FOREWORD

This 2006 report documents the 12th 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);
- U.S Geological Survey (USGS);
- 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. 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 2006 REPORT

This 2006 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 2006.

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

EXECUTIVE SUMMARY

IN in 1985 citizens and environmental and coastal managers, scientists and researchers, and academics studied the Sound and agreed on a plan of action to address six areas that needed significant attention. The LISS Management Conference was convened under Section 320 of the Clean Water Act to coordinate action in these areas by the states of New York and Connecticut, other federal agency partners, and public, private, citizen and corporate organizations. Progress in these six areas is summarized below for 2006.

HYPOXIA. A recent agreement between New York State and New York City will result in temporary increases in nitrogen loads to the western basin as New York City treatment facilities are taken off line for construction upgrades over the next few years. The total 2006 nitrogen load from New York and Connecticut point sources is estimated at 161,099 lbs/day. This represents a slight increase of more than 52,000 lbs/day from the Total Maximum Daily Load baseline of 211,724 lbs/day.

The maximum area of low dissolved oxygen less than 3 milligrams per liter in the Sound in Summer 2006 covered an estimated 200 square miles at peak, compared to the 20 year average of 203 square miles. This condition is estimated to have lasted for 53 days compared with the 20 year average of 58 days. This continues a slightly downward trend in the areal extent and duration of hypoxia in the western basin of the Sound.

LIVING RESOURCES and HABITATS. The LISS remains behind schedule in achieving its coastal habitat restoration goal of 2000 acres restored by 2008. Since 1998, 570 acres of coastal habitat, or 28.5 percent of the acreage goal have been restored. The LISS has done much better in reopening river corridor to anadromous fish passage, with 100 miles of river corridor, or more than 100 percent of the linear goal, having been reopened. The habitat restoration goal continues to be hampered by the inherent complexity of coordinating and managing on-the-ground construction projects with the various levels of state and local governments and public and private property owners. Obtaining adequate funding for restoration projects remains problematic. Often funding sources need to be 'cobbled' together and coordinated with on-the-ground work, adding to the complexity of accomplishing projects.

TOXICS, PATHOGENS and FLOATABLES. Toxic pollutants continue to decrease in the Sound as sources are better identified and controlled and legacy levels are naturally cleansed or degraded in the environment. State and federal permit and reporting programs, such as the National Pollutant Discharge Elimination System and the Toxics Release Inventory program, and other public information and education programs have helped to control and require reporting of toxic releases to the environment. Long Island Sound still suffers from hundreds of years of deposition of toxic pollutants that take many years to disperse. Pathogens and floatable debris are continuing management concerns and the LISS CCMP includes state and local program to address sources of pathogen contamination to our waterways and deposition of floatable debris.

PUBLIC INVOLVEMENT and EDUCATION. The Citizens Advisory Committee met in March, June, September, and December 2006. The CAC welcomed the Town of Oyster Bay and the Hempstead Harbor Protection Committee as new members. The CAC continued to provide advice to the LISS on program implementation and continued to look at a proposal to construct and operate a liquefied natural gasification station and pipeline in the Sound.

The Long Island Sound Study's world wide website, www.longislandsoundstudy.net continues to resonate with the public as new features and information are added. Website page visits are on the increase, showing a steady public interest in the Sound and its ecosystems. The Small Grants program continued to provide opportunities for citizen involvement and citizen education by funding projects at the local level. In 2006, the Small Grants program funded 15 projects totaling nearly $70,000.

SCIENCE and RESEARCH. The LISS Science and Technical Advisory Committee (STAC) met in February, June and November 2006, The STAC added several new members. LISS-funded research projects that are ongoing include studies of: phytoplankton dynamics to determine shifts in primary productivity; water column oxygen production and consumption; new approaches for assessing mutagenic risk of contaminants in LIS; and status and productivity of salt marsh breeding sparrows.

MANAGEMENT and FUNDING. The Management Committee met in January, April, July and October. The *Long Island Sound Stewardship Act, P.L. 109-359* was enacted in 2006, with a funding authorization of $25 million annually through 2011, but no new funds were appropriated. Congress added $1.7 million to the President's Budget of $470,000 for the Long Island Sound Study in FY2006.The Long Island Sound base program consists of water quality monitoring, public information and education, staff and CAC support, the Long Island Sound Futures Fund, administered by the National Fish and Wildlife Foundation, and the CCMP Enhancements Projects Fund, administered by the New England Interstate Water Pollution Control Commission. The projects funded by these LISS programs are summarized in Appendix A of this report.

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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 actions in this section of the CCMP 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.

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.

2006 Highlights:

- The 109th Congress passed and the President signed the *Long Island Sound Stewardship Act of 2006*, P.L. 109-359, with an annual authorization of appropriations of $25 million. No funding was appropriated in FY2007.
- EPA included Long Island Sound in its revised Strategic Plan for 2007-2011 under Goal 4, *Healthy Communities and Ecosystems.* The Plan includes four key sub-objectives and may be viewed, ordered or downloaded at EPA's website: www.epa.gov/ocfopage/plan/plan.htm.
- The LISS Policy Committee met in September 2006 at the John Jay Heritage Center in Rye, New York. The Committee signed agreements setting new targets for restoring LIS coastal habitats; directing the use of the Sound Cable Fund; directing the reassessment of the nitrogen TMDL, and endorsing the 33 inaugural LIS Stewardship sites.
- Congress appropriated $2.73 million for the LISS in 2006. Under CWA §119 EPA included $470,000 in its 2006 President's Budget request for the LISS; and EPA's National Estuary Program allocated $316,660 under CWA §320 for LIS. Congress added $1.7 million in the Environmental Programs and Management appropriation for LISS and $175,940 to the NEP program.
- The Management Committee met in January, April, July, and October 2006.The Committee held its second annual two-day meeting in July, covering a range of topics and issues in more detail than possible in its usual meeting format. Because of the overall success of this session, the Management Committee agreed to hold special sessions of this kind annually.
- The CAC met in March, June, September, and December 2006. The STAC and CAC met jointly in June, and developed common public and scientific priorities that were shared with the Management Committee and considered in the 2007 budget process. The STAC initiated development of a synthesis of Long Island Sound scientific research for publication in 2007

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.

	2006 Description	2007 Planned Action
1.	Congress continued to fund the LISS in FY2006 under Clean Water Act Sections 119 and 320. The LISS budget in 2006 was $2.73 million.	The FY2007 budget for LIS totaled $1.7 million.
2.	In 2006, the 109th Congress passed the Long Island Sound Stewardship Act of 2006, P.L. 109-359, through 2010 with an annual authorization of appropriations of $25 million. No funding was appropriated for implementation in 2007.	Implementation of the Act as resources allow.
3.	EPA included Long Island Sound in its revised Strategic Plan for 2007-2011 under Goal 4, Healthy Communities and Ecosystems, Objective 4.3 Restore and Protect Critical; Ecosystems, Sub-objective 4.3.6: Restore and Protect Long Island Sound. Four strategic targets include: 1) reduction of point source nitrogen loads to the Sound; 2) reduction in the size and duration of the hypoxic zone in the Sound; 3) protection and restoration of coastal habitat; and 4) reopening of river corridors to anadromous fish passage. Each of these targets has a baseline and interim and 2011 goals. EPA's Strategic Plan is available at: www.epa.gov/ocfopage/plan/plan.htm	EPA will work with the Management Conference to achieve targets and goals as resources allow.
4.	The Management Committee met in January, April, July, and October. The Committee held its second annual two-day session in July to review progress in CCMP implementation and consider ways and means of better coordinating and implementing actions in an ecosystem-based management approach.	The Committee will continue to meet in 2007 to address issues of concern to LIS.
5.	The Science and Technical Advisory Committee (STAC) met in February, June, and November 2006. The STAC welcomed two new LIS Fellows, the CT Fellow from Yale University, and the NY Fellow from Stony Brook University. The Fellows initiated projects in support of the STAC – coordination of an invasives management plan and development of water quality indicators. The STAC approved initiation of work on a LIS ecosystem data synthesis project to summarize scientific work in several disciplines and produce a volume dedicated to LIS scientific research. The STAC received updates on the 2007 LIS budget processes and provided input into LISS program and research priorities.	Continue STAC meetings in 2006.
6.	The Citizens Advisory Committee met in March, June, September, and December 2006. The CAC continued to advocate for continued research funding; continued state efforts to implement the nitrogen TMDL and the habitat restoration strategy; and increased emphasis on toxics reductions. The CAC had briefings from representatives of the National and Regional Dredging Teams on the status of the LIS Dredged Material Management Plan and from LIS Congressional Caucus staff on the federal budget process. The CAC had presentations from several LIS researchers: Dr. Carmela Cuomo on the release of sulfides in sediments and its effect on the benthos; and Dr. Richard Fairbanks on his work on tracking nitrogen sources and hotspots in LIS. The CAC added two new members in 2006: the Town of Oyster Bay, and the Hempstead Harbor Protection Committee. As of December 2006 CAC membership stood at 37 members, 20 from NY and 17 from CT.	The CAC will continue to increase its representation and advocate for the full $40 million appropriation for the LISS and $25 million for the LIS Stewardship initiative.
7.	The EPA LISO continued to coordinate the work of the Management Committee, the STAC, and CAC and continued to support implementation efforts of LISS work groups -- the Nutrients Work Group, Nonpoint Source Work Group, the Connecticut River Work Group, the Habitat Restoration Team, Implementation Team, and the Stewardship Work Group. Each of these groups developed and implemented annual work plans linked to the LISS budget request, and are reported elsewhere in this report. The LISO continued coordination of the Management Conference, development of the annual budget and NEP work plan, and the LISS scientific research agenda. In 2006 the LISO assisted NOAA and USFWS in funding, recruiting and hiring a NOAA fisheries ecologist and a USFWS fish & wildlife biologist to work on living marine resources and habitat restoration and management.	The LISO will continue to support implementation of the CCMP and the Management Conference partners.

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.

CCMP Strategy: The CCMP identifies a five-part strategy to address the elimination of adverse impacts 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 coordinated management of hypoxia; 4) funding implementation of hypoxia management plans; and 5) monitoring and assessing hypoxic conditions and impacts.

LIS 2003 Agreement Goal: ***Eliminate the adverse impacts of hypoxia resulting from human activities.*** The management goals are to achieve the nitrogen reduction targets in Connecticut and New York and 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 continuing to make progress in reducing point source nitrogen loads to the Sound by 58.5 percent by 2014. The LISS, through its Connecticut River Work Group, continues work to identify and validate sources of nitrogen from upland states as an antecedent to developing formal agreements with these jurisdictions. The State of Massachusetts has requested membership on the LISS Management Committee in 2007.

Environmental Indicators/Results/Trends: Total point source nitrogen loads in 2006 increased by 927 lbs/day from 2005 (see Figure 1). This relatively flat progress may be attributed to several factors, including weather and rainfall, and to several New York City plants that have been under construction for nitrogen removal upgrades. This 'bulge' in the nitrogen reduction curve will last for several years until plant upgrades are completed. The maximum area of hypoxia (less than 3.0 mg/l dissolved oxygen (DO)) covered an estimated 200 square miles at peak, and lasted 53 days compared to the 20 year averages of 203 square miles and 58 days.

2006 Highlights:

- The estimated nitrogen load from STPs in the LIS drainage basin in 2006 is approximately 161,099 lbs/day, a decrease of more than 52,000 lbs/day from the base level. As of December 2006, New York's point source nitrogen load was 124,059 compared with 124,099 lbs/day in 2005; Connecticut's point source nitrogen load was 37,040 lbs/day compared with 36,073 lbs/day in 2005. Figure 1 shows point source nitrogen load reductions since 1994. Appendices B and C show the plant-by plant loads in CT and NY.

- In 2006, the maximum area and duration of dissolved oxygen less than 3 mg/l observed in LIS was 200 mi^2 and 53 days. The 20 year averages are 203 mi^2 and 58 days. Figure 2 shows the annual maximum areal extent of hypoxia since 1987.

- In 2006, Connecticut completed the fourth year of its Nitrogen Credit Exchange program. Of 79 participating STPs, 33 reduced nitrogen output below assigned permit limits, making them eligible to sell a total of $2.39 million in nitrogen credits to STPs requiring credits.

- Four nitrogen upgrade projects were completed in 2006 in Management Zones 10 and 11 in New York: The City of Glen Cove is meeting its 2014 permit limit. SUNY Stony Brook and the Village of Northport are fine-tuning their operations to meet 2009 permit limits and the Village of Oyster Bay is fine tuning its operations to meet 2014 permit limits.

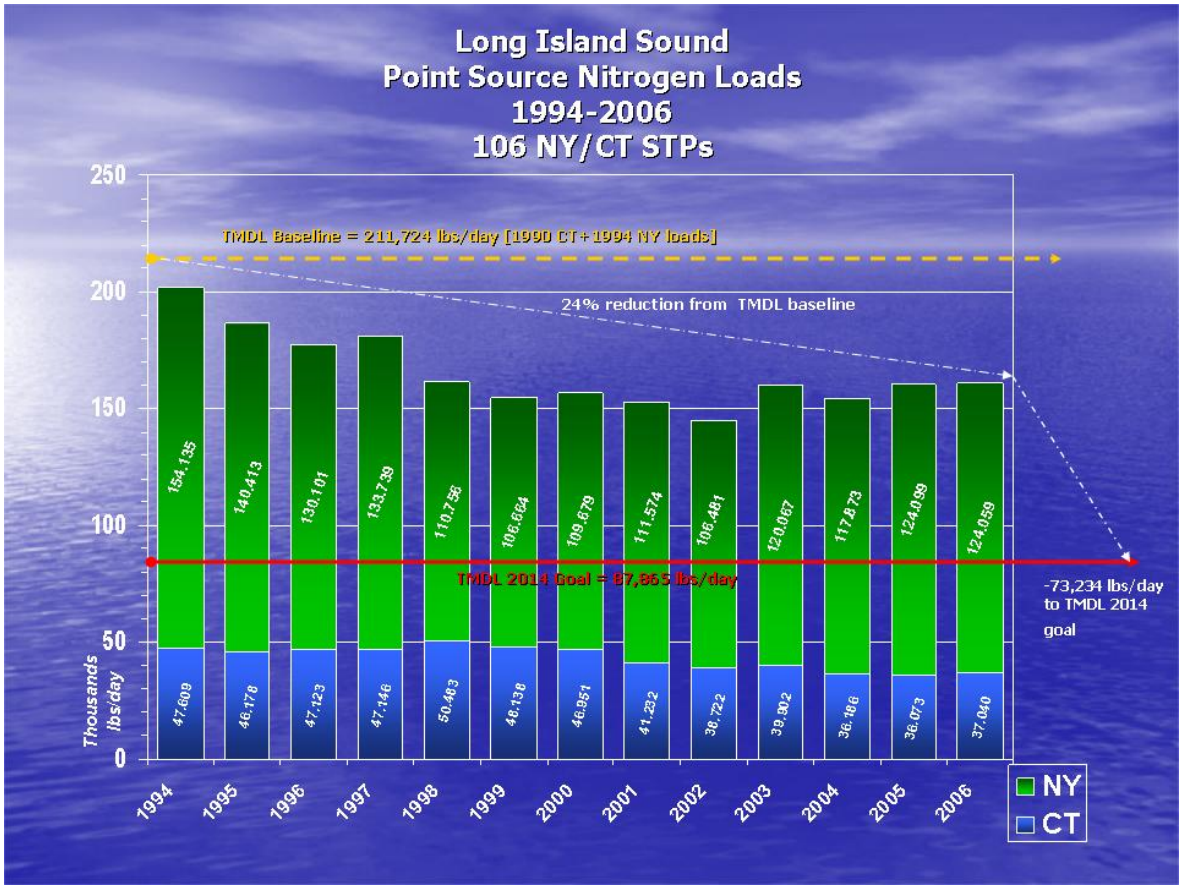

Figure 1

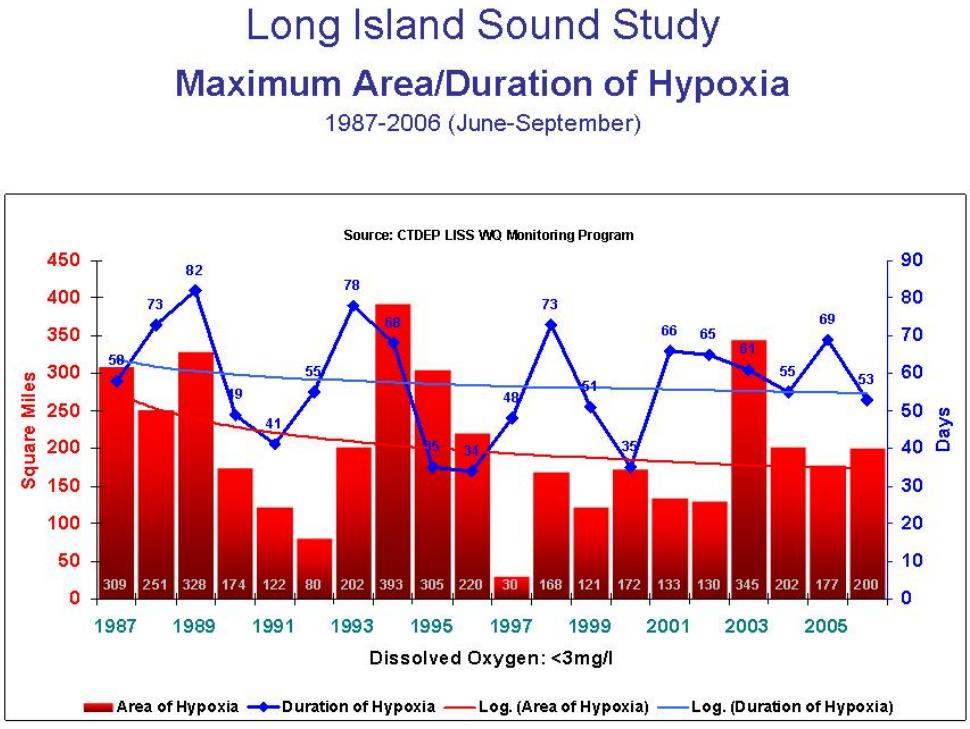

Figure 2

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 REDUCE 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.

	2006 Description	2007 Planned Action
1.	The total estimated point source (end of pipe) nitrogen load to LIS in 2006 was 161,099 lbs/day, a decrease of more than 50,500 lbs/day from the base TMDL level of 211,724 lbs/day. New York loads totaled 124,059 lbs/day compared with 124,099 lbs/day in 2005; Connecticut loads totaled 37,040 lbs/day compared with 36,073 lbs/day in 2005. The increase in CT loadings is attributed to several plants not removing nitrogen to waste load allocations. The total reduction as of December 2006 is 24 percent below baseline levels and represents approximately 40 percent of the total nitrogen reduction goal of 58.5 percent by 2014. There are 106 STPs that collectively discharge more than one billion gallons of treated effluent per day to the Sound. (See Appendices B and C for TMDL targets and 2006 plant-by-plant loadings.) All of the Upper East River WPCPs (TI, BB, HP, and WI) are currently being upgraded for Step Feed BNR in addition to a 1.85 MGD SHARON Process being constructed at WI to treat the high strength ammonia stream from the dewatering facility. As a result of the ongoing construction, the nitrogen removal performance is expected to decrease while tanks are out of service but this will ultimately enable the WPCPs to meet the TMDL limits. These upgrades will occur in two phases; the first phase will consist of all the major infrastructure upgrades and is expected to be completed by the end of 2011 at a cost of about $750M strictly for the BNR portion of the ongoing work. The second phase will consist of implementing cost effective supplemental carbon addition in conjunction with minor process enhancements and is expected to be online by mid-2016.	Continue emphasis on achieving TMDL point source nitrogen reduction targets.
2.	In Connecticut to date a total of 44 nitrogen removal construction projects at 34 municipal wastewater treatment plants have been completed. Twelve projects involved major construction of facilities designed to achieve maximum nitrogen removal to meet the long-term nitrogen reduction goal of 4 mg/l for the facility. The remaining 32 projects involved retrofits of existing facilities that are designed to reduce levels to an intermediate level of 8 mg/l for total nitrogen discharged. Three STPs completed upgrades in 2006 – North Haven, Stamford, and Wallingford. There are eight nitrogen removal projects currently under construction with six designed for the long-term goal of 4 mg/l. Twenty municipal STPs currently have initiated more than $347 million of upgrades including nitrogen removal. East Hartford, Cheshire, and Simsbury all under construction in 2006. Two municipal STPs have begun designs for upgrades including nutrient removal at costs totaling over $58.7 million — Shelton and Westport.	Continue to assist municipalities with upgrades to STPs. Three municipal STPs have initiated nearly $29 million in nutrient removal upgrades all under construction in 2006 –East Hartford (MDC), Cheshire, and Simsbury are anticipated to be in service in 2007.
3.	In Connecticut there are presently 29 municipal treatment facilities covered under the General Permit that have a nitrogen removal project under design and waiting to be funded by the Clean Water Fund. The fourth year of the nitrogen credit exchange program resulted in additional equalized nitrogen reductions with 33 STPs discharging below their assigned permit limits, making them eligible to sell a total of $2.39 million in nitrogen credits in 2006 (based on their 2005 discharges). The 2006 interim report of the Connecticut Nitrogen Credit Advisory Board is available at: http://www.ct.gov/dep/cwp/view.asp?a=2719&q=325572&depNav_GID=1635	Continue the Nitrogen Credit Exchange program and Nitrogen General Permit. The fiscal years 2006-07 priority list proposes to partially fund 12 projects with estimated project costs of 107 million dollars.
4.	As of December 2006, 75 out of 79 municipal treatment facilities covered under the Connecticut General Permit have completed a detailed nitrogen removal engineering study. These studies will result in the evaluation of each facility's potential to cost effectively remove nitrogen and provide detailed construction cost estimates for each facility, which will be used to forecast the level of Clean Water Fund financing necessary in order to reach the limits in the General Permit for Nitrogen Discharges and TMDL for LIS. General permit information is posted at: http://www.ct.gov/dep/cwp/view.asp?a=2709&q=324212&depNav_GID=1643#GeneralPermits	

	2006 Description	2007 Planned Action
5.	In January 2006, the DEP and DEC entered into a Modified Consent Judgment. This modified judgment has many of the same components as the original plan but incorporates use of a trading ratio between the Upper and Lower East River WPCPs, includes requirements to construct and operate a 1.85 MGD SHARON facility to treat the high strength wastewater, and breaks the program into two phases that allows for the immediate infrastructure to be constructed immediately but also allows for pilot and full scale studies to proceed on a parallel track to feed back into the Phase II optimizations.	
6.	The twelve SPDES permits for the WWTPs on the north shore of Long Island that discharge into Long Island Sound have been issued to reduce discharge limits for nitrogen in accordance with the Long Island Sound TMDL analysis. The discharge limits are consistent with the 5, 10, and 15 year waste load allocations that are specified in the Zone Nitrogen Management Plans.	
7.	NYSDEC issued 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 on January 1, 2005 and contain limits consistent with the Long Island Sound TMDL. The Order required the permittee to develop and submit an engineering plan, which is under review by NYSDEC.	Approval of the engineering plan is expected in 2007.
8.	NYCDEP's Long Term CSO Control Program is evaluating the impact CSO discharges throughout all of New York City including the East River tributaries of Alley Creek, the Hutchinson River, Westchester Creek, the Bronx River, Flushing Bay and Creek, and Newtown Creek. A CSO Retention Tank in Flushing Creek and sewer system and outfall improvements in Alley Creek are nearing completion which will reduce CSO flow and nitrogen loading to the waterways in the LIS basin. A CSO Retention Tank is also planned for Alley Creek. It is likely that CSO controls in the planning stage for the other waterways will also result in a reduction of nitrogen discharges.	The Waterbodr/Watershed Plans (Draft LTCPs) will be submitted to the DEC by June 30, 2007.
9.	The following projects are underway by Management Zone in New York: <u>Zone 7</u> ■ Construction on a BNR Aeration Tank Conversion has begun at the Mamaroneck WWTP. <u>Zone 8</u> ■ A BNR upgrade is being made at the Hunts Point STP. It has been underway since June 2003. The construction phase of the project is expected to take 3-1/2 years. BNR work, as per consent order, must be completed by June 30, 2008. <u>Zone 10</u> ■ Construction has begun at the Belgrave WPCD STP to install BNR (using single media filter) and UV disinfection. Construction is 25% complete and scheduled to be completed September 2007. ■ The Glen Cove STP is currently meeting its nitrogen reduction target for 2014. ■ The Port Washington WPCD STP pilot BNR report and plans are being finalized. Construction is due to begin during 2007 ■ Construction is almost completed at the Oyster Bay SD STP, and is being fine-tuned to meet 2014 nitrogen reduction goals. ■ The Great Neck Village and District STPs are operating under a State Consent Order to update the facilities or divert flows from LIS. An engineering study is underway. Completion of substantial construction is due by August 2011. <u>Zone 11</u> ■ The Village of Greenport has submitted and engineering design report for BNR and UV upgrades for its STP. Construction is scheduled to be completed during 2009. ■ Construction of nitrogen removal facilities is underway at the Huntington STP. Construction should be completed in mid-2008. ■ Construction to reduce nitrogen discharge at the Northport STP has been completed, and the plant is meeting 2009 limits. Plant will be fine-tuned to meet 2014 limits.	

	2006 Description	2007 Planned Action
	■ The SUNY Stony Brook STP is meeting 2009 standards. A further upgrade is in the planning stage. ■ Suffolk County Sewer District #6 (Kings Park) is constructing a new 1.2 MGD plant to meet Phase III nitrogen reductions. Construction is scheduled to be completed during 2008 ■ Suffolk County Sewer District # 1 (Port Jefferson) is constructing sequencing batch reactors, equalization, sludge thickening and holding and pumping facilities that will enable the facility to meet LISS Phase III reduction targets. Construction is expected to be completed during 2007.	

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 STORM WATER 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.

	2006 Description	2007 Planned Action
1.	In 2006 the LISS, CTDEP and USGS continued a LISS-funded project to develop nitrogen criteria that are protective and will help restore LIS eelgrass beds. The program's goal is to include eelgrass bed losses on Connecticut'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 extant. (also see L-9, page 41)	Steering Committee is set up and a student will be hired to provide technical support to the project
2.	CT DEP continued coordination of the development of a watershed plan for the Niantic River watershed to guide efforts to improve water quality in the basin and set a foundation for future watershed protection. The project advisory committee met several times to discuss project planning needs and the overall timetable for the project. The consultant also convened three successful public information meetings for the Niantic River Watershed Protection Plan in April, May, and August 2006. The April meeting provided an overview of the Niantic River planning project, and members of the consulting team explained the process behind the plan's land cover analysis, watershed vulnerability analysis, and storm water modeling components. The meeting in May provided additional details on the plan's Geographic Information System analysis and water quality issues, and revealed some preliminary management plan recommendations. The final meeting in August introduced the draft plan document and highlighted the plan's draft findings and recommendations, and solicited public input on the draft. The final draft of the watershed protection plan was submitted to the DEP in September 2006.	The objective is to create a nonpoint source management plan that will include 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.
3.	Connecticut's National Monitoring Program funded under Section 319 in the Jordan Cove watershed of eastern CT has completed its field work. This ten-year project with the intent to develop a pair of neighborhoods, one using all appropriate best management practices (BMP) and comparing hydrology and pollutant loads to a traditionally developed neighborhood, which is developed according to local codes. Monitoring results show that post development hydrology is very similar to pre-development conditions in the BMP neighborhood. The project has entered its outreach phase. A brochure and report has been prepared and presentations and lessons are incorporated into NEMO's web site.	Presentations will be given at several state and federal agencies as well as to construction trades groups.
4.	Connecticut's Phase II MS4 storm water permit program completed its third full year of implementation. There are 113 towns covered by this permit. All towns are developing their Storm water Management Plans. CTDEP conducted workshops and several more towns took advantage of grant assistance to purchase a storm water software package and receive training to manage their programs. DEP issued 28 NOVs to towns with	Continue support and oversight of the Storm water Phase II program. CTDEP has developed a "DOT MS4 Permit" that should go to

	2006 Description	2007 Planned Action
	significant compliance issues. We are currently following up on these NOVs.	public notice in 2007. Stakeholder meetings have begun for the "Non-traditional MS4 Permit", which should be completed by the end of 2007.
5.	The Westchester County Department of Planning, working with 14 municipalities, two environmental organizations and the New York Department of State, under the auspices of the Bronx River Watershed Coalition [formerly Watershed Advisory Committee 7 (WAC 7)], is expected to complete its Bronx River Watershed Comprehensive Polluted Storm Water Management Plan in the summer 2007. Consultants working on elements of the plan are completing draft reports that will include their findings and recommendations to improve storm water quality in the watershed, thereby improving water quality in the watershed's rivers, wetland, ponds and lakes as well as downstream receiving water bodies, which are the East River, Long Island Sound and Hudson River Estuary. The Center for Watershed Protection is providing the foundation for the comprehensive plan and has been working on the project with Biohabitats Inc. to document and evaluate existing conditions throughout the watershed and provide detailed recommendations and strategies in priority sub-watersheds. Northern Ecological Associates has completed a wetland assessment and management report. These reports will include identifying potential sites for stream and other natural resources restoration projects as well as projects designed to filter out pollutants from storm water. County staff are completing assessments of municipal land use regulations, water quality monitoring of the Bronx River, and riparian buffers guidance to incorporate into the comprehensive plan. Once the plan is completed, funding will be sought to implement recommendations. A Bronx River watershed webpage is being established by the Department of Planning, and will be linked from www.westchestergov.com/waterquality.	The is expected to be completed in Summer 2007.
6.	Through LISS CT River Work Group, the states of Connecticut, Massachusetts, Vermont, and New Hampshire, along with NEIWPCC and EPA continued meetings in 2006 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 State of Massachusetts has requested membership on the LISS Management Committee in 2007.	The CT River work group will continue to meet to discuss options for reducing nitrogen loading from upland states
7.	In the Village of Rye Brook, detention basins are being constructed at Edgewood Drive and Harness Park, along the East Branch of Blind Brook, to control storm water entering the brook.	
8.	The County of Westchester has begun a project to construct pretreatment facilities ("stormtreat" units) to treat runoff entering New Rochelle Harbor from Glen Island Park.	
9.	The Town of Brookhaven is constructing a storm water control project that will remove 200 feet of pipe which discharges storm water runoff to West Meadow Creek and install infiltration/leaching structures. The Town is installing 85 leaching catch basins and curbing around parking areas draining into Mt. Sinai Harbor. Also, existing discharge pipes will be capped.	
10.	The Town of Oyster Bay is installing a comprehensive storm water control system at Centre Island Beach. This project will treat storm water runoff by restoring tidal ponds and wetlands, restoring ponds and dunes and installing filter strips in the Turtle Cove area of Oyster Bay.	
11.	The Suffolk County DPW is constructing leaching basins and recharge basins to reduce storm water that enters Huntington Bay from County Road 35. The project will reduce the amount of pathogens, sediment nutrients, toxic contaminants, metals, and petroleum products that enter the Bay and Long Island Sound.	The project is expected to be completed by August 2007.
12.	The Town of Southold is constructing a silt retention pond with a spillover into a bermed storm water pond to reduce the amount of storm water runoff that enters Mattituck Creek from Bayview Avenue.	
13.	The Village of Huntington is installing 55 storm water leaching basins to collect and dispose of one inch of first flush storm water runoff from 8,959 linear ft of roadways tributary to Huntington Harbor from Wincona Drainage Area "C".	
14.	The Town of Huntington is installing storm water structures to mitigate storm water runoff	

	2006 Description	2007 Planned Action
	from the Fleets Cove/Knollwood Beach area.	
15.	The Village of Northport has competed installation of a network of catch basins and leaching pools in and around Main Street to mitigate storm water runoff in Northport Harbor.	
16.	The Village of Kings Point is replacing storm water outfalls and constructing 4 sediment containment diffusion wells at Foxwood Court, which drains into Manhasset Bay, and is constructing 8 storm water basins on Sinclair Drive, which will reduce pollutants entering Little Neck Bay.	
17.	The Suffolk County Department of Public Works has begun a project to intercept and retain runoff from county highways adjacent to Mattituck Inlet by constructing recharge and online leaching basins. The project will reduce the discharge of highway runoff containing toxins, pathogens, and sediments to Mattituck Inlet.	
18.	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 sub-watershed management plans. A steering committee was formed in October 2005 and a contractor hired to perform the technical work**.**	The final Suffolk County North Shore Embayment Watershed Plan will be presented in 2007.
19.	The LISS Nonpoint Source Work Group worked with Manhattan College through a LISS grant to develop a decision-support tool to estimate and track nonpoint source nitrogen loads based on land uses and best management practices (BMPs). The project team selected the AVGWLF Mode l(ArcView Generalized Watershed Loading Function) to accomplish these objectives. Work was completed 2006 that focused on application of the model in test watersheds and overall calibration of the model.	Enhancement and application of the model was included as a topic in the 2006 LISS CCMP Enhancements grants RFP.
20.	EPA awarded a RARE (Regional Applied Research Effort) grant to NEIWPCC, in conjunction with the USGS, to analyze and quantify in-stream nitrogen transport and loss in the Connecticut River watershed. Sampling was completed in the upstream states during 2005 using both a mass balance and N_2 production modeling approach. This study will help to define the role of attenuation in nitrogen transport within the river. These data will aid in refining or confirming the nitrogen loading estimates made for the states upstream within the watershed.	A final USGS Scientific Investigation Report will be completed. The work has also been accepted for publication in the scientific journal Biogeochemistry.
21.	IEC conducted MS4 outfall inspections during dry weather conditions on the north shore of Nassau County, New York. During 2006, 13 outfalls were inspected of which 4 were flowing. These observations were reported to NYS DEC, Region 1, for remediation. This program was expanded to include Richmond County (Staten Island), New York. Sixteen outfalls were inspected during 2006 of which four were flowing. These observations were reported to NY DEC, Region 2, for remediation.	Continue and expand dry weather inspections in other New York counties, as well as in Connecticut and New Jersey.
22.	The Westchester County Soil and Water Conservation District completed a 12-page technical guidance document in January 2007, titled "A Guide to Aquatic Buffers," explaining to municipal officials and others the benefits of riparian buffers but focusing on the design elements of buffers, including how wide they should be to meet certain objectives and how they might be incorporated into municipal regulations. The document has been linked to county websites and webpages and other appropriate non-county websites and 1,200 full-color copies of this document have been printed and distributed to Westchester County municipal elected officials, land use and environmental board members, and staff as well as others interested in land use planning in relationship to riparian buffers. Additional copies have been printed and will be distributed to other entities and those seeking them. The technical guidance document has been distributed to municipalities throughout Westchester County including communities in the Hudson River, Croton River, Long Island Sound and Bronx River watersheds. It also has been distributed to watershed coalitions and committees including the Saw Mill River Coalition, Bronx River Watershed Coalition and Northern Westchester Watershed Committee. Copies also were distributed to libraries, environmental education centers and other interested entities.	Completed

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.

	2006 Description	2007 Planned Action
1.	The LISS Nutrient Workgroup, in cooperation with the NY/NJ Harbor Estuary Program, continued use of the System-Wide Eutrophication Model (SWEM) for Long Island Sound. In 2005, a SWEM pastoral scenario was performed to approximate what dissolved oxygen in LIS might be absent anthropogenic loading of nitrogen, phosphorous and carbon. USGS/CT provided SPARROW-derived (SPAtially Referenced Regressions On Watershed attributes) background nutrient concentrations that were used to estimate tributary nutrient concentrations for the SWEM model.	Continue to apply the SWEM to analyze hypoxia and eutrophication in the Sound.
2.	In 2006 principal investigators continued work on three scientific research projects funded by the LISS Research Fund in 2004: • *Natural Isotopic Tracers for Anthropogenic Nitrogen in Long Island Sound.* (PIs: Dr. Mark Altabet, UMASS, and Dr. Johan Varekamp, Wesleyan University, $125,591). EPA grant #LI-97101301-1 • *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). EPA grant #LI-97101501	These projects will close out in 2007.

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.

	2006 Description	2007 Planned Action
1.	The projected demand for Connecticut's Clean Water Fund (CWF) financing to support construction projects continues to be significantly more than the amount available. Seventeen projects and the non-funded portion of three other projects (Milford, Stratford and Meriden) estimated at $347M will not be reachable within the next two fiscal years due to CWF bonding limitations. In 2006 Connecticut committed only $20 million in General Obligation (GO) bonds for grants and loans for STP and storm water upgrade projects. Of the 40% of available GO bonds dedicated to full scale nitrogen removal projects, partial funding was committed to three construction projects rather than full funding for only two projects.	
2.	The most significant challenge to the nitrogen removal program in Connecticut has been the 2006-07 Capital Budgets' effect on project construction. After the August 2005 State Bond Commission meeting, the CWF had a carry-over of previously authorized funds of $2.8M. This is the lowest carry-over balance since the inception of the CWF program in 1987.	The CWF priority list provides $20M per year in new general obligation bond authorization for FY06 and FY07. At this funding level, only one in five projects ready to proceed will be funded in FY06.
3.	The nitrogen removal program has benefited from approximately $9.7 million in federal assistance from the Long Island Sound Restoration Act. Through 2006, Connecticut has chosen to use the funds to assist approximately 30 distressed communities to plan for and design nitrogen upgrade projects. New York has used its funds for CCMP implementation	Congress has not appropriated any federal funds for the last two federal

	2006 Description	2007 Planned Action
	and waste water projects.	fiscal years.
4.	Using funds from the consent judgment settlement with New York City, a Dissolved Oxygen Environmental Benefit Fund for western Long Island Sound and Jamaica Bay was established in 2006. An RFP, administered by the National Fish and Wildlife Federation, was released in Fall 2006 with proposals due in December 2006.	Research and restoration projects selected for funding will be announced by June 30, 2007.

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.

	2006 Description	2007 Planned Action
1.	In Summer 2006, hypoxic conditions (<3mg/l DO) in LIS were estimated to have extended for a period of 53 days and covered a maximum area of 200 square miles compared to the 20 year averages of 58 days and 203 square miles. LIS monitoring information is posted on the CTDEP website: http://dep.state.ct.us/wtr/lis/monitoring/summer2006.htm. EPA has included this measure as a target in its Strategic Plan for 20007-2011.	The LISS is continuing to fund the CTDEP ambient monitoring of LIS in 2007.
2.	The UConn Department of Marine Sciences at Avery Point, Connecticut, continued to operate and maintain a real-time water quality monitoring network, MYSound, in 2006 under LISICOS, the Long Island Sound Integrated Coastal Observing System, an expanded regional monitoring initiative. MYSound stations monitor surface and bottom waters for dissolved oxygen, temperature, salinity and other selected parameters, such as wind speed, at eight sites. The MYSound website address is: http://www.mysound.uconn.edu.	Continue to operate and maintain the MYSound stations and website as funding allows.
3.	CTDEP and NYSDEC, in cooperation with Stony Brook University, continued participation in EPA's National Coastal Assessment (NCA) in 2006 with LISS funding. In addition to standard water quality parameters, sediment samples were collected once from 13 fixed (sampling point) stations in LIS. As part of Connecticut's sampling plan for NCA, a zooplankton identification project, initiated in 2003, was continued in 2006. EPA also provided funding for analysis of water samples for photopigments, an inexpensive means to identify presence of key phytoplankton groups. In 2006, the LISS provided $20,000 to NYSDEC to supplement NCA work on Long Island Sound.	EPA NCA funding in FY2007 is not available, and as a result, sampling will not be performed. Future sampling under the NCA program has not been determined.
4.	The LISS partners continued ambient monitoring of LIS in 2006: CTDEP continued its ambient monitoring of LIS stations in 2006. CTDEP expanded its scope of monitoring parameters to support the changing ecosystem perspective. 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://www.ct.gov/dep/cwp/view.asp?a=2719&q=325532&depNav_GID=1654 NYCDEP performed ambient monitoring of NY waters in Western LIS. IEC continued summer hypoxia monitoring in LIS by weekly measurements of DO, temperature, salinity and Secchi depth at 21 stations; and bimonthly, samples were collected for chlorophyll a. No unique events, i.e., fish kills, were observed, negating communication from the field. During July, an EPA intern assisted in data collection aboard the IEC research vessel, *Natale Colosi*. IEC made weekly data transmissions to LISO, CTDEP, NYCDEP, NYSDEC, CSHH and HydroQual. The IEC Annual Report details all monitoring activities which can be viewed on the IEC website at: www.iec-nynjct.org. All IEC data are entered into the EPA database, STORET.	Continue the ambient monitoring program in 2007.

	2006 Description	2007 Planned Action
5.	The Principal Investigators on the following LISS projects completed work in 2006: *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*. $101,136. PI: Dr. Sergio Sañudo-Wilhelmy, Stony Brook University, EPA Grant #LI-97296600-1. *A Biological-Physical Numerical Simulation Model for the Investigation, Prediction & Management of Oxygen Production & Consumption in Long Island Sound: Data Analysis and Model Formulation*. (PIs: Dr. Nicole Goebel and Dr. Jim Kremer, UConn, $71,010) EPA grant #LI-97127101 *Ferry-based Observations for Science Targeting Estuarine Research in Long Island Sound* ($54,743) PI: Dr. Daniel Codiga, Univ. of Rhode Island. EPA Grant #LI-97106001-1 *Ferry-based Marine & Atmospheric Observing System* ($70,000) PI: Dr. Robert Wilson, Stony Brook University. EPA Grant #LI-97286205.	The final project report was submitted to EPA in March 2007. The final report was submitted and published in Estuaries and Coasts, Vol. 29, No. 2, pp. 232-245, April 2006.
6.	In 2006 the New York State Governor's Office of Regulatory Reform (GORR) released a NYSDEC draft rule 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 rule changes.	Complete rulemaking.

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 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, e.g., improper disposal of pet wastes, inappropriate feeding of wildlife, 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 is expected to approve Connecticut's request for NDA designation from Guilford to Greenwich in 2007. This, together with the NDA designations of Stonington/Pawcatuck River area in 2004 and Groton/Guilford in 2005, will bring the entire Connecticut coastal waters of LIS into NDA status. New York will be pursuing two new NDA designations in 2007.

Environmental Indicators/Results/Trends: LISS environmental indicators for pathogens include the number of beach closure days and number of vessel pumpout stations. There were 1,014 LIS beach closure days reported in 2006, with Connecticut reporting 222 and New York reporting 792 closure days at LIS beaches in Nassau (169), Suffolk (484), Westchester (84), and NYC (55) LIS beaches. This represents less than 4 percent of the total beach days from Memorial Day-Labor Day. There are 240 LIS beaches that are monitored for pathogen contamination by local health departments, counties or state agencies. Most closures are due to rainfall levels exceeding a range of ½-1 inch in a 24-hour period, which requires local officials to close beaches as a health precaution.

2006 Highlights:

- The Westchester County Planning Department completed installation of StormTreat Units at Glen Island County Park; installation of Vortechnics Units at Playland Park, City of Rye, and removal and re-routing of storm water management pipes in and adjacent to freshwater wetlands at Nature Study Wood County Park, City of New Rochelle.

- In 2006 in Connecticut, 52,851 bags of oysters were collected with a market value of $2,205,740 and 422,670 bags of hard clams collected with a market value of $18,135,291.

- As of December 2006 New York State has completed more than 359 projects with total Clean Vessel Act (CVA) reimbursements of more than $4.1 million. Fifteen projects were completed in the New York marine district in 2006. CTDEP received $988,652 from the CVA Pumpout grants program in 2006 for coastal projects. By the end of the 2006 boating season there were 91 total pumpout facilities (including fifteen boats) and 22 dump stations, (including one floating rest room) at 89 boating locations in Connecticut.

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 STORM WATER 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.

	2006 Description	2007 Planned Action
1.	In 2006, New York City continued:	
	• developing water body/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 water body/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 is evaluating opportunities for improvements in the plans, and includes a review of existing and attainable recreation water uses affected by pathogens.	Continue development of water body/watershed facility plans as approvable CSO Long Term Control Plans that meet the requirements specified in EPA's CSO Control Policy and in conformance with the 2005 CSO Consent Order.
	• construction of its Flushing Bay 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 I 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.	Continue and complete construction in 2007.
	• 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. Construction work continued and neared completion on major elements of double-barreled outfall sewers for drainage improvements. Design work for the CSO storage facility was completed. A contractor was hired and a Notice to Proceed with the construction of CSO abatement facilities was issued. DEP submitted the Alley Creek Water body/Watershed Plan to DEC in November for review.	Substantial completion of drainage system improvements and initiate construction of CSO facilities.
	• planning for the Hutchinson River CSO abatement facility that will abate CSO discharges to the River. Field investigations and preliminary design work continued on the two (4 MG and 3 MG) storage tanks planned for construction in the present facility plan. For this CSO planning area, work was initiated for the Water body/Watershed Facility Plan to be completed under the LTCP Project.	Continue field work and preliminary design activities. Complete draft Water body/Watershed Facility Plan.
	• 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. The Uniform Land Use Review Process (ULURP) application was approved and CEQR activities were successfully completed. Site acquisition activities continued. Work was initiated for the Water body/Watershed Facility Plan report to be completed under the LTCP Project.	Continue design activities and site acquisition. Complete draft Water body/Watershed Facility Plan report.
	• planning for maximizing wet weather flow to its 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. These WWOPs were submitted to the NYSDEC. WWOPs have also been developed for the wet-weather facilities now operating (the Corona Avenue Vortex Facility) or under construction (the Flushing Creek and Alley Creek CSO Facilities).	Continue to operate the facilities to increase treated flow volumes to the maximum extent possible.

	2006 Description	2007 Planned Action
	• 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 CSO Long Term Control Plan Project. This effort specifically addresses pathogen controls for the City's current CSO abatement plans and is 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. In 2006, work continued for CSO facility planning in the Bronx River under the LTCP Project. Drilling of the geotechnical borings at the floatables control facilities sites was completed in October 2006.	Continue water body evaluations on the upper East River and its tributaries. Continue review of recreational use attainability and finalize the Bronx River Water body/Watershed Facility Plan under the LTCP Project. Continue activities associated with the draft ULURP Application review and draft EAS development.
	• providing upgrades to several treatment plants along the East River to increase their ability to process wet-weather flows. Pumping upgrades and installation of throttling gates are also underway at the Bowery Bay and Newtown Creek WPCPs.	Continue headworks upgrades at the Bowery Bay, Newtown Creek, Wards Island, Tallman Island, and Hunts Point treatment plants.
	• Planning for floatables control through the Comprehensive City-Wide CSO Floatables Plan in conjunction with the CSO Long Term Control Project. Set up of the pilot floatables monitoring program continued and a two-month landside monitoring program was completed. An interim progress report was submitted to NYSDEC.	Continue floatables control planning in individual water bodies/watersheds as determined through LTCP development. Continue pilot floatables monitoring program activities and related planning.
	• 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).	Continue the Sentinel Monitoring Program as necessary.
	• 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).	Continue to participate in the USACE Ecosystem Restoration project as necessary.
2.	The City of New Haven is continuing to implement its approved 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. In 2006 the city of New Haven began a new project that includes preliminary engineering for wet weather capacity improvements to several large pumping stations and to the treatment plant. The purpose of this project is to convey more combined sewage flow to the plant for treatment.	The City plans to eliminate remaining CSOs over the next 12 years. Anticipated completion of CSO projects on Lombard Street and James Street in 2007.
3.	The City of Bridgeport, Connecticut's LTCP submitted in January 2001 was disapproved in June 2006 and will need to be resubmitted. Bridgeport initiated the construction of the pipe portion of Contract G-2.	An order requiring development and resubmission of a revised LTCP is being drafted and will be issued to the city in Spring 2007. The order will require that the new LTCP be submitted in 2008. Contract G-2 will be completed in Spring 2007. Plans and specifications for Contract G4 Hallett Street separation are to be submitted for review in June 2007. Completion of design of the remaining G area contracts depends on finalization of site selection and land acquisition for the new River Street Pump Station. These include the new River Street Pump Station and the interconnect sewer between the old River Street and Island Brook

2006 Description		2007 Planned Action
		Avenue pump stations to the new River Street PS. All work in the G area is now expected to be complete by 2009.

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

KEY ELEMENTS: NONPOINT SOURCE RUNOFF, INCLUDING URBAN STORM WATER RUNOFF, IS ONE OF THE MOST SIGNIFICANT SOURCES OF PATHOGEN CONTAMINATION IN LONG ISLAND SOUND. PATHOGENS IN URBAN STORM WATER 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.

2006 Description		2007 Planned Action
1.	CTDEP staff completed development of the state DOT MS4 Permit in 2006.	DOT MS4 Permit will go to public notice in 2007. Anticipate final approval and implementation in 2007.
2.	CTDEP continued to implement its Phase II MS4 Permit program. In 2006 CTDEP received MS4 General Permit Annual Reports from 30 municipalities. Approximately 113 municipalities have submitted their Part B registrations. All towns are developing their Storm water Management Plans. Workshops were conducted for towns.	The third year annual reports are due to the DEP by January 2007. CTDEP will collect reports and do follow-up for Part B registrations and late 2005 Reports.
3.	Southport Harbor in Fairfield and Westport, CT was included on the 2006 List of Connecticut Water bodies Not Meeting Water Quality Standards due to impairment of shellfishing use due to exceedences of the indicator bacteria criteria for fecal coliform contained within the State *Water Quality Standards.* CTDEP partnered with the Connecticut Department of Agriculture, Bureau of Aquaculture (DA/BA), EPA, and Town of Fairfield to conduct a modeling study (SH Study) in 2004 in order to better understand the transport and loading of bacteria throughout the harbor. In May 2006, DA/BA downgraded several of the harbor shellfishing area classifications based upon its 2005 Annual Assessment Report. With the information obtained in the modeling study, as well as monitoring data provided by DA/BA, the CTDEP developed TMDLs at two locations that empty into outer Southport Harbor, where shellfishing area classifications have been downgraded. Southport Harbor receives freshwater from the Mill River and Sasco Brook. The bottom portions of both rivers are diluted with estuarine water from Long Island Sound during flood tides. Two designated swimming beaches are located in Southport Harbor: Sasco Hill Beach and Southport Beach. Both beaches provide access to recreational shellfishing areas that are managed by the Town of Fairfield (Town). The Town issues permits and runs a voice message machine 24-hours per day to notify the public regarding the status of these shellfishing areas. The Town also restocks hard shell clams annually for harvesters. The initial closure of the shellfishing area at Southport Beach and subsequent downgrading of shellfishing areas has caused great concern among local officials and stakeholders. The downgrading included a large portion of Sasco Hill Beach, which has remained opened despite the closure at Southport Beach	Southport Harbor Draft TMDL issued April 2007. Public Comments to be received by June 22, 2007. Anticipate revisions and implementation of final TMDL by end of 2007. Continue to pursue TMDLs for other water bodies through implementation of the MS4 permit program, as well as work with local stakeholders to improve watershed conditions.
4.	The Westchester County Planning Department has completed the following storm water abatement projects: Installation of StormTreat Units at Glen Island County Park, City of New Rochelle was completed in March 2007. Installation of Vortechnics Units at Playland Park, City of Rye, New York was completed in March 2006. Removal of and re-routing of storm water management pipes in and adjacent to freshwater wetland and restoration of wetland, Nature Study Wood County Park, City of new Rochelle, was completed in April 2007.	

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.

	2006 Description	2007 Planned Action
1.	On August 1, 2006 the Simsbury, Connecticut STP came on line with a UV disinfection system to eliminate pathogens from their discharge.	Operate equipment at capacity.
2.	The Stratford, Connecticut STP has an Ultra Violet disinfection project under construction to replace an existing chlorine disinfection system.	Anticipate completion by the end of 2007 or early 2008.
3.	The Plainville, CT STP is constructing a new UV disinfection system to replace an old UV system.	Anticipate completion and use of unit by end of 2007.
4.	In 2006, the Interstate Environmental Commission (IEC): • conducted 59 unannounced effluent surveys at CT and NYS WPCPs that discharge into the LIS portion of the IEC. 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.	Continue to conduct effluent surveys at CT and NY WPCPs.
	• 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 1998-2006, the number of events has been consistent. During 2006, 262 bypass events were reported to the Commission; 3 percent of the events occurred in Long Island Sound and its embayments; 60 percent occurred in the East River and its tributaries.	Continue to chair the RBWG. Seek funding for model updates.

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 CAUSE LOCAL WATER QUALITY PROBLEMS. CREATION OF VESSEL NO-DISCHARGE ZONES AREAS, USE OF BEST MANAGEMENT PRACTICES, AND INCREASING THE NUMBER OF VESSEL PUMPOUT FACILITIES ARE MAJOR ACTIONS TO MANAGE PATHOGEN CONTAMINATION FROM VESSEL DISCHARGES.

	2006 Description	2007 Planned Action
1.	CTDEP received $988,652 from the USFWS Clean Vessel Act (CVA) Pumpout grants program in 2006 for coastal projects. By the end of the 2006 boating season there were 91 total pumpout facilities (including fifteen boats) and 22 dump stations, (including one floating rest room) at 89 boating locations. The pumpout directory is posted on the CTDEP website: www.ct.gov/dep/cva, along with a variety of information about Connecticut's CVA program. Pumpouts are also listed in the annual Connecticut Boater's Guide.	A decision on Federal FY 2007 funding for CT is anticipated in May 2007. CT proposes to construct one stationary pumpout and provide further O&M funding. Two replacement pumpout boats are also proposed.
2.	A goal of the Long Island Sound 2003 Agreement was: *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.* Connecticut has exceeded the goal for designation of No Discharge Areas (NDA) by pursuing statewide coverage. In 2006 CTDEP received EPA approval of its designation of portions of Long Island Sound and its navigable tributaries from Guilford east to Eastern Point Groton as a NDA. CTDEP also submitted an	Connecticut anticipates a favorable decision on the final application for EPA approval of NDA designation of CT coastal waters before the start of the 2007 boating season. Approval of this application will complete

	2006 Description	2007 Planned Action
	application requesting EPA approval of the designation of the remaining portions of Connecticut coastal waters from Branford to Greenwich as a No Discharge Area. Public outreach sessions were held at 6 venues to explain the NDA purposes and to solicit public input on the application. New York is working on two NDZ applications on Long Island.	designation of all CT coastal waters as a NDA.
3.	As of December 2006 New York State has completed more than 359 projects with total CVA reimbursements of more than $4.1 million. Fifteen projects were completed in the marine district in 2006. Project information is posted on the NY Environmental Facilities Corporation website at: http://www.nysefc.org/home/index.asp?page=250. New York pumpout locations are posted at: http://www.cce.cornell.edu/seagrant/pumpouts/lipumpouts.html.	Continue implementation of the CVA program in 2007.

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.

	2006 Description	2007 Planned Action
1.	In 2006 meetings and discussion continued with little progress made between CTDEP and the Town of Old Saybrook. In December 2005 CTDEP and the Town of Old Saybrook agreed on a process expected to lead to the establishment of the state's first decentralized wastewater management district - the *Old Saybrook Wastewater Management District*. The agreement results from a mediation process between the town and CTDEP initiated in June 2004 to find solutions to managing wastewater in the areas of concern in the town. Under the terms of the agreement, Old Saybrook will upgrade existing septic systems in two forms. For properties near sensitive environmental receptors or those with inadequate space for conventional septic systems, advanced onsite technology will be required. For those with adequate space on the property but with septic systems that do not meet the current health code requirements, septic tanks and leaching fields that conform to the current health code will be required. DEP fully supports this innovative decision, as it protects the environment, Long Island Sound and the health of residents. (See CTDEP's web page at http://www.dep.state.ct.us/whatshap/press/2005/121605.htm to view press release.)	In 2007, the goal of the Town and DEP is to finalize the procedural and technical details of the Wastewater Management District. The details of what will need to be done on each affected lot, how much the improvements will cost, and methods to finance the improvements are being further evaluated by the town and will be provided to the public during summer informational meetings. Local adoption of the Wastewater Management District is anticipated in 2007. Onsite treatment upgrades will be performed on a neighborhood basis during 2008-2015.

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.

	2006 Description	2007 Planned Action
1.	Boater education continued to be a focus of the CTDEP CVA program in 2006. CTDEP staff attended several boat shows and other events to distribute information regarding clean boating practices, marine sanitation devices and pumpouts. CTDEP staff displayed outreach materials at the Connecticut Harbor Management Association meeting. Two interactive kiosks were developed for use at boat shows and other various locations throughout the state to educate the public about the Clean Vessel Act, pumpouts, and other clean boating practices. An Action Guide for Boaters was distributed at events such as boat shows and other informational events. CT DEP maintains its "Clean Boater Program" that includes a segment on pathogens.	Continue to promote the clean boating initiative by increasing media usage via radio. Incorporate clean boating practices into the DEP-Boating AquaSmart program, which teaches children about water and boat safety.
2.	In 2006 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 and downloaded at: http://longislandsoundstudy.net/publications.htm#posters	Continue to reprint and distribute materials as appropriate.
3.	In 2006 the New York Sea Grant Nonpoint Education for Municipal Officials Program extended its reach throughout Long Island and advanced Long Island local governments' implementation of effective Phase II storm water management programs. Support of municipal Phase II measures to meet the Oyster Bay/Mill Neck Creek pathogens TMDL was provided to nearly a dozen municipalities through comments on their Phase II annual reports. Additionally, a storm water management workshop with a focus on pathogen control was provided to Town of Oyster Bay and neighboring municipal officials.	Continue to deliver outreach and support designed to ensure integration of municipal PH II storm water management with advancement of LIS CMP objectives. Provide targeted workshops, consultations, and materials to strengthen municipal efforts to meet pathogens TMDL storm water allocations.

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.

	2006 Description	2007 Planned Action
1.	During 2006 there were 1,014 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. Connecticut: 222 beach-day closures at private and municipal beaches. New York: 792 beach-closure days reported in the New York portion of Long Island Sound; Nassau Co., 169 days; Suffolk Co, 484 days; Westchester Co., 84 days; NYC 55 days. EPA's Beach Watch website is: http://www.epa.gov/beaches.	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 2007.

	2006 Description	2007 Planned Action
2.	The CT Dept. of Public Health (CTDPH) received $223,370 from EPA for FY2006 Beach Act funding for implementing elements of the Beach Monitoring program in Connecticut. CTDEP, in partnership with the CTDPH, samples state beaches and CTDPH analyzes the samples. The NYSDOH received $348,740 from EPA for FY2006 Beach Act funding in New York state.	Expect continued EPA funding for Beach Act monitoring in 2007. Beach Act funding for CT is a projected at $224,010. Expected Beach Act funding for New York in 2007 is $352,830.
3.	The Connecticut Department of Agriculture, Division of Aquaculture (CTDOA/DA) monitored shellfish beds for pathogens, providing invaluable information to the shellfish industry and the public on the classification and condition of shellfish beds. In 2006 in Connecticut, 52,851 bags of oysters were collected with a market value of $2,205,740 and 422,670 bags of hard clams collected with a market value of $18,135,291. The CTDOA/DA website is: http://www.ct.gov/doag/site/default.asp.	Continue to monitor shellfish beds for health and viability.
4.	In 2006, the Interstate Environmental Commission: • continued to conduct its tri-state water quality monitoring program and summarized its results in its 2006 Annual Report. The Report describes the status of wastewater 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 2006. Attendees representing all levels of government and citizen groups viewed the upper East River and Long Island Sound, Long Island north shore bays, Connecticut and Westchester County harbors. The report can be viewed at www.iec-nynjct.org. • conducted dry weather inspections of MS4s. For the period January 1 through December 31, 2006, 13 inspections were completed on the north shore of Nassau County, NY, and four flowing MS4s under dry weather conditions were reported to NYS DEC, Region 1 for remediation. • continued pathogen monitoring in the NY-NJ Harbor Complex. Completed in May 2006, pathogen sampling was conducted across 5 Hudson River transects to characterize concentrations across the river, as well as to determine pathogens die-off. ▪ 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 2006. Remediation is under way. ▪ initiated a temperature and pathogen monitoring project at the Silver Sands State Park beach, Milford, CT. This project is being funded by a Connecticut License Plate grant.	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 2007. IEC will continue and expand dry weather MS4 inspections in other New York counties, as well as Connecticut and New Jersey. IEC will continue pathogen monitoring in support of TMDL development. IEC will continue pathogen monitoring, laboratory analysis and data sharing during 2007, under dry weather conditions only in the Byram River.
5.	On November 28, 2006 EPA Region 2 (Fate & Effects Team), NYSDEC (Albany staff), and Battelle met with NYSDEC shellfisheries staff at their offices in East Setauket. The meeting focused on reviewing available data, confirming boundaries of listed waters, storm water and land use issues related to the pathogen shellfish TMDLs to be completed in FFY2007.	Follow up with NYSDEC to assess results of TMDLs.

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 are several actions in this section of the Agreement: 1) update the Long Island Sound Contaminants of Concern list; 2) evaluate current contaminant monitoring/control programs; and 3) develop an approach for a joint NY/CT fish consumption advisory for LIS. In 2006 the LISS awarded a grant to New York to work with Connecticut to collect new specimens and test tissue samples for toxic contamination levels, potentially leading to revision of state fish consumption advisories, or a joint NY/CT advisory for certain species.

Environmental Indicators/Results/Trends: Toxic emissions in the region and to the Sound have declined due to increased environmental regulation and relocation or closing of manufacturing facilities in the watershed. Historical contaminant levels, as measured in sediments and in living marine resources, continue to 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 storm water 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. Emerging contaminants such as the unregulated discharge of chemicals from pharmaceuticals and personal care products represent a potential but as yet undefined risk.

2006 Highlights:

- CTDEP collected fish tissue samples for bluefish and striped bass in Summer 2006 and NYSDEC analyzed the tissues for toxic contamination, including PCBs. Additional samples will be collected in summer 2007 for analysis. The states may use new data to revise 25-year old PCB data that has been used to establish fish consumption advisories.

- In 2006, 82 of 84 Connecticut STPs passed toxicity testing, the same as in 2005, but an improvement from 2004, in which six facilities did not pass testing. 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. The two facilities that did not pass testing were: Beacon Falls WPCF; and Stonington B WPCF.

- CTDEP is completing the Bridgeport School Bus Retrofit Project, which will reduce the diesel emissions from school buses and is expected to be completed by the end of August 2007. All 111 Bridgeport school buses will be retrofitted with emission control technology, improving the air and protecting the 22,000 school children in the Bridgeport public schools. At a minimum, it is estimated that this project will reduce particulate matter, carbon monoxide and hydrocarbons, many of which are toxic substances.

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 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.

	2006 Description	2007 Planned Action
1.	The Northeast States for Coordinated Air Use Management (NESCAUM), of which Connecticut and New York are members of the Board of Directors, published an Assessment of Outdoor Wood-fired Boilers in 2006. Funded through member agency dues, the assessment included analysis of emissions from OWFBs and recommends possible regulations. See the NESCAUM web site at http://www.nescaum.org/documents/assessment-of-outdoor-wood-fired-boilers/	Connecticut DEP is committed to enforcing Public Act 05-227 and continue as an active member of NESCAUM.
2.	In 2006, 82 of 84 Connecticut STPs passed toxicity testing, the same as in 2005, but an improvement from 2004 in which six facilities did not pass testing. 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. The two facilities that did not pass testing were: Beacon Falls WPCF; and Stonington B WPCF.	CTDEP will continue working with STPs to stay in compliance with toxicity tests.
3.	In Connecticut, facilities registered under the Industrial Storm Water General Permit are required to test their storm water discharges annually for oil & grease, pH, chemical oxygen demand, total suspended solids, total phosphorous, Total Kjeldahl Nitrogen, Nitrate as Nitrogen, Copper, Zinc, Lead, hardness, conductivity and aquatic toxicity. Over 1400 facilities are registered under the Industrial Storm Water General Permit. 84 percent of facilities that monitored in 2006 met the target goal for aquatic toxicity (LC50>50%) compared to 74 percent of facilities that met the goal in 2005. Facilities that fail to submit monitoring under this permit receive Notices of Violation and facilities that discharge high levels of monitored pollutants in their storm water receive correspondence from CTDEP and are targeted for inspection.	Continue to work with permitees to improve compliance with the program and to improve monitoring results. Renewal of the Industrial Storm Water General Permit is slated for this year.
4.	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 2006 residents took part in household hazardous waste collections in Connecticut. This participation is 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, 155 had access to at least one household hazardous waste collection. Information on Connecticut household hazardous waste centers is posted on the web at: http://greenct.org/househ~htm.	CTDEP will continue working to reduce the amount of toxic substances released to the environment. CTDEP will continue to work with regional and national associations to reduce waste toxicity. CTDEP will encourage the development of programs for the separation and recycling or proper disposal of wastes that contribute to toxicity, such as consumer electronics, paint, and, mercury-containing lamps (including fluorescent light bulbs), and thermostats.

	2006 Description	2007 Planned Action
5.	Each day, 387,000 children ride 6,100 school buses in Connecticut. Of the 6,100 school buses, 99% run on diesel fuel. Diesel exhaust is a significant contributor to air pollution and has been classified as a probable human carcinogen by the EPA. Diesel exhaust exacerbates asthma and causes inflammation of the airways. Public exposure to fine particulate matter ($PM_{2.5}$) is a health issue in Connecticut and states across the country. On December 17, 2004, the EPA formally designated New Haven and Fairfield Counties as being in non-attainment with the federal ambient air quality standard for $PM_{2.5}$. Approximately one half of the state's population (1.73 million people) resides in these two counties. Diesel emissions contribute to the particulate matter levels in the air. CTDEP is completing the Bridgeport School Bus Retrofit Project, which will reduce the diesel emissions from school buses and is expected to be completed by the end of August 2007. All 111 Bridgeport school buses will be retrofitted with emission control technology, thus improving the air and protecting the 22,000 school children in the Bridgeport public schools. At a minimum, it is estimated that this project will reduce particulate matter, carbon monoxide and hydrocarbons, many of which are toxic substances. The project is expected to significantly reduce risk exposure to children and improve regional air quality. The Clean School Bus Program is an important part of CTDEP's overall efforts to address diesel emissions from school buses. The Bridgeport Clean School Bus Project has been funded by a Supplemental Environmental Project (SEP) resulting from a settlement between the EPA and the Virginia Electric Power Company, negotiated by the Connecticut Attorney General's office. The Bridgeport Clean School Bus Program included multiple partners including: the city of Bridgeport, the Bridgeport Public Schools, CTDEP, EPA Region 1, Laidlaw Education Services, the Bridgeport Child Advocacy Coalition and Department of Motor Vehicles (DMV).	CT has completed 390 bus retrofits out of an estimated fleet of 6,100. A grant awarded to Fairfield will soon add another 50 buses to the total. Results of this project are being used to promote CTDEP's Clean School Bus initiative into other urban school districts. DEP will also continue to leverage its success with school bus retrofits to assist other communities in applying for Clean School Bus USA funds and in developing retrofit programs.
6.	CT DOT is using CMAQ funds to retrofit CT Transit buses in Hartford and New Haven with diesel particulate filters. These projects are estimated to be completed in May 2009.	CT DEP will lend technical assistance and other support as these projects proceed with the retrofit process.
7.	Beginning in May of 2005, all gas cans sold in Connecticut were required to meet "no-spill" standards and to be compliant with other standards developed by the California Air Resources Board. Fuel vapors from personal fuel cans (PFCs) are classified as volatile organic compounds (VOCs), which contribute to the formation of ozone. Gasoline vapors also contain numerous toxic air pollutants such as benzene, toluene, ethylbenzene, naphthalene, cumene and all three isomers of xylene. CT DEP adopted revisions to the PFC regulations in 2007. These revisions included improvements in the design of the spill-proof spout. These regulations also followed California in further restricting the sale of non-compliant containers for use with gasoline and in extending emission control requirements to kerosene containers.	CT DEP will continue to follow developments in California concerning further technology advances to achieve additional reductions from these containers
8.	Legislation passed in 2005 that placed siting and land use restrictions on the installation and operation of Outdoor Wood-burning Furnaces (OWFs). Wood burning, which can produce high concentrations of $PM_{2.5}$ and toxic air pollutants, raises public health concerns similar to those from diesel particulate matter. As fuel prices rise, more people are burning wood as a primary fuel source. This is particularly troubling considering the localized environmental effects from the emissions from these largely uncontrolled sources. CT DEP began enforcing the legislation in 2005.	Under an EPA grant, CT DEP is studying the emissions from OWFs and their impact on ambient air quality. CT DEP will continue to support state and regional efforts to control emissions from these sources.
9.	VOCs are chemical precursors of ozone; most of Connecticut is a nonattainment area for the federal 8-hour ozone standard. CT DEP continues to enforce existing regulations on VOC sources in the state.	CT DEP is in the process of adopting new regulations to control VOCs from consumer products such as paints and stains and from architectural and maintenance (AIM) coatings and metal cleaning.
10.	Idling diesel engines produce nitrogen oxides, a precursor of ozone, and diesel particulate matter. In addition to the truck stop electrification proposals mentioned above, CT DEP has an active anti-idling signage program to promote public awareness of anti-idling regulations. CT DEP has developed and is implementing an Anti-Idling Plan, focusing on	CT DEP will continue to evaluate reduction of emissions that can be achieved through planning and implementation of anti-

	2006 Description	2007 Planned Action
	improvement of enforcement tools, public education and targeting specific sectors.	idling strategies.
11.	In 2003, the Connecticut General Assembly adopted CT General Statute section 22a-199, which required the state's coal-fired EGUs to reduce mercury emissions by 90% or meet a 0.6 lb/TBtu emissions rate by 2008. In response to the adoption of C.G.S. section 22a-199, the state's coal-fired EGUs are already in the process of installing and operating equipment to control mercury emissions and are well on their way to meeting and exceeding the requirements set by EPA in 2005. Effective May 29, 2007, a new regulatory amendment incorporates mercury limitations and monitoring requirements into the CTDEP's new source review permitting program. The CT DEP will complete its Clean Air Mercury Rule State Plan in summer 2007.	Due in part to the General Assembly's actions in 2003, CTDEP anticipates that by 2008, mercury emissions from the state's three coal-fired EGUs will be lower than EPA's 2018 Connecticut budget. CTDEP is also developing mercury control measures for compliance with CAMR requirements.
12.	New York City, through the Department of Environmental Protection (NYCDEP), continued its Industrial Pretreatment Program (IPP). Under this program, metals discharges Citywide have fallen from about 2000 lbs/day in 1987 to 37 lbs/day in 2006. The NYCDEP IPP program website is located at: http://www.nyc.gov/html/dep/html/wwsystem-control.html.	Continue the IPP.
13.	The Suffolk County Department of Public Works has begun a project to intercept and retain runoff from county highways adjacent to Mattituck Inlet by constructing recharge and online leaching basins. The project will reduce the discharge of highway runoff containing toxins, pathogens, and sediments to Mattituck Inlet.	

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.

	2006 Description	2007 Planned Action
1.	The National Marine Fisheries Service (NMFS) is involved in a cooperative effort with the New England District Army Corps of Engineers (ACOE) and CTDEP to develop guidelines for siting and operating contained aquatic disposal sites (CADS). The guidance will be used to address the growing interest in use of the CADS technology for non-federal dredging projects where sediments are deemed unsuitable for unrestricted open water disposal. The ACOE has taken the lead in the effort that would establish criteria and provide site guidance for the general public, and reduce the uncertainty revolving around such proposals. The effort will cover site identification, characterization of sub-bottom geology, resource impacts, and mitigation measures as well as scheduling and operation.	
2.	An agreement was reached between the federal government and the states of New York and Connecticut on disposal of dredged material in the Sound. Under the agreement, dredged material disposal will be directed to two MPRSA (103) EPA-designated sites. Three projects have permits -- one in Norwalk, CT, and one each in New Rochelle and Rye, N.Y. Decisions about future projects will be made by the Regional Dredging Team for LIS, which will review the applicants' alternative analyses packages and decide adequacy, i.e., if practical alternatives cannot be found, and alternatives to open water disposal were investigated. If practical alternatives cannot be found, a provision of the agreement allows the two designated disposal sites to continue to be used.	The Preliminary Assessment for the LIS DMMP was completed in November 2006. The Project Management Plan is currently under review. Public outreach meetings are scheduled for Fall 2007, at least three in NY and three in CT.

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.

	2006 Description	2007 Planned Action
1.	The Long Island Sound 2003 Agreement action item for this area is: *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.* In 2006, New York and Connecticut environmental agencies and departments of health continued work to collect and test fish samples for PCB and other toxic contamination in LIS. Volunteer citizen anglers also supplied fish for sample analysis. CTDEP, NYSDEC, NYDOH and CTDPH are participating in this LISS-funded project to collect and analyze fish tissue samples for toxic chemicals. CTDEP collected samples in its regular fish trawl surveys and provided the samples to New York State for testing. Results will be analyzed and data for determining fish advisories may be updated. 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 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	Additional samples of striped bass and bluefish will be collected in Summer 2007, with subsequent analysis to determine chemical concentrations. The Management Committee approved an additional $158,994 for the project in FY2007.

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.

	2006 Description	2007 Planned Action
1.	The Long Island Sound 2003 Agreement goal for this area is: *By 2003, update the Long Island Sound Contaminants of Concern list after considering National Coastal Assessment monitoring results and other sources of data.* In 2005 the LIS Fellows updated a technical characterization of toxic contaminants in LIS, which was reviewed by the LISS Science and Technical Advisory Committee (STAC). The contaminants of concern will be considered in the context of the 2006 LIS ecosystem data synthesis project. One chapter of that document will address pollutant sources, magnitudes and trends.	Continue work on the LIS synthesis document.
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 2005 and 2006. The LISS provided $20,000 to NYSDEC for this project in 2006. 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.	EPA discontinued funding for the NCA in 2007.

	2006 Description	2007 Planned Action
3.	In 2006, NYCDEP continued cooperating with the NYSDEC Contaminant 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. The NYSDEC CARP website is: http://www.dec.ny.gov/chemical/23839.html.	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 AS RECOMMENDATIONS, THOUGH CONTINUATION OF WORK BEGUN BY LISS THROUGH THE LISS RESEARCH PROGRAM AND OTHER PARTIES RECOGNIZES THESE RECOMMENDATIONS AS PRIORITY LISS RESEARCH TOPICS.

	2006 Description	2007 Planned Action
1.	The following 2004 LISS-funded research project was completed in 2006: • *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.* (Dr. Sergio Sañudo-Wilhelmy, PI, Stony Brook University, EPA Grant No. LI-97296600, $101,136]	The final project report was submitted to EPA in March 2007.

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.* In 2006, the University of Connecticut completed a LISS-funded project to map impervious surfaces in the watershed. The states may use this information to work with watershed agencies and municipalities to develop zoning standards for impervious cover.

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, state amd 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.

2006 Highlights:

- As a result of National Beach Clean Up Day in September 2006, volunteers from Connecticut and New York removed thousands of pounds of debris from many LIS beaches and recreational sites. In New York, 2,812 volunteers removed more than 71,000 pounds of debris from 68 sites. In Connecticut, more than 960 volunteers collected 8,340 pounds of debris on 45 miles of shoreline at 38 sites.

- The amount of litter entering area waters from New York City has continued to decrease from 1995 base levels through the City's street sweeping efforts. The percentage of streets rated Acceptably Clean was 93.1 percent in 2005, compared to 91.9 percent in 2005, the highest rating in 30 years.

- UConn's Center for Land Use Education and Research (CLEAR) completed a LISS-funded project to map impervious surfaces. The objective of this project was to derive a consistent set of impervious surface estimates for the years 1985, 1990, 1995, and 2002 for the Connecticut and New York portions of the Long Island Sound watershed. The goal is to track historical changes in impervious cover over the study area and to provide a standardized set of information that can be used to compare changes in impervious surfaces over time and to provide a set of data that can be used to study how changes in imperviousness might relate to population growth, water quality and other factors. The CLEAR project team established a website at: http://clear.uconn.edu/projects/imperviouslis/project.htm.

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.

	2006 Description	2007 Planned Action
1.	New York City continues to implement actions for reducing floatables in its harbor waters and neighboring water bodies, including Western Long Island Sound. In 2005 New York City:	
	• 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;	Continue re-inspections.
	• continued to increase the number of hooded catch basins through re-construction of un-hoodable basins;	Continue construction of new 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;	Continue to develop waterbody/watershed plans during which the need for additional floatable controls will be evaluated.
	• evaluated its current *Interim Floatables Containment Program* 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 2005. Ongoing facility improvements and maintenance activities continued throughout 2006 to improve the efficiency of collection; and	Assess the effects of the improvements made in the Interim Program and evaluate potential changes to the program.
	• 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.	Continue to operate control program.
	• purchased a new skimmer vessel in late 2005 intended to replace one of the older, existing skimmer vessels. The new vessel is scheduled to be incorporated into existing containment facility skimming operations in 2006 after operations trials are completed. The NYCDEP also progressed with its design competition for a new inter-pier skimmer vessel capable of retrieving floatables throughout near shore areas in New York Harbor. The competition was set up as a procurement process which solicited design proposals from private firms for the creation of a new skimmer vessel. Two design proposals were selected, design concepts were developed, and scale models of the vessels were created and were tested in late 2005. Vessel evaluations continued in 2006.	
2.	In 2006 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-023 and includes an outfall extension channel and an end-of-pipe netting system.	Continue to collect debris from this facility in 2007.
3.	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.	Develop a contract to provide for detailed facility planning, design and construction bidding.

	2006 Description	2007 Planned Action
4.	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 continue additional facility planning studies to further develop those actions.	Continue 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. NYC will develop a contract to conduct additional facility planning activities.

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.

	2006 Description	2007 Planned Action
1.	*National Beach Clean Up Day* in September 2006 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, 2,812 volunteers collected 71,724 pounds of debris from 68 sites covering more than 71.84 miles of LIS. In Connecticut, 960 volunteers collected nearly 8,340 pounds of debris on 45 miles of coast. Beach cleanup data is available on the Ocean Conservancy website at: http://www.oceanconservancy.org/site/PageServer?pagename=press_icc.	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 on September 15, 2007.
2.	The LISS Futures Fund 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 2006; and a $5,000 grant to Connecticut Fund for the Environment to assist beach cleanups in Connecticut in 2006. (See Appendix A)	
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 *Acceptably Clean* was 93.1 percent in 2006 compared with 86 percent in 2003 and 77 percent in 1995.	Continue street sweeping programs.
4.	The Connecticut Legislature passed *An Act Concerning The Removal Of Abandoned Sunken Vessels,* clarifying and streamlining the process for removal of derelict vessels that may become a hazard or produce floating debris. Under the Act, once a duly authorized harbormaster determines that a boat is a "derelict vessel" the state transportation commissioner or a duly authorized representative of a municipality may order the boat removed at the expense of the owner, agent, or operator. The bill makes the last owner of record responsible for the boat, and establishes procedures regarding storage and, if deemed necessary, sale of the boat.	
5.	Proper control of debris and refuse is a component of the Connecticut Clean Marina program. Proper containers and recycling programs are required for corrugated cardboard, glass and metal food and beverage containers, leaves, newspaper, white office paper, scrap metal, waste oil, spent lead acid storage batteries, nickel-cadmium rechargeable batteries. Other refuse must be disposed in covered dumpsters or other suitable containers. As of the close of 2006, nine (9) marinas have been certified as Connecticut Clean Marinas. Four of these were certified in 2006. Annual recertification is required. As of the close of 2006, twenty-eight (28) marinas were pledged to become a certified "Clean Marina" within one year.	Additional marinas will pledge to become certified Clean Marinas and additional certifications will occur.
6	CT's Clean Boater Program encourages boaters to learn about and use clean boating techniques. The Clean Boaters pledge is: *I pledge to be a Clean Boater and to make the sound choice to keep Connecticut's waterways clean. I pledge to keep fuel, sewage, plastics, trash, spent fishing line, and invasive species out of the water, to clean my boat responsibly, and to dispose of all wastes properly."*	Seasonal "boating education assistants" will visit marinas and boat launches in Summer 2007 to answer questions, distribute Clean Boater Packets, and encourage boaters to sign the Clean Boaters Pledge.

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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.*** There are nine actions in this section of the Agreement. As of December 2006, only one had not been initiated, three are ongoing, one has been modified to a biennial task, and four have been completed. A continuing goal is to report progress against the LISS habitat restoration goals (see below).

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 684 acres as of December 2006. Of the 2008 goal to reopen 100 river miles to fish passage, more than 110 miles have been reopened as of December 2006. The Policy Committee agreed to restore an additional 300 acres of coastal habitat and reopen an additional 50 river miles to anadromous fish passage by 2011.

2006 Highlights:

- The Long Island Sound Study Policy Committee met in September 2006 at the Jay Heritage Center in Rye, New York and signed several important agreements to restore critical coastal habitats, restore anadromous fish passage, and recognize 33 areas of significant ecological, scientific or recreational value as Long Island Sound Stewardship sites.
- The Long Island Sound Futures Fund large grant program selected seven habitat restoration projects, three invasives control projects, three stewardship projects and one species conservation project in 2006. These projects are part of a total award fund of $830,000 with more than $5 million in local match provided by grantees.
- The 2006 biennial Long Island Sound Research Conference was held October 26-27, 2006 at the US Coast Guard Academy in New London, Connecticut. More than 30 researchers presented the results of their investigations relative to living resources of the Sound, including such topics as invasives, shellfish, estuarine fauna, and salt marsh ecology. The Conference is jointly sponsored by the Long Island Sound Foundation and the New England Estuarine Research Society.

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.

	2006 Description	2007 Planned Action
1.	The LISS continued to provide funding to support the New York and Connecticut habitat restoration coordinator positions in 2006. The state coordinators provide technical assistance to municipal and local landowners and other partners in implementing the LISS habitat restoration plan. The Habitat Restoration Initiative is continuing to work on producing additional chapters for the Long Island Sound Habitat Restoration manual. Current chapters in development include Riverine Migratory Corridors and Molluscan Reefs. The manual is accessible on the LISS website: www.longislandsoundstudy.net.	The Management Committee approved base program funding for the LISS habitat restoration program coordinator positions in 2007. Continue chapter development.
2.	The LISS Habitat Restoration Initiative - made up of representatives from CTDEP, NYSDEC, EPA, NOAA, ACOE, 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 September 2006, the Policy Committee committed to restoring an additional 300 acres of habitat and reopening an additional 50 miles of riverine corridor to anadromous fish passage by 2011. The Policy Committee signed a habitat restoration MOU, which is posted on the LISS website. In 2006, 114 acres of coastal habitat were restored or protected and 20.24 river miles were reopened for fish passage. As of December 2006, the LISS has restored over 684 acres and reopened more than 110 miles of riverine migratory corridor toward its restoration goals.	Continue habitat restoration work in 2007.
3.	In late 2006, Connecticut Sea Grant hired a new extension educator for coastal habitat quality, who will be an active member of the LISS Habitat Restoration Initiative.	Continue in 2007
4.	NYSDEC is developing a draft shellfish restoration strategy that will serve as a framework for further plan development.	Draft will be completed by Spring 2007.
5.	Cornell Cooperative Extension of Suffolk county is continuing their ongoing eelgrass restoration work along the North Shore of Long Island, there are two pilot restoration sites currently.	Continue to monitor restoration sites and proceed with additional plantings.
6.	The Westchester County Department of Planning and Soil and Water Conservation District continue to advance projects in their Long Island Sound watershed Aquatic Restoration Program. The program has focused on the restoration of a variety of natural resources, especially streams, wetlands and ponds, as well as the installation of storm water management practices. By the end of 2006, 25 projects had been completed or were under construction and 10 more were being planned and designed. Types of projects include: stream bank stabilization, stream restoration, freshwater and tidal wetland restoration and creation, coastal dune creation, pond restoration, and upland habitat restoration. Additional projects include structural storm water management practices to control polluted runoff, such as storm water wetlands and underground storm water structures. In 2006, construction of the following projects was initiated or completed: • Stream Restoration, Sheldrake River at Bonnie Briar Country Club, Mamaroneck Town • Freshwater Wetland Restoration and Storm water Management Retrofit, Nature Study Woods, New Rochelle • Installation of 16 StormTreat System Storm water Management Units, Glen Island Park, New Rochelle • Stream Buffer Restoration, East Branch of Blind Brook, Rich Manor Park, Rye Brook • Tidal Wetland and Coastal Buffer Creation and Restoration, Harbor Island Park, Mamaroneck Village	Continue to develop and implement projects in 2007.

	2006 Description	2007 Planned Action
	Program and project information and photographs can be viewed at: www.westchestergov.com/waterquality, then click on "Aquatic Restoration Program" in left menu.	
7.	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.
8.	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). In 2005, CWRP provided support for the Branford Supply Pond Fishway and for The Nature Conservancy's Zemko Dam Removal Project. As noted above, the Branford project was completed in May 2006; the Zemko Dam project is awaiting permit approval in 2007 before work can proceed.	Continue to work with the states, Coastal America and the corporate partners to expand the CWRP and implement priority restoration projects.
9.	The Branford Land Trust and federal, state and local partners participated in a dedication ceremony in May 2006 to mark the opening of the Branford Fishway located at the Branford Supply Ponds dam, Branford, CT. The three-year project was completed at a cost of $203,500 and is located on the Queach Brook, a tributary to the Branford River. The new fishway is aimed at restoring anadromous fish passage to upstream spawning habitats for alewife and other species such as blueback herring, sea lamprey, and sea-run brown trout.	The fishway is operational. Over 3,200 fish have swum through the fishway since its opening in April 2006.

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.

	2006 Description	2007 Planned Action
1.	The Policy Committee endorsed 33 inaugural Long Island Sound Stewardship sites at its September 2006 meeting, signing a resolution of support for the stewardship initiative (which is noted on the LISS website). Congress passed and the President signed P.L. 109-359, the *Long Island Sound Stewardship Act of 2006* on October 16, 2007. The Act establishes the Stewardship Initiative and authorizes appropriations up to $25 million annually through 2011.	No funds were appropriated in FY2007.
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.	Update project status as they proceed to and complete construction.
3.	CTDEP and other partners have worked with the U.S. Fish and Wildlife Service in identifying important criteria for coastal area protection and pursuing funds through NOAA's Coastal and Estuarine Land Conservation Program (CELCP). CTDEP has identified several important parcels located along the Connecticut River in Lyme, as well as an isolated island located in the CT River that would be an ideal candidate for a CELCP grant. It is expected that NOAA will conduct a competitive grant process open to coastal states with approved CELCP Plans beginning in FY2006.	CTDEP will work closely with the Nature Conservancy and local land trusts to negotiate purchase contracts with property owners, contingent upon CTDEP's success in obtaining matching federal grants under this program.
4.	During 2006 over 2,324 acres of open space were acquired by municipalities and conservation groups assisted with Connecticut Open Space Grants. In 2006 more than $6.9 million was awarded to municipalities and conservation groups to purchase 1,944 acres of permanently protected open space land during 2007. Connecticut's goal is to preserve 21	CTDEP's Land Acquisition & Management division will continue collecting data

	2006 Description	2007 Planned Action
	percent of the state's land as open space by 2023. Currently 475,982 acres have been preserved, or 70.7 percent of the goal. 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. As of December 2006, the state owns 251,000 acres in its system of state park, forest, wildlife, fishery, and natural resource management areas. During this past year, an additional 316 acres of land were acquired in eight towns, adding to the size of six state parks and forests. CTDEP currently holds over 78 percent of the 320,576 acres targeted for state open space acquisition.	to complete a "Protected Open Space Mapping" Project (POSM), an open space inventory project.
5.	The USFWS Coastal Program participated in the applicant workshops for the Long Island Sound Futures Fund and provided technical assistance to numerous applicants who submitted grant proposals.	The Coastal Program will provide technical assistance to 2007 Futures Fund proposals.

L-3. INVENTORIES AND MANAGEMENT STRATEGIES FOR AQUATIC AND TERRESTRIAL HABITATS (CCMP TABLE 42, PP.112-113)

KEY ELEMENTS: DEVELOP HABITAT MANAGEMENT STRATEGIES FOR SPECIFIC COMPLEXES OR REGIONS USING A WATERSHED PERSPECTIVE.

	2006 Description	2007 Planned Action
1.	New York City has been developing an inventory of City-owned properties containing wetlands. As specified in Local Law 83, a task force was established to evaluate the technical, legal, environmental, and economical feasibility of transferring available City-owned properties that contained wetlands to the jurisdiction of the New York City Department of Parks & Recreation (DPR). The Wetlands Transfer Task Force is conducting a site by site review with recommendations on both the larger (greater than 10 acres) and hundreds of smaller wetland properties (to under a tenth of an acre) in New York City's portfolio. In some cases further investigation or Special Review is necessary before a decision is made on the property's future status.	Finalize recommendations for review and approval by City Administration.
2.	The USFWS Coastal Program continued to participate on the Steering Committee of the Waterbird Working Group in 2006. This effort identified important waterbird habitats in and beyond the Sound.	The Working Group will be identifying potential projects to conserve and improve important habitats.
3.	NYSDEC supervised an intern researching historic eelgrass meadows along the North Shore of Long Island.	Continue researching additional locations as needed
4.	In September 2006, the Connecticut River Estuary Regional Planning Agency (CRERPA) completed its LISS-funded project to identify and map the occurrences of riparian buffers along the main stem and major tributaries of the lower Connecticut River. EPA grant No. LI-97105801-1, $26,144. The full report is available on the CRERPA website: http://www.crerpa.org/RiparianBuffers.html.	Final project report submitted to EPA, December 2006.

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

	2006 Description	2007 Planned Action
1.	NYSDEC's Natural Heritage Program's *Rare Plant List,* updated May 2006 is posted at: http://www.dec.ny.gov/animals/29396.html.	NYSDEC NHP will re-evaluate the list in 2007.
2.	In 2006 CTDEP continued the prohibition on the taking of alewives and blueback herring from inland and marine waters of the State of Connecticut. The current action by CTDEP extends the prohibition through March 31, 2007. 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. Monitoring conducted during 2002, 2003 and 2004 indicated that the river herring stocks remain depressed, noting that the number of blueback herring counted at the fishway at the first dam on the Connecticut River reached an all-time low of 151 fish in 2004. The number was up slightly in 2005 at 534; however, the numbers are still drastically below acceptable levels for population restoration. In an effort to learn more about river herring in the state, CTDEP is funding a three-year study at the University of Connecticut. This study, which focuses on the relationship between striped bass and river herring in the Connecticut River, will expand on previous research into the status of herring populations in coastal streams and tributaries of the Connecticut River. CTDEP does not expect river herring populations to recover immediately. 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, removing obsolete dams and building fishways that allow fish to migrate past remaining dams.	Upon review of the 2005 fish count data, CTDEP will extend the prohibition through March 31, 2007.

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 AND 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

	2006 Description	2007 Planned Action
1.	NYSDEC's marine recreational fishing regulations for 2006: **Summer Flounder** - Minimum size limit: 19.5" Total Length (increased 2") Possession Limit: 4 Open Season: All year **Scup** - Minimum size limit: 10.5" Total Length Possession Limit: 25 Open Season: June 1 through October 31. Exception: passengers fishing aboard licensed Party/Charter boats may each possess up to 60 scup during the period of September 1 through October 31. **Black Sea Bass** - Minimum size limit (unchanged): 12" Total Length Possession limit (unchanged): 25 Open Season: All year **Striped Bass** - Possession Limit: 1 fish between 28" and 40" Total Length and 1 fish	

	2006 Description	2007 Planned Action
	greater than 40" Total Length. Exception: passengers fishing aboard Party/Charter boats possessing a striped bass permit may possess 2 fish with a minimum length of 28" Total Length. Open season (unchanged): April 15 through December 15. **Bluefish** - Possession Limit: 15 fish, no more than 10 of which may be less than 12 inches in Total Length. Open season (unchanged): All year.	

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.

	2006 Description	2007 Planned Action
1.	The Connecticut ANS Management Plan has undergone formal review by CTDEP in 2006 and, pending minor revisions, awaits the signature of Commissioner McCarthy, before it is forwarded to Governor Rell. Once the plan is accepted by the CTDEP Commissioner, it will be submitted to the Governor. Following state acceptance, the plan will be submitted formally to the federal ANS Task Force for final review. Upon acceptance, CT will be able to apply for federal funds to assist plan implementation.	Submit to federal ANS Task Force for formal approval, begin seeking funds for implementation; begin implementation
2.	The 2006 Connecticut Long Island Sound Fellow, under supervision of Connecticut Sea Grant, conducted Generic Nonindigenous Aquatic Organism Risk Analyses on 10 recent and potential invaders to Long Island Sound, following federal ANS Task Force protocol. This information builds upon the marine content of the CT ANS Plan, and will be incorporated into the LIS ANS Plan. The results were presented at the LIS Research Conference in October 2006, and a draft policy paper has been submitted to the STAC for review.	The paper will be submitted for publication; the former fellow will participate in development in LIS ANS plan as a graduate assistant; the 2007 NY LIS Fellow will assist in the development of the LIS ANS plan (see below)
3.	Connecticut Sea Grant was awarded a 2006 LISS Enhancement Grant, administered by NEWIPCC, to oversee development of an interstate ANS Management Plan for Long Island Sound. A working group has been established and has met, developing preliminary goals and objectives, strategies and tasks. A presentation on the project was given at the LIS Research Conference in October 2006.	Complete development of draft interstate plan
4.	NYSDEC and the New York State Department of Agriculture and Markets released a Draft Report of the New York State Invasive Species Task Force. The Draft Report describes problems associated with invasive plants, animals and pathogens, and discusses existing efforts by government, conservation groups and industry. The Draft Report also makes recommendations about how New York can more effectively combat this growing and expensive threat. The Task Force held six public review sessions around New York State on Tuesday, August 2, 2005.	
5.	NYSDEC announced the availability of $1 million in grants for projects to help eradicate aquatic invasive species. This follows on the heels of the acceptance by Governor Pataki and the Legislature of the final report of the Invasive Species Task Force at the end of November.	Applications for the Aquatic Invasive Species Eradication Grant Program will be accepted until February 28, 2006.
6.	The Westchester County Department of Planning has begun the planning phase for an Integrated Pest Management Program at the Bonnie Briar Golf Course, Town of Mamaroneck.	The planning phase is expected to be completed during Spring 2006.

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.

	2006 Description	2007 Planned Action
1.	Connecticut Sea Grant produced the book, *Seaweeds of Long Island Sound*, with support from EPA LISS and Connecticut College in 2006; 3000 copies were printed. More than 1,400 copies were distributed to educators in Connecticut and New York free of charge, through CTSG, NYSG, and EPA LISS; copies are also available through several nature center book stores and the Connecticut College Arboretum. This publication raises awareness and better understanding of the seaweeds of the Sound and their ecological importance.	Reprint book in 2007
2.	Connecticut Sea Grant produced the laminated card, "Guide to Common Seaweeds of Long Island Sound's Rocky Shore," which compliments the book, and will serve to help educators and their students identify some of the more common species of seaweeds found in the rocky intertidal zone. 3,000 were printed.	Distribute cards in 2007
3.	Connecticut Sea Grant produced a PowerPoint© presentation, *Living Treasures: The Plants and Animals of Long Island Sound* in 2006. The presentation, geared to middle and high school, focused on key habitats of the Sound and the plants and animals found within them, and contains 120 slides and 166 images, resources and key contacts. The PowerPoint© is packaged on a CD along with a stand-alone image library and the PDF of *SoundFacts: Fun Facts about Long Island Sound.* 3,000 copies are available.	Distribute CDs
4.	The LISS HRI is continuing to work on producing additional chapters for the Habitat Restoration Manual. Current chapters in development include Riverine Migratory Corridors and Molluscan Reefs.	Continue chapter development.

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

	2006 Description	2007 Planned Action
1.	The LISS management Committee approved funding for development of a habitat restoration database in 2006. NEIWPPC will coordinate development of the database through a subcontractor, who will work with the LISS habitat restoration team during development.	
2.	NYSDEC, in partnership with SUNY Stony Brook's Marine Sciences Center, finished the draft Unit Management Plan (UMP) for the State Owned Flax Pond Tidal Wetland property.	Finalize UMP.

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.

	2006 Description	2007 Planned Action
1.	New York City's CSO Long Term Control Plan (LTCP) project is developing watershed/water body plans to address water quality issues throughout New York Harbor, including the East River and its tributaries and Western Long Island Sound. Field sampling and analysis programs related to biotic abundance and diversity and habitat from the Use and Standards Attainment Project are being incorporated into the LTCP. The LTCP will also include use attainability analyses, as appropriate.	Project is continuing.
2.	The USFWS completed eelgrass mapping in 2006 with LISS funding from 2004. The project was delayed due to adverse weather conditions in 2005. The final report is undergoing internal reviews. The survey results will be posted on the LISS website when available.	Request new funding for biennial surveys in 2007.

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.

	2006 Description	2007 Planned Action
1.	The following LIS research project was completed in 2006: *Application of Remote Sensing Technologies for the Delineation & Assessment of Coastal Marshes & Their Constituent Species.* PIs: Dr. Daniel Civco, UConn, and Dr. Martha Gilmore, Wesleyan University; EPA grant #LI-97100901, $179,159	Final report submitted to EPA.
2.	The 2006 biennial Long Island Sound Research Conference was held at the US Coast Guard Academy, New London, Connecticut on October 26-27, 2006. The conference is co-sponsored by the Long Island Sound Foundation and the New England Estuarine Research Society. The agenda is posted at: http://www.lisfoundation.org/researchConf06.html.	Plan for the 2008 research conference.
3.	Through the LISS Research Grant Program, the following 2004 LIS research projects continued in 2006: • *Food Webs in Long Island Sound: Review, Synthesis & Potential Applications.* PI: Dr. Roman Zajac, University of New Haven; EPA grant #LI-97101401, $117,545 • *Understanding the Role of Nutrient Enrichment in Tidal Marsh Loss in Long Island Sound*. PI: Dr. Shimon Anisfeld, Yale University; EPA grant #LI-97100801, $125,372.	Report progress on ongoing research projects.

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 five 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 membership in the CAC. As of December 2006, one action item has been completed, three are ongoing, and one has not been initiated. In 2006, *Sound Health 2006* was released, with more than 450,000 copies distributed in the watershed. The LISS continued to fund Connecticut Sea Grant to conduct its Mentor Teacher program to train teachers as peer-mentors for Long Island Sound curricula in schools. Stony Brook University completed its assessment of the public's perception of the state and health of the Sound, and planning is underway for a follow-up work shop to address the results of the survey. The CAC continued to expand its membership base by adding two new organizational members in 2006 —The Town of Oyster Bay and the Hempstead Harbor Protection Committee.

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 worldwide website has more than doubled the number of site visits in 2005 from 2004 site visits. 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.

To assess some of the key behaviors that affect water quality, habitat and the ecosystem, the LISS undertook a public perception study in 2005-2006, which was conducted by Stony Brook University's Center for Survey Research. The survey found that perceptions of the Sound vary by proximity and use, and that much more needs to be done to educate the public on its role in the restoration and protection of the Sound. Results of the survey will be presented to the LISS management and citizens committees in 2007 and further works will be necessary to target the LISS public education program to the greatest areas of need.

2006 Highlights

- LISS outreach and education program staff responded to more than 380 information requests, developed and staffed displays at 12 events that reached more than 3,000 people; and conducted eleven presentations reaching about 325 people. CTDEP produced three issues of the LISS/NOAA-funded publication, *Sound Outlook.*

- LISS produced and distributed more than 5,000 copies of the LISS *UPDATE* newsletter; the issue covered the LISS 20th Anniversary and the Long Island Sound Stewardship Initiative.

- The LISS initiated the online newsletter SoundBytes, and the LISS web site continues to be a popular site to view information about Long Island Sound. The number of visits to longislandsoundstudy.net web site increased from 11,800 hits per month in 2005 to more than 19,150 monthly visits in 2006. More than 200 people requested LISS information and materials through the web site e-mail address, 'feedback@longislandsoundstudy.net.'

- Since the inception of the LISS Small Grants Program, the LISS has provided funds for 129 projects totaling more than $500,000. These projects assisted hundreds of teachers and thousands of school children, produced over 40,000 pieces of literature. In 2006, the LISS Futures Fund Small Grants program provided funds totaling $63,900.

- The CTDEP Long Island Sound License Plate Fund distributed more than $265,690 in 2006 for 15 projects that benefit LIS in the following four categories: Education and Outreach, Habitat Restoration, Public Access, and Research.

SUMMARY OF MANAGEMENT ACTIONS: PUBLIC INVOLVEMENT AND EDUCATION

E-1. BUILDING COMMUNITY AWARENESS AND STEWARDSHIP (CCMP TABLE 51, P.146)

KEY ELEMENTS: THE CCMP EMPHASIZES EXISTING AND ENHANCED PUBLIC INVOLVEMENT AND EDUCATION PROGRAMS AT THE STATE LEVEL TO BUILD COMMUNITY AWARENESS AND STEWARDSHIP OF LIS. SUPPORT FOR CONFERENCES, INCLUDING RESEARCH AND THE LONG ISLAND SOUND WATERSHED ALLIANCE, IS AN IMPORTANT ELEMENT OF THE PROGRAM. THE DEVELOPMENT AND DISTRIBUTION 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.

	2006 Description	2007 Planned Action
1.	The LISS Outreach Program: • responded to more than 380 information requests, developed and staffed displays at twelve events that reached more than 3,000 individuals, and conducted eleven presentations reaching another 325 people; • Produced and distributed more than 5,000 copies of the LISS *UPDATE* newsletter; the two issues covered the LISS 20th Anniversary and the Long Island Sound Stewardship Initiative. Initiated the online newsletter SoundBytes. • Assisted in producing and distributing three issues of the CTDEP LIS newsletter *Sound Outlook to* a circulation of 2,900 in addition to making it available on the CTDEP website.The Sound Outlook webpage averages 120 hits per month.	LISS staff will continue to respond to requests for information, provide presentations, staff displays at events, and publish newsletters and other pertinent materials
2.	LISS continued a second year of distributing its stormwater runoff brochure: *Step By Step: A Citizens Guide to Curbing Polluted Runoff*. New York Sea Grant reprinted an additional 10,000 copies of the brochure. (New England Interstate Water Pollution Control Commission paid for the first 10,000 printing of 10,000 copies) More than a dozen municipalities and environmental groups used the brochure template to print an additional 50,000 copies for distributions to local citizens. New York Sea Grant and New England Interstate Pollution Control Commission produced two magnets based on the brochure. 4,000 of each magnet were produced.	LISS communications staff will continue to send out posters and CDs, as well as distribute the magnets, and encourage municipalities to print their own brochures. LISS will also reprint the storm water brochure as necessary.
3.	Connecticut Sea Grant utilized the Long Island Sound display at venues for formal and informal educators including the LIS Educators Conference, Marine Sciences Day at UCONN Avery Point, and the annual conference of the Southeastern New England Marine Educators. New signage for the display included information on the LISS, the CCMP, and the LISS Habitat Restoration Initiative.	Continue in 2007
4.	Since its inception, the NY Sea Grant Program annually coordinated the review of the LISS Small Grants program. In 2006 the Small Grants program was combined with the Long Island Sound Futures Fund. The National Fish & Wildlife Foundation, now administering the program, assembled a team of federal, state, and citizen partners to review proposals and make funding recommendations to the Management Committee. In 2006, the Small Grants program was transferred to the LIS Futures Fund and the Small Grants review team was combined with the Futures Fund review team administered by the National Fish & Wildlife Foundation. In 2006, the USFWS, CTDEP, NYSDEC, EPA, IEC and CAC participated on the LISFF Grants Program review team, helping to determine the most effective projects to fund in relation to programs, projects, and products that educate and involve the public in the protection and restoration of Long Island Sound and its watershed.	In 2007 the Small Grants program will continue under the Futures Fund review team.
5.	LISS, through NEIWPCC, printed 4,000 copies of a new brochure describing the Long Island Sound Study Habitat Restoration Initiative: *Partners in Restoring the Coast.* The brochure provides information that should be helpful to local groups and agencies involved in restoring habitats. Staff developed a strategy with the Habitat Restoration coordinators in New York and Connecticut to distribute	Communications team members will be distributing the brochures. to community groups, libraries, and coastal parks.

	2006 Description	2007 Planned Action
	brochure to the key audience.	
6.	LISS, through NEIWPCC, purchased promotional items such as pens, pencils, rulers and key chains, that raise awareness of LISS, and encourages people to use the LISS Web site.	
7.	New York Sea Grant collaborated with Regional Plan Association to complete and print 500 copies of the four color *Stewardship Initiative Atlas* in time for the September Policy Committee meeting.	LISS and RPA staff will continue to distribute the Atlas.
8.	Boater education continued to be a focus of the CTDEP Clean Vessel Act (CVA) program. CTDEP staff attended several boat shows and other events to distribute information regarding clean boating practices, marine sanitation devices and pumpouts. CTDEP staff displayed outreach materials at the Connecticut Harbor Management Association meeting. Two interactive kiosks have been developed for use at boat shows and other various locations throughout the state to educate the public about the CVA, pumpouts and other clean boating practices. An *Action Guide for Boaters* has been published and will continue to be distributed at events such as boat shows and other informational events.	Continue to promote the clean boating initiative by increasing media usage via radio. Incorporate clean boating practices into the DEP-Boating AquaSmart program, which teaches children about water and boat safety. Clean boating materials will also be distributed to boaters and marinas throughout the state.
9.	CTDEP provided technical assistance in the form of coastal management and coastal nonpoint source program workshops to several coastal and coastal nonpoint source management area municipalities. The *Connecticut Coastal Management Manual* is available on the DEP's website (http://www.dep.state.ct.us/olisp/manual/manual.htm) and fact sheets from the manual are made available upon request. In addition, a Coastal Nonpoint Source Program website was developed by CTDEP (http://dep.state.ct.us/olisp/coastalnonpoint/index.htm).	CTDEP will continue to provide coastal management and coastal nonpoint source workshops to municipalities as necessary. Website updates will also be conducted as necessary.
10.	"Focus on the Coast" workshops and materials developed for municipalities by the University of Connecticut NEMO program, Sea Grant, CT DEP, and the Nature Conservancy were made available, including the coastal nonpoint source website developed by NEMO, and pamphlets explaining the various components of the state's coastal nonpoint source program.	The "Focus on the Coast" workshops and supplemental information will be revised and revamped in wake of hiring of new UCONN extension educator for coastal habitat quality. Material will be available through programs as well as via the internet (www.nemo.uconn.edu/coastal/index.htm). The materials highlight the need to protect SAVs, tidal wetlands, and migratory fish habitat. Additional material regarding vegetation types may be added.
11.	CTDEP implemented its new initiative "No Child Left Inside," to encourage the public – especially families and children from urban areas – to enjoy the outdoors by taking advantage of the recreational opportunities state parks have to offer. This effort is also aimed at building the next generation of environmental stewards. With several State Parks and Wildlife Management Areas along the coast of CT, this initiative is in-line with the LIS 2003 Agreement Goal of offering a Long Island Sound field experience to 50% of school children in CT and NY. One component of the initiative is a partnership with WFSB Channel 3 and other partners, called "The Great Park Pursuit," initiated in May 2006. Participants, primarily families, have the opportunity to visit a number of state parks and forests over a nine-week period and compete in various challenges at those parks. The challenges will be linked to the general theme of each of the state parks and forests hosting events (e.g., historic sites, shoreline parks, forests, etc.). CT DEP has a web page dedicated to the NCLI initiative.	The Great Park Pursuit adventure challenge will again be launched in 2007 from May and conclude at the end of June.
12.	The biennial Long Island Sound Educators Conference was held in March 2006 at The Maritime Aquarium in Norwalk, CT. 193 educators from Connecticut, New York, and the region attended. Connecticut Sea Grant offered a workshop on *Seaweeds of Long Island Sound*, to share tips on using the book in classrooms and on field trips. Free copies were distributed to all workshop participants.	Next scheduled conference is in 2008

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.

	2006 Description	2007 Planned Action
1.	LISS issued four news releases to publicize important events affecting LIS: • *Top Environmental Officials Sign Agreements to Restore and Protect Long Island Sound, Sept. 28, 2006* • *Federal and State Officials Award Grants to Restore the Health and Living Resources of Long Island Sound, Sept. 11, 2006* • *Long Island Sound Water Quality Improves: Sound Health 2006 Report Details Health of the Sound* • *Impact of Climate Change in Long Island Sound Featured at 16th Annual LIS Citizens Summit, April 8, 2006.*	Continue to issue press releases as needed.
2.	The number of visits to the LISS Web site increased from 11,804 visits in 2006 to 19,159, and the number of unique visitors per month increased from 5,078 per month to 6,779 per month. In addition, more than 200 individuals contacted the LISS Communications team via the feedback from on the LISS Web site.	The LISS Communications Team will continue to work to update the Web site in 2007, and further encourage the use of the Internet to communicate with the public.
3.	CTDEP LISS Outreach staff continued as contributing editor of *Sound Outlook*, 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. *Sound Outlook* has a circulation of 2,850 and is available on the CTDEP web site: http://dep.state.ct.us/olisp/soundout/soundout.htm. The *Sound Outlook* web page received over 1200 hits in 2006. Staff contributed seven articles and assisted in editing other articles.	Continue to publish *Sound Outlook* and cooperate with the LISS newsletter *UPDATE*.
4.	LISS staff in collaboration with Peconic Estuary Program staff joined the Habitattitude program and developed a placard that was distributed to 85 pet stores and all the Petland Discount Stores on Long Island. The placard informs the public that they should not dump unwanted pets and aquatic plants into local waters.	LISS staff will continue to promote program where possible.
5.	CTDEP staff distributed over 5,000 copies of Sound Health 2006 indicators report to three CT coastal State Parks in summer 2006. Copies of the report were also distributed to several schools and civic groups during LIS presentations.	Sound Health 2006 will continue to be distributed to user groups and State Parks.

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.

	2006 Description	2007 Planned Action
1.	The LISS funded 15 small grants projects totaling over $63,500 in 2006 through the LIS Futures Fund program. The American Littoral Society, Schooner, Inc., Solar Youth, SoundWaters,, Alley Pond Environmental Center, CT Fund for the Environment, Friends of WCFR, the Town of Oyster Bay and others received small grants funding for environmental education and implementation projects and programs for teachers and students. Appendix A lists the projects funded under the LIS Futures Fund Small Grants program.	The LISS Small Grants program will continue in 2007.
2.	The CTDEP Long Island Sound License Plate Fund provided $99,793 in 2006 for education grants.	Continue to provide funding for future grants.
3.	The LIS Citizens Advisory Committee (CAC) met in January, March, June, September and December 2006 to identify and address issues concerning LIS and CCMP implementation. The CAC: • increased its membership base by adding the Town of Oyster Bay and the Hempstead Harbor Protection Committee as new members; • briefed the Policy Committee in September 2006 on CAC perspectives of progress on problems in implementing the CCMP; • approved 2006 budget and work plans and recommended budget and work plan priorities to the Management Committee for 2006**;** • briefed members of Congress on LIS priorities and problems in January 2006 as part of the Clean Water/Jobs coalition; and • supported passage of the Long Island Sound Stewardship Act of 2006, PL 109-359.	Quarterly meetings are planned for 2007.
4,	Suffolk and Nassau Counties on Long Island have established storm drain marking programs. The Town of Oyster Bay was funded with a 2005 small grant to place 460 storm drain markers on drains in Oyster Bay, Bayville, Locust Valley, Glen Head and Glenwood landing, this project was completed in 2006.	LISS Staff will continue to promote these programs where possible.

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

KEY ELEMENTS: THE CCMP COMMISSIONED THE STATES OF CONNECTICUT AND NEW YORK AND EPA, 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.

	2006 Description	2007 Planned Action
1.	LISS outreach staff continued to provide technical information and resources (about LIS and LISS CCMP actions) to state and local agency staff and to other state and federal agency partners to facilitate cooperation and outreach with each other and the public at large. For example: CTDEP/LISS staff made a LISS presentation to staff at the CTDEP Environmental Education meeting in February 2006. CTDEP staff gave presentation on the Jordan Cove BMP & monitoring project to EPA staff at Region 1 EPA headquarters in June.	Staff will continue to make LIS information available to all state, local and federal partners.

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.

	2006 Description	2007 Planned Action
1.	Connecticut Sea Grant continued the LIS Mentor Teacher Program with LISS funding. Three teams (5 certified teachers, one of whom served on two teams) of mentor teachers (grades K-3, 5-8, and high school) with experience in using LIS in their classroom curricula were established through an application process. The teams held several planning sessions and offered one-day workshops ("From Me to the Sea", "Seine the Sound", "Build It!") for their peers to demonstrate effective "tried and true" ways to incorporate age-appropriate multidisciplinary information about the Sound into the classrooms. Thirty (30) educators participated in the workshops from 9 school districts including 5 new ones (Hartford, Bloomfield, Killingly, Newington, West Hartford, Middletown, Fairfield, Darien, Thomaston) and two non-profit marine education organizations. Through these educators, more that 2,445 students were reached. The evaluation process for all workshops was both formative and summative. In addition, a formal evaluation of the mentor teacher program was undertaken in 2006, with the results providing substantive examples of how the workshop materials are being used in classrooms, the benefits derived from the program, and some suggestions for improvement. Cumulatively, the LIS mentor teacher program has utilized 17 mentor teachers to train more than 110 educators, and through them, reached more than 5,445 K-12 students in Connecticut. LIS-based resources distributed through the workshops included: *Living Treasures*, *Sound Health 2005*, *Marine Animals of Southern New England, An Underwater Tour of LIS* CD, *Long Island Sound in a Jar,* and *Seaweeds of Long Island Sound.*	Continue LISMT workshops in 2007; Review & evaluate LISMT lessons from workshops and develop LIS and LIS watershed multimedia resource for distribution; Translate booklet, *Living Treasures*, a basic LISS fact sheet, and selected LISMT resources into Spanish Align resources with Connecticut frameworks
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 NMEA annual conference at LIU Brooklyn on July 15 -22, 2006. Staff provided a display that was viewed by the 300 participants of the conference from around the world.	Staff will continue on the Board and distribute information. Staff will also assist with the planning of the annual conference on June 3, 2007 at the American Museum of Natural History.
3.	In 2006, IEC conducted *in situ* testing of water quality parameters in the upper East River and western Long Island Sound as part of the fourth annual World Water Monitoring Day to promote water quality awareness internationally. While comprehensive monitoring goes on throughout the year, IEC conducted in situ testing of water quality parameters on September 19 at nine sites in the upper East River and western Long Island Sound, covering a distance of about 29 nautical miles, aboard the R/V Natale Colosi. These are the same sites monitored by IEC since 2002. The ambient water quality stations represent a subset of the LISS sampling network. In addition to meteorological and tidal conditions, parameters collected include dissolved oxygen, salinity, temperature, and water clarity. The data IEC collected was submitted to the World Water Monitoring Day website, www.worldwatermonitoringday.org .	IEC will continue participation in this annual event as resources allow.

E-6. SECURE FUNDING FOR PUBLIC INVOLEMENT AND EDUCATION ACTIVITIES (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.

	2006 Description	2007 Planned Action
1.	The CTDEP Long Island Sound License Plate Fund distributed $265,695 in 2006 for 15 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://www.ct.gov/dep/cwp/view.asp?a=2705&q=323786&depNav_GID=1635 .	CTDEP will issue a Request for Proposals for 2007.
2.	Since the inception of the LISS Small Grants Program, the LISS has provided funds for 131 projects totaling more than $512,000. These projects assisted hundreds of teachers and thousands of school children, and produced over 20,000 pieces of literature. In 2006, the LISS Futures Fund Small Grants program provided funds totaling $63,900 for 15 projects that provided $93,483 in match, or $1.46 for every grant dollar allocated.	Continue the program in 2007.
3.	The National Fish and Wildlife Foundation (NFWF) conducted four grant workshops in November and December 2006 to assist potential applicants in developing grant applications in response to the NFWF Request for Proposals (RFP) under the 2006 Long Island Sound Futures Fund. Workshops were held in Stamford and Old Saybrook, Connecticut, and in New Rochelle and Stony Brook, New York. The RFP was posted on the NFWF website: www.nfwf.org. More than 60 project proposals were received under the RFP, which will be finalized in 2006. Appendix B of this report lists the projects funded under the LISFF.	NFWF will work with the LISS to select projects for funding in 2007. NFWF will award funds and track progress in implementing projects.
4.	The LISS developed and posted a page on its website, Grants at a Glance, which provides information on funding opportunities within the larger Long Island Sound community. Links to Requests for Proposals are provided at http://www.longislandsoundstudy.net.	Continue to post notices of funding opportunities as appropriate.

Appendix A

Long Island Sound Futures Fund

Long Island Sound Study

	LARGE GRANTS - LISFF 2006						
#	**Org/Project Name/State/Type**	**Match**	**Funding**	**NOAA**	**Shell MHP**	**EPA**	**FWS**
1	Edith G Read Natural Park and Wildlife Sanctuary , Native Successional Forest	$16,761	$35,000			$35,000	
2	Trout Unlimited, Oyster Bay/ Cold Spring Harbor Watershed Fish Passage Assessment Project (NY) (R)	$17,000	$32,000	$16,000			$16,000
3	Cornell Cooperative Extension, Long Island Sound Eelgrass Restoration: Phase: II (NY) (R)	$20,784	$50,000		$10,000	$13,000	$27,000
4	Bronx River Alliance, Bronx River Restoration and Stormwater Retrofit (NY) (R)	$21,100	$73,000			$44,000	$29,000
5	Town of Glastonbury, Glastonbury River Front Park- Drainage Channel Restoration (CT) (R)	$4,033,681	$50,000	$20,000		$15,000	$15,000
6	Town of Westport- Sherwood Mill Pond Committee/ Conservation Department, Sherwood Mills Pond Restoration (CT) (R)	$29,600	$19,000			$19,000	
7	Lyme Land Trust, Moulson Pond Fishway Improvements, Diversion Device (CT) (R)	$35,300	$75,000		$30,000		$45,000
8	Riverhead Foundation for Marine Research and Prevention, Marine Mammals, Sea Turtles and Citizen Scientists (NY) (SC)	$42,720	$28,000		$28,000		
9	Peconic Land Trust, Great Pond Wetland Phase 2 (NY) Invasives Control (IC)	$58,675	$22,000		$10,000		$12,000
10	Town of North Hempstead, Hempstead Harbor Cove Wetland Restoration (NY) (IC)	$13,500	$27,000	$21,000			$6,000
11	Friends of Calf Isalnd, Calf Island Invasive Control (CT) (IC)	$7,040	$10,000				$10,000
12	Audubon New York, Conservation of beach Nesting Birds of Eastern Long Island (NY) Stewardship (S)	$55,500	$35,000		$17,500		$17,500
13	Regional Plan Association, Long Island Sound Stewardship Iniative Nissequogue River Watershed Project (NY) Stewardship (S)	$70,500	$50,000		$35,000	$10,000	$5,000
14	Maritime Aquarium, Long Island Sound Biodiversity Project (CT) (S)	$140,000	$38,000	$8,000		$30,000	
15	Friends of the Bay, OB/CSH Water Quality Monitoring Program Upgrade and Expansion (NY) Planning (P)	$45,400	$36,000			$36,000	

16	The Nature Conservancy, Saugatuck River Watershed Partnership (CT) (P)	$42,974	$46,000	$10,000		$36,000	
17	Connecticut River Coastal Conservation District, Supporting TMDL Implementation in the Mattabesset River Regional Basin: a Subwatershed-Level Strategy (CT) (P)	$17,500	$13,000			$13,000	
18	Tidewater Institute, The Ground-Truthing Project: Community Based Land Protection in the Lower Connecticut River Region (P)	$879	$36,000			$19,000	$17,000
19	Nassau County Soil and Water Conservation District, West Shore Road Stormwater Demonstration Project (NY) Water Quality (WQ)	$9,400	$15,000			$15,000	
20	Rocking the Boat, Rocking the Boat On-Water Education Program (NY) (E)	$181,100	$35,000	$25,000		$10,000	
21	Solar Youth, Solar Youth Summer 2006 (CT) (E)	$38,200	$35,000			$35,000	
22	Town of East Lyme, Outdoor Classroom at Hole-in-the-Wall (CT) (E)	$589,703	$35,000			$35,000	
23	Eastern Connecticut Resource Conservation & Development Area, Land Use Leadership Alliance for connecticut Land Use Decision Makers (CT) (E)	$44,500	$35,000			$35,000	
	TOTAL (Large Grants)	**$5,531,817**	**$830,000**	**$100,000**	**$130,500**	**$400,000**	**$199,500**
	Large Grants: 23 - 12 NY; 11 CT. 7 Restoration, 3 Invasives Control, 4 Education, 1 WQ, 4 Planning, 3 Stewarship, 1 Species Conservation.						
#	**SMALL GRANTS - LISFF 2006**	**Match**	**$ Funding**				
1	Coastal Steward, Shellfish Restoration Program (NY) (SC)	$14,400	$5,000				
2	Mystic Aquarium & Institute for Exploration, Sea Turtle Stranding Outreach in Connecticut (CT) (SC)	$3,100	$4,900				
3	Wildlife Trust, A Citizen Scientist Program Using Seabirds as Sentinels of Ecosystem Health in Long Island Sound (NY) (S)	$1,800	$5,000				
4	Alley Pond Environmental Center, Little Neck Bay/Long Island Sound Estuary Festival (NY) (S)	$4,345	$5,000				
5	American Littoral Society, Long Island Sound Component of the 2006 NY State Beach Cleanup (NY) (WQ)	$0	$5,000				

6	Town of Oyster Bay, No Discharge Zone Information & Education Program (NY) (E)	$2,156	$5,000				
7	Westchester County, Planning Department, Interpretive Signage for the Harbor Island Salt Marsh Restoration Site, Village of Mamaroneck (NY) (E)	$2,555	$5,000				
8	The Center for Marine Education & Recreation, Kips Bay National Estuary Day Celebration (NY) (E)	$10,182	$5,000				
9	CT DEP, Discouragement of waterfowl feeding in coastal Connectictut Towns (CT) (E)	$1,000	$1,200				
10	Connecticut Fund for the Environment, Connecticut Shoreline Cleanup Program (CT) (E)	$21,055	$5,000				
11	SoundWaters, Horseshoe Crab Ecology (CT) (E)	$12,660	$4,900				
12	Schooner, Inc., MicroMagic (CT) (E)	$5,000					
13	Riverfront Recapture, Summer Youth Employment Program (CT) (E)	$6,500	$3,900				
14	Solar Youth, Westville Manor Steward Team (CT) (E)	$4,210	$4,000				
15	Friends of WFCR, A Public Radio Series on Long Island Sound's Special Natural Areas (CT) (E)	$4,520	$5,000				
	TOTAL (Small Grants)	**$93,483**	**$63,900**				

Small Grants: 15 - 7 CT; 8 NY. 10 Education, 1 WQ, 2 Stewarship, 2 SC.

Appendix B
Wasteload Allocation and Upgrade Progress
by Management Zone -- Connecticut

Total Nitrogen Wasteload Allocation for Connecticut Point Source Discharges.

Facility	Baseline End-of-Pipe (lbs/day)	TMDL WLA End-of-Pipe (lbs/day) 2014	2006 Nitrogen Discharge (lbs/day)	BNR Upgrade Planned (Yes/No)	Year Upgrade To Be/or Completed	Cost Estimate $$ (M) **	Design Capability (Mg/l) ****
ZONE 1							
Groton City	272	99	118	*	-	-	Phase II
Groton Town	420	153	471	Yes	**Bid** -2006	2.5	Phase III
Jewett City	42	15	10	Yes	**C** - 2005	1.5	Phase III
Killingly	359	131	152	*	-	-	Monitoring
Ledyard	20	7	7	Yes	**C** - 1997	0.35	Phase III
Montville	323	118	97	*	-	-	Phase II
New London	1057	386	421	Yes	**C** - 2002	2.89	Phase II
Norwich	550	201	829	Yes	**B** - 2008	30	Phase II
Plainfield North	94	34	117	*	-	-	Monitoring
Plainfield Village	65	24	53	*	-	-	Monitoring
Putnam	145	53	204	*	-	-	Monitoring
Sprague	20	7	22	*	-	-	Monitoring
Stafford Springs	164	60	115	*	-	-	Monitoring
Stonington Borough	37	14	37	*	-	-	Monitoring
Stonington Mystic	74	27	50	*	-	-	Monitoring
Stonington Pawcatuck	66	24	24	*	-	-	Monitoring
Thompson	28	10	28	*	-	-	Monitoring
UConn	120	44	93	Yes	**C** - 1996	1.058	Phase II
Windham	344	125	169	Yes	**B**id -2007	22	Phase II
Pfizer (Industrial)	2900	1059	82	N/A	-	-	-
Subtotal	7100	2591	3099				

Total Nitrogen Wasteload Allocation for Connecticut Point Source Discharges.							
Facility	**Baseline End-of-Pipe (lbs/day)**	**TMDL WLA End-of-Pipe (lbs/day) 2014**	**2006 Nitrogen Discharge (lbs/day)**	**BNR Upgrade Planned (Yes/No)**	**Year UpgradeTo Be/or Completed**	**Cost Estimate $$ (M)****	**Design Capability (Mg/l)**
Zone 2							
Bristol	1091	398	569	Yes	**C** - 2004	0.584	Phase II
Canton	66	24	112	*	-	-	Monitoring
Mattabassett	2285	834	1205	Yes	**B** - 2007	50	Phase II
East Hampton	148	54	138	Yes	**C** - 2001	0.69	Phase II
East Hartford	801	292	908	Yes	**B** - 2007	1.96	Phase II
East Windsor	163	59	32	Yes	**C** - 1996	1.0	Phase III
Enfield	763	278	328	Yes	**C** - 2004	2.39	Phase II
Farmington	486	178	441	*	-	-	Monitoring
Glastonbury	268	98	290	Yes	**B**id - 2006	27.0	Monitoring
Hartford (Phase 1)	6512	2377	7424	Yes	**B**id - 2006	.75	Monitoring
Manchester	855	312	780	*	-	-	Monitoring
Middletown	569	208	440	*	-	-	Monitoring
Plainville	277	101	302	Yes	Bid - 2006	22.0	Phase II
Plymouth	114	42	80	*	-	-	Phase II
Portland	86	31	33	Yes	**C** - 2002	1.05	Phase III
Rocky Hill	789	288	791	*	-	-	Monitoring
Simsbury	293	107	211	Yes	**B** - 2007	4.044	Phase III
South Windsor	289	106	295	Yes	**B** - 2007	18.0	Phase II
Suffield	122	45	87	*	-	-	Phase III
Vernon	504	184	586	Yes	**B** - 2007	2.5	Monitoring
Windsor Locks	180	66	98	Yes	**C** – 2003 **B** - 2007	1.84 1.5	Phase II
Windsor Poquonock	268	98	431	*	-	-	Monitoring
Winsted	175	64	223	Yes	**B** - 2007	1.1	Phase II
Subtotal	17104	6244	15804				

Total Nitrogen Wasteload Allocation for Connecticut Point Source Discharges.							
Facility	**Baseline End-of-Pipe (lbs/day)**	**TMDL WLA End-of-Pipe (lbs/day) 2014**	**2006 Nitrogen Discharge (lbs/day)**	**BNR Upgrade Planned (Yes/No)**	**Year Upgrade To Be/or Completed**	**Cost Estimate $$ (M)**	**Design Capability (Mg/l)**
Zone 3							
Branford	526	192	103	Yes	**C** - 2003	3.158	Phase III
Cheshire	281	103	169	Yes	**B** - 2007	5.78	Phase III
Meriden	1230	449	819	Yes	**B** - 2009	13.0	Phase II
New Haven East	4294	1568	2400	Yes	**C** - 1997	8.2	Phase III
North Haven	433	158	226	Yes	**C** - 2006	1.0	Phase III
Southington	557	204	761	Yes	**B** - 2009	4.0	Phase II
Wallingford	737	269	546	Yes	**C** - 2006	2.28	Phase III
West Haven	967	353	542	Yes	**C** - 1996	0.75	Phase II
	976	353	542	Yes	**B** - 2008	38.0	Phase III
Cytec (Industrial)	2543	928	805	**N/A**	**-**	**-**	
Upjohn (Industrial)	309	113		**N/A**	**-**	**-**	
Subtotal	11877	4337	6371				

Total Nitrogen Wasteload Allocation for Connecticut Point Source Discharges.							
Facility	**Baseline End-of-Pipe (lbs/day)**	**TMDL WLA End-of-Pipe (lbs/day) 2014**	**2006 Nitrogen Discharge (lbs/day)**	**BNR Upgrade Planned (Yes/No)**	**Year Upgrade To Be/or Completed**	**Cost Estimate $$ (M)**	**Design Capability (Mg/l)**
Zone 4							
Ansonia	314	115	289	*	-	-	Monitoring
Beacon Falls	33	12	44	*	-	-	Monitoring
Danbury WPC	1211	442	2092	Yes	**B** - 2008	.5	Monitoring
Derby	195	71	66	Yes	**C** - 2000	0.677	Phase II
Heritage Village	54	20	**This is a**	**private**	**Plant.**	**No data**	**Available.**
Litchfield	64	24	39	Yes	**C** - 2004	1.0	Phase III
Milford Beaver Brook	258	94	131	Yes	**C** - 1996	1.0	Phase II

Total Nitrogen Wasteload Allocation for Connecticut Point Source Discharges.							
Facility	**Baseline End-of-Pipe (lbs/day)**	**TMDL WLA End-of-Pipe (lbs/day) 2014**	**2006 Nitrogen Discharge (lbs/day)**	**BNR Upgrade Planned (Yes/No)**	**Year Upgrade To Be/or Completed**	**Cost Estimate $$ (M)**	**Design Capability (Mg/l)**
Zone 4							
(phase 1) (phase 2)				Yes	**B**-2009	1.613	Phase III
Milford Housatonic (Ph1)	844	307	576	Yes	**C**- 1996	.65	Phase II
Phase II				Yes	**B** - 2009	10.038	Phase III
Naugatuck Treatment Co.	675	246	255	*	-	-	Phase II
New Milford	66	24	86	Yes	**B** - 2008	27.5	Phase II
Newtown	115	42	36	Yes	**C** - 1997	1.06	Phase II
Norfolk	30	11	29	*	-	-	Monitoring
North Canaan	36	13	23	*	-	-	Monitoring
Salisbury	58	21	29	*	-	-	Monitoring
Seymour	167	61	66	Yes	**C** - 1993	0.25	Phase II
Shelton	290	106	479	Yes	**B** - 2008	4.29	Monitoring
Southbury T.S.	41	15	10	*	-	-	Monitoring
Stratford (phase 1)	974	356	540	Yes	**C** - 1996	0.8	Phase II
(phase 2)				Yes	**B**-2009	10.116	Phase III
Thomaston	114	42	44	Yes	**C** - 2001	1.16	Phase III
Torrington	680	248	270	*	-	-	Phase II
Waterbury	2766	1010	1006	Yes	**C** - 2000	17.36	Phase III
Watertown ***	106	39		**This**	**Plant is**	**Closed.**	
Unknown Industrial	1152	420		**N/A**			
Subtotal	10243	3739	6110				

Total Nitrogen Wasteload Allocation for Connecticut Point Source Discharges.							
Facility	**Baseline End-of-Pipe (lbs/day)**	**TMDL WLA End-of-Pipe (lbs/day) 2014**	**2006 Nitrogen Discharge (lbs/day)**	**BNR Upgrade Planned (Yes/No)**	**Year Upgrade To Be/or Completed**	**Cost Estimate $$ (M)**	**Design Capability (Mg/l)**
Zone 5							
Bridgeport East	991	362	469	Yes	**C** - 2004	2.09	Phase II
Bridgeport West	2852	1041	1148	Yes	**C** - 2004	2.37	Phase II
Fairfield	1113	406	535	Yes	**C** - 2003	15.96	Phase III
Westport	238	87	152	Yes	**B** - 2008	8.25	Phase II
Subtotal	5194	1896	2304				
Zone 6							
Greenwich	1313	479	534	Yes	**C** - 1996	0.5	Phase II
New Canaan	175	64	29	Yes	**C** - 2000	1.235	Phase III
Norwalk	1967	718	758	Yes	**C** - 2000	6.64	Phase II
Ridgefield South St.	80	29	28	Yes	**C** - 1996	0.2	Phase III
Stamford	2536	926	1106	Yes	**C** - 2006	59.5	Phase III
Subtotal	6071	2216	2455				
Total Zones 1-6	57589	21023	36143				

- * All plants have the potential to be upgrade. Some may upgrade and others may choose to purchase credits.
- ** Nitrogen cost portion only.
- ***The Watertown plant shut down and the flow now goes to the Waterbury STP for treatment.
- **** Phase II compliant = meets goal of 8 ppm total nitrogen Phase III compliant = meets goal of 5.6 ppm total nitrogen Monitoring Plants = greater than 8 ppm total nitrogen in effluent
- C = Project Completed
- B= Project is expected to Be completed (has begun)

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Appendix C
Wasteload Allocation and Upgrade Progress
Point Source Dischargers by
Management Zone - New York

Total Nitrogen Wasteload Allocation for New York Point Source Discharges.							
Facility (Capacity, MGD)	**Baseline End-of-Pipe (lbs/day)**	**TMDL WLA End-of-Pipe (lbs/day) 2014**	**2006 Nitrogen Discharge (lbs/day)**	**BNR Upgrade Planned (Yes/No)**	**Year Upgrade To Be/or Completed**	**Cost Estimate $$ (M)**	**2014 Design Capability (Mg/l)**
Zone 7							
Mamaroneck (20.6)	2,135	829	1,351	yes	2006B	unknown	unknown
Port Chester (6.0)	563	219	662	yes	unknown	unknown	unknown
Blind Brook (5.0)	338	131	312	yes	unknown	unknown	unknown
New Rochelle (13.6)	1,516	589	1,680	yes	unknown	unknown	unknown
North Castle (?)	33	13	33				
Subtotal	4,585	1,780	4,038				
Zone 8							
Wards Island (275)	43,140	17,903	28,900				
-BNR Upgrade				Contract 79	2002-2010	$142.0	
-SHARON Demo				PO-88	2006-2007	$65.0	
- Battery E Demo				PO-87	2006-2008	$58.0	
- Supplemental Carbon				TBD	2014-2016	TBD	
Hunts Point (200)	28,630	11,881	22,300	Phase I	2003-2007	$11.0	
- BNR upgrades				Phase II	2005-2008	$193.0	
- Supplemental Carbon				Phase IV	2012-2014	$19.0	
Bowery Bay (150)	17,270	7,167	17,000	Contract 57	2000-2007	$21.0	
- BNR Upgrades				Contract 59	2005-2011	$70	
- Supplemental Carbon				TBD	2014-2016	TBD	
Tallman Island (80)	6,860	2,847	8,400				
- BNR Upgrade				Contract III	2006-2010	$120	
- Supplemental Carbon				TBD	2014-2016	TBD	
CSOs	3,170	1,316					
Subtotal	99,070	41,114	76,600				
Zone 9							
Newtown Creek (310)	45,270	18,787	37,100	no			
Red Hook (60)	4,610	1,913	3,900	no			

Total Nitrogen Wasteload Allocation for New York Point Source Discharges.							
Facility (Capacity, MGD)	**Baseline End-of-Pipe (lbs/day)**	**TMDL WLA End-of-Pipe (lbs/day) 2014**	**2006 Nitrogen Discharge (lbs/day)**	**BNR Upgrade Planned (Yes/No)**	**Year Upgrade To Be/or Completed**	**Cost Estimate $$ (M)**	**2014 Design Capability (Mg/l)**
CSOs	1,721	714					
Subtotal	51,601	21,414	41,000				
Zone 10							
Belgrave (2.0)	213	77	273	yes	2007	$3.5	5-6
Glen Cove (8.0)	893	323	235	yes	C2006	$3.4	4-5
Great Neck SD (3.8)	457	165	500	yes	2008B	$18	0
Great Neck (Village) (1.5)	212	77	253	yes	2008B	inc.above	0
Oyster Bay (1.8)	220	80	66	yes	C2006	$9.1	4-5
Port Washington (4.0)	655	237	442	yes	2008	$22.7	6
Subtotal	2650	958	1,769				
Zone 11							
SUNY (SCSD #21) (2.5)	208	40	87	**	C2006	$14.2	4-5
Port Jefferson (SCSD1) (.85)	202	39	114	yes	2007	$14.2	4-5
Huntington (2.5)	448	87	284	yes	2008	$17.0	4-5
Kings Park (SCSD #6) (2.0)	134	26	52	yes	2008	$9.3	4-5
Northport (Village) (.34)	52	10	52	yes	C2006	$1.5	5-6
Subtotal	1044	202	589				
Zone 11 East							
Greenport (Village) (0.65)	76	11	81	yes	2008B	$1.5	7
Total Zones 7-11	159026	65479	124059				

**currently denitrifying, considering recharge
C= Completed Construction
B=Beginning Construction

APPENDIX D

Long Island Sound Study

Comprehensive Conservation and Management Plan Actions

CONTINUING THE MANAGEMENT CONFERENCE

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 a 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 mosquitoes 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 aquiculture 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
ANS Aquatic Nuisance Species

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

H

HEP	Harbor Estuary Program (New York/New Jersey)
Hg	Mercury

I

ICM	Integrated Crop Management
IEC	Interstate Environmental Commission
IPM	Integrated Pest Management
ISTEA	Intermodal Surface Transportation Efficiency Act

K

K	thousand
k	kilogram
km	Kilometer
Km^2	Square kilometer

L

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

M

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)

N

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
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	Unites States Army Corps of Engineers
USCG	United States Coast Guard
USDA	United States Department of Agriculture
USDOI	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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