of fishery management plans, including research, monitoring, and conservation law enforcement activities.

L5-2. Management of shellfish aquaculture activities including resource monitoring.

L5-3. Improvement of anadromous fish passage opportunities including associated research and monitoring activities.

L5-4. Wildlife management, including research and monitoring activities in support of management programs.

L5-5. Activities that minimize mortality due to entrainment and impingement of eggs, larvae, and juvenile and adult aquatic organisms at industrial facilities.

L5-6. Define, revise, and coordinate the establishment of seasonal restrictions for dredging that minimize adverse effects on aquatic organisms, especially finfish and shellfish and their habitats.

L5-7. Enhance implementation of interstate fishery management plans for Long Island Sound fishery resources.

L5-8. Expand efforts to bypass obstructions to anadromous finfish migrations on Connecticut tributaries to Long Island Sound and the Connecticut River by constructing or installing fishways or fishlifts.

L5-9. Enhance municipal shellfish restoration programs.

L5-10. Enhance the Connecticut Oyster Restoration Program on public beds in state waters by stocking settling habitat (cultch) and conducting related activities (e.g., resource sampling).

L5-11. Develop a marine biotoxin assessment program for shellfish.

L5-12. Develop artificial reefs in appropriate areas of New York waters to increase fishing opportunities, consistent with the New York State Artificial Reef Development Plan. Plans have been developed to construct reefs in New York waters of Long Island Sound off Matinecock Point, Eatons Neck, Miller Place/ Mt. Sinai, and Mattituck Inlet.

L5-13. Develop methods to reduce the incidental take of nontarget species and undersized individuals in fishing activities.

L6-1. Develop measures to prohibit or prevent the induction or release to Long Island Sound and its watershed of known or potentially undesirable species.

L6-2. Implement a management program to reduce abundance of mute swans that are causing losses of certain aquatic habitat types such as submerged aquatic vegetation and certain types of emergent tidal wetland vegetation.

L7-1. Develop an outreach program to inform and educate the public about the plants and animals in Long Island Sound.

L7-2. Develop a citizens monitoring program specific to the plants and animals of Long Island Sound sufficient to aid managers in identifying problems and assessing the effects of management efforts.

L8-1. Connecticut will continue its statewide Geographic Information System (GIS) Program to digitize spatial information and data for resource management purposes.

L8-2. Connecticut has created a Long Island Sound Resources Center for the purpose of : 1) developing the full potential of estuarine related GIS applications; 2) computerizing pertinent literature and data for rapid access through standard word search and spatial basis; and 3) completion of the estuarine geology of Long Island Sound. Additionally, this Center is taking a leadership role in the development of side scan sonar mapping of Long Island Sound that is now being overlaid with benthic community information. This will become the foundation of future living species and habitat management programs.

L8-3. Identify spatial data for living resources and habitat on a Sound wide basis and digitize priority data sets for incorporating into a Sound wide Geographical Information System.

L8-4. Expand the data layers for living resources and their habitats on a Sound wide basis.

L8-5. Develop and maintain state databases and an integrated Long Island Sound database describing the living resources of Long Island Sound and their habitats.

L8-6. Expand the side scan sonar/benthic habitat mapping program in order to create baseline information for management and conservation purposes.

L8-7. Maintain and enhance the Long Island Sound literature, indexing and GIS capabilities of the Marine Sciences Research Center at SUNY, Stony Brook.

L9-1. Connecticut conducts a Sound wide open water fishery survey that has become an integral component of the LISS monitoring and Management programs. In addition, Connecticut conducts a nearshore finfish survey, and surveys of lobster, shad, anadromous herrings, Atlantic sturgeon, and shortnose sturgeon (the latter is listed by the federal government as an endangered species). Other marine surveys include a survey of oyster recruitment (Connecticut Department of Agriculture, Aquiculture Division) and recreational and commercial fishery statistics activities.

L9-2. Connecticut conducts nesting surveys of colonial water birds, Least Tern and Piping Plover, Osprey, waterfowl, a mid-winter eagle survey, and surveys of diamond-backed terrapin, threatened and endangered terrestrial species, and other species of special concern.

L9-3. New York conducts an American lobster mortality project funded by the LISS. In addition, New York conducts the NMFS's Recreational Fishery Statistics Survey, surveys of commercial fishery landings, seabird surveys, (e.g., ospreys, piping plovers, least terns), surveys of threatened and endangered species and species of special concern, and other surveys as needed.

L9-4. Connecticut should pursue the construction and staffing of a marine science technology center at Avery Point with a research focus on Long Island Sound.

L9-5. Enhance wildlife monitoring activities (e.g., seabirds, waterfowl, and marine turtles).

L9-6. Monitor the status and trends of eelgrass in the Sound and all species of submerged aquatic vegetation in the Connecticut River using remote sensing and ground surveys.

L9-7. New York should initiate a nearshore fishery independent survey of Long Island Sound.

L9-8. Continue the lobster mortality and disease monitoring project in Long Island Sound.

L10-1. Connecticut will continue the Long Island Sound Research fund. This fund is used to foster research that addresses priority management issues in Long Island Sound including living species and their habitats.

L10-2. Connecticut has funded the following living resources and habitat research: evaluation of the causes of declines of eelgrass; assessment of contaminant levels in the greater scaup; changes in the phytoplankton community resulting from nitrogen enrichment; effects of hypoxia on bottom feeding fish; vegetation changes in a restoring tidal wetland; and mapping of benthic communities.

L10-3. Identify priorities for management-oriented research about the living resources of Long Island Sound and their habitats.

PUBLIC INFORMATION & EDUCATION

E1-1. The LISS and state public involvement and education programs are: developing printed and other educational materials for specific audiences; exhibiting LIS materials at regional and local fairs and events; encouraging education and information on the Sound for urban populations; promoting the importance of the Sound's resources to children in the region; and, using public educational material of non-profit organizations.

E1-2. Support research conferences such as: the CTDEP conference to highlight its LIS Research Grant Program; the LIS Watershed Alliance *Citizens' Summit* annual conference on the Sound; and the bi-state LIS research conference sponsored by local universities, Sea Grant programs, and the states.

E1-3. *Coastweeks*, an annual three week celebration of marine and coastal environments is supported by both states.

E1-4. Enhance the LISS and state public involvement and education programs to provide additional funding to build upon the current outreach and education activities with a new focus on interpretation and implementation of the management plan.

E2-1. Incorporate LIS information into all related programs conducted by state staff wherever possible.

E2-2. Provide information to all municipalities on the LISS and the importance of protecting and restoring the Sound. Special attention will be given to coastal municipalities in the form of briefings by state officials to explain exactly how implementation of the plan will affect that particular city or town and how to work cooperatively together to implement the management plan. Briefings will also be held for specific user groups, local officials, and elected representatives.

E2-3. Assess opportunities for training and educating the environmental decision-making community and provide technical information and assistance on implementation of the plan to the regulated community.

E2-4. Utilize the Bi-state Marine Resources Committee to ensure Long Island Sound related legislation moves on a parallel track in both Connecticut and New York and to help educate local governments and the public about the importance of the Sound and the successful implementation of the LISS recommendations.

E2-5. Pursue reestablishment of funding for the Long Island Sound Resource Center at Avery Point and further development of a similar resource center in New York to serve as clearinghouses and depositories for information about the Sound and investigate ways to improve funding for these centers.

E3-1. Encourage public participation in activities relating to the cleanup and protection of the Sound and provide support for activities including storm drain stenciling, beach grass planting, and beach cleanups.

E3-2. The LISS Citizens Advisory Committee will continue to provide guidance to the Management and Policy Committee and serve as a link between the public and LISS management agencies. The CAC has been instrumental in providing guidance to the Study and serving as a conduit between the Management Conference and the public.

E3-3. Enhance funding for hands-on activities such as storm drain stenciling, beach grass planting and beach cleanups to allow the public to actively participate in the cleanup and restoration of the Sound and learn more about its ecosystem.

E3-4. Promote citizen involvement in educational and monitoring activities in and around the Sound and consider:

- Providing technical assistance to citizen monitoring groups;
- Developing a reward system for citizens participating in Long Island Sound protection and restoration programs;
- Developing environmental habitat kits and guide maps;
- Production and distribution of videos of Long Island Sound research cruises.

E4-1. Increase efforts to coordinate ongoing governmental and non-governmental public outreach efforts as the plan becomes implemented and encourage private and nonprofit groups to continue to develop and implement Long Island Sound educational and outreach programs.

E4-2. Establish a public outreach work group to guide the implementation of the public involvement and education commitments and recommendations. The work group will work closely with and serve to complement the ongoing public outreach and education efforts of the Citizens Advisory Committee. The group will also be charged with determining funding resources for implementation of public involvement and education recommendations, consulting with staff on tactics, working to provide coordination of public outreach efforts from both an internal and external basis, and assessing program effectiveness.

E5-1. Support ongoing actions that assist teachers in their efforts to integrate LIS issues into existing curricula.

E5-2. Continue Connecticut's Long Island Sound High School Research Grant Program, initiated in 1990. This program provides funding for students to conduct research on the Sound and its watershed.

E5-3. Encourage natural history museums and nature centers to promote Long Island Sound issues within their programs.

E5-4. Work with school districts and, where appropriate, the Department of Education, in Connecticut and New York to develop Long Island Sound educational materials and outreach programs for primary and secondary schools. Help teachers integrate Long Island Sound information into their curricula and provide materials wherever possible. This should include hiring a Long Island Sound education coordinator.

E5-5. Enhance ongoing actions to assist teachers in their efforts to integrate Long Island Sound issues into their existing curricula including the development and support of teacher workshops.

E5-6. Consider a Long Island Sound High School Research Grant Program to provide resources to allow a variety of high schools to conduct research on the Sound and its watershed.

E6-1. The LISS will continue to encourage all organizations involved in the public involvement and education effort, both governmental and non-governmental, to take advantage of the various grant programs for which they are eligible, that provide funding for educational activities. These include Connecticut's Long Island Sound Fund, Long Island Sound High School Research Grant Program and EPA's Education Grants. Private sector funding should also be sought when and where possible and other private grant programs identified.

E6-2. Seek to create a public involvement and education (PIE) fund that could be supported by a variety of funding sources, including federal appropriations through the Long Island Sound Improvement Act. The PIE fund would be administered by the LISS Management Conference. A PIE fund and interest generated from its endowment would provide support for projects fulfilling plan involvement and education actions and recommendations as proposed by both non-governmental and governmental organizations. Current state and private Long Island Sound public education programs are underfunded. State and private funding sources must be directed toward meeting the needs of existing programs before being sought for a PIE fund.

Glossary of Acronyms

A

ACOE Army Corps of Engineers

B

B Billion

BAT Best Available Technology

BMP(s) Best Management Practice(s)

BNR Biological Nutrient Reduction (Removal)

BOD Biological Oxygen Demand

C

CAC Citizens Advisory Committee

CCMP Comprehensive Conservation and Management Plan

CD Compact Disc

CD-ROM Compact Disc - Read-Only Memory

CERCLA Comprehensive Environmental Response, Compensation and Liability Act (Superfund)

CES Cooperative Extension Service

CSO(s) Combined Sewer Overflow(s)

CT Connecticut

CTDEP Connecticut Department of Environmental Protection

CTDOA Connecticut Department of Agriculture

CTDOA/BA Connecticut Department of Agriculture Bureau of Aquaculture

CTDOHS Connecticut Department of Health Services

CTDOT Connecticut Department of Transportation

CVA Clean Vessel Act

CWA Clean Water Act

CZM Coastal Zone Management

CZMA Coastal Zone Management Act

D

DO Dissolved Oxygen (expressed in milligrams per liter [mg/l])

E

EIS Environmental Impact Statement

EMPACT Environmental Monitoring for Public Access and Community Tracking (EPA)

EPF Environmental Protection Fund (New York State)

F

FY Fiscal Year

FFY Federal Fiscal Year

G

GIS Geographic Information System

<u>H</u>	
HEP	Harbor Estuary Program (New York/New Jersey)
Hg	Mercury
<u>I</u>	
ICM	Integrated Crop Management
IEC	Interstate Environmental Commission
IPM	Integrated Pest Management
ISTEA	Intermodal Surface Transportation Efficiency Act
<u>K</u>	
K	thousand
k	kilogram
km	Kilometer
Km ²	Square kilometer
<u>L</u>	
l	liter
LA	Load Allocation
lbs	pounds
LIS	Long Island Sound
LISO	Long Island Sound Office (EPA)
LISS	Long Island Sound Study
LISWA	Long Island Sound Watershed Alliance
<u>M</u>	
M	Million
MC	Management Committee
MEG	Model Evaluation Group
mg	milligrams
mgd	million gallons per day
mg/l	milligrams per liter
MPRSA	Marine Protection, Research and Sanctuaries Act
MSD(s)	Marine Sanitation Device(s)
MSRC	Marine Science Research Center (SUNY)
<u>N</u>	
N	Nitrogen
NDD	National Diversity Database
NDZ	No Discharge Zone
NEIWPCC	New England Interstate Water Pollution Control Commission
NEMO	Nonpoint Education for Municipal Officials
NJDEP	New Jersey Department of Environmental Protection
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NO _x	Nitrous Oxide
NPDES	National Pollutant Discharge Elimination System
NPS	Nonpoint Source(s)
NRCS	Natural Resource Conservation Service

N (Cont'd)

NRWI	Norwalk River Watershed Initiative
NY	New York
NYC	New York City
NYCDEP	New York City Department of Environmental Protection
NYDOT	New York Department of Transportation
NY/NJHEP	New York/New Jersey Harbor Estuary Program
NYS	New York State
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
NYSDOS	New York State Department of State
NYSOPRHP	New York State Office of Parks, Recreation and Historic Preservation

O

O_2	Oxygen
ODA	Ocean Dumping Act
O&M	Operations and Maintenance
OLISP	Office of Long Island Sound Programs (State of Connecticut)

P

P.A.	Public Act
PCB(s)	Polychlorinated Biphenyl(s)
PIE	Public Information and Education
PS	Point Source

R

RFP(s)	Request for Proposal(s)
RNHT	Recreation and Natural Heritage Trust (State of Connecticut)

S

SAV	Submerged Aquatic Vegetation
SEP	State Environmental Protection (fund, CT)
SFY	State Fiscal Year
SIP	State Implementation Plan
sq. mi.	Square Miles
SUNY	State University of New York
SPDES	State Pollution Discharge Elimination System
SRF	State Revolving Fund
STORET	STORage and RETrieval System (EPA Data System)
STP(s)	Sewage Treatment Plant(s)
SWEM	System-Wide Eutrophication Model

T

TAC	Technical Advisory Committee
TMDL	Total Maximum Daily Load

U

UCONN	University of Connecticut
USACOE	United States Army Corps of Engineers

U (Cont'd)

USCG United States Coast Guard
USDA United States Department of Agriculture
USDOJ United States Department of the Interior
USEPA United States Environmental Protection Agency
USFWS United States Fish and Wildlife Service
USGS United States Geological Survey

W
WAC(s) Watershed Advisory Committee(s)
WLA(s) Waste Load Allocation(s)
WMA Wildlife Management Area
WPCP Water Pollution Control Plant
WWW World Wide Web

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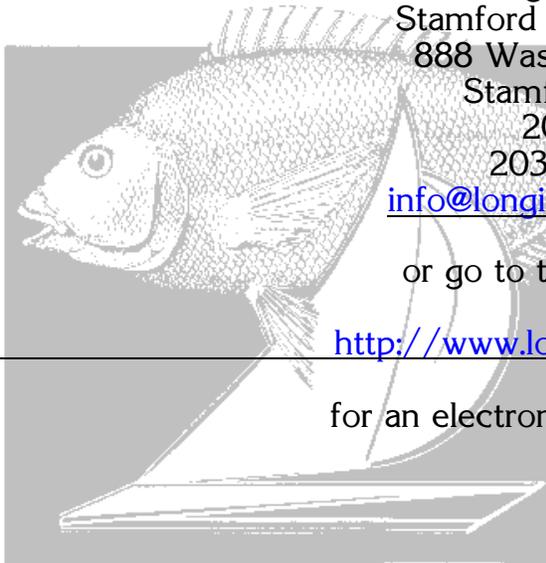
EPA Long Island Sound Office
Stamford Government Center
888 Washington Boulevard
Stamford, CT 06904
203 977-1541
203 977-1546 fax

info@longislandsoundstudy.net

or go to the LISS website at:

<http://www.longislandsoundstudy.net>

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