



*A Partnership to Restore and Protect the Sound*

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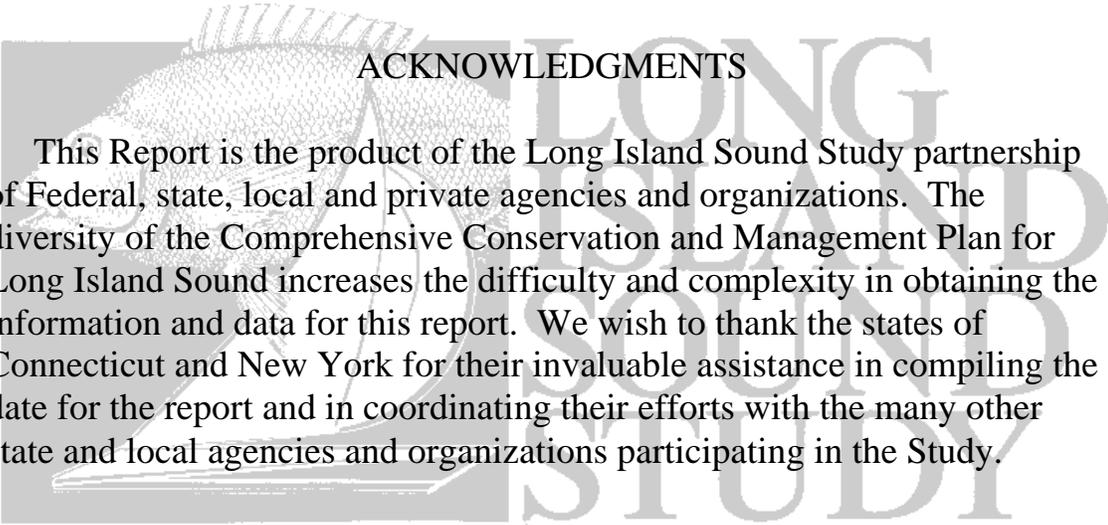
**2005  
Comprehensive  
Conservation and  
Management Plan  
Implementation  
Tracking Report**

**January — December 2005**

**THE  
LONG  
ISLAND  
SOUND  
STUDY**

*A Partnership to  
Restore and Protect  
the Sound*

**June 2006**



## ACKNOWLEDGMENTS

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

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# FOREWORD

This 2005 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 2005 REPORT

This 2005 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 2005.

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

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

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

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

### **An Annual Snapshot of Progress**

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

### **Environmental Indicators**

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

## CONTINUING THE MANAGEMENT CONFERENCE

IMPLEMENTING THE CCMP IS THE COMBINED RESPONSIBILITY OF THE MANAGEMENT CONFERENCE PARTNERS. THROUGH THEIR ONGOING PROGRAMS AND DAY-TO-DAY OPERATIONS, AND THROUGH FEDERAL, STATE, LOCAL, AND PRIVATE LIS FUNDING INITIATIVES AND ACTIVITIES, CCMP PRIORITIES ARE ASSESSED, IMPLEMENTED, AND REPORTED.

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

**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.

### **2005 Highlights:**

- The 109<sup>th</sup> Congress reauthorized the *Long Island Sound Restoration Act*, P.L. 106-457, through 2010 with an annual authorization of appropriations of \$40 million.
- Congress appropriated \$6.76 million for the LISS in 2005. Under CWA §119 EPA included \$473,581 in its 2005 budget for the LISS; and EPA's National Estuary Program allocated \$511,966 under CWA §320 for LIS. Congress added \$1.8 million in the Environmental Programs and Management appropriation, and \$3.96 million in EPA's State and Tribal Assistance Grants (STAG) program for water quality infrastructure improvement projects in the states. A Congressionally mandated rescission of funds of 0.80 percent was applied across all 2005 appropriations.
- Connecticut passed Public Act 05-137, An Act Creating a Bi-State Long Island Sound Committee. This act replaces the Connecticut – New York Bi-State Long Island Sound Marine Resources Committee with the Bi-State Long Island Sound Committee. It requires the new committee to recommend legislation to avoid, minimize, and mitigate the impact of the proposed industrialization and private use of the Sound's public trust resources. The Act will become effective upon New York's enactment of similar legislation.
- The Management Committee met in January, April, July, and October 2005. The Committee held its first special 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 a special session of this kind annually.
- The STAC met in April, June, and November 2005 and approved a new Mission Statement and set of By Laws to better organize and conduct its work. The CAC continued to meet in March, June, September, and December 2005. The CAC re-elected its New York and Connecticut Co-chairs to consecutive three-year terms.

## 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.

2005 Description	2006 Planned Action
<p>1. EPA and Congress continued to fund the LISS in FY2005 under Clean Water Act Sections 119 and 320. The LISS budget in 2005 was \$6.7 million after a Congressionally mandated rescission of funds of 0.80 percent. \$3.96 million of the total was in EPA's State and Tribal Assistance Grants appropriation to support water quality infrastructure improvement projects in New York and Connecticut, including assistance to distressed communities in Connecticut for STP nitrogen upgrades. LIS projects funded from this appropriation in 2001-2005 are summarized in Appendix B.</p>	<p>The FY2006 President's Budget included \$474,700 for LIS, with Congress earmarking an additional \$1.79 million in EPA appropriations for LIS. LIS NEP funds totaled \$497,500.</p>
<p>2. In 2005, the 109<sup>th</sup> Congress reauthorized the Long Island Sound Restoration Act of 2000, P.L. 106-457, through 2010 with an annual authorization of appropriations of \$40 million. The Long Island Sound Stewardship Act was reintroduced in the first Session of the 109<sup>th</sup> Congress; no action was taken on the bill in 2005.</p>	<p>LISS partners will advocate for the passage of the LIS Stewardship Act in 2006.</p>
<p>3. The Management Committee met in January, April, July, and October. The Committee approved the transfer of its successful Small Grants Program to the Long Island Sound Futures Fund in 2005, to be administered in partnership with the National Fish and Wildlife Foundation. The Management Committee also approved transfer of the CCMP Enhancements Grants program to the New England Interstate Water Pollution Control Commission (NEIWPCC) in 2005. NEIWPCC will act as the fiscal manager of the program beginning in FY2006, in concert with the LISS Management Conference.</p>	<p>The Committee will continue to meet in 2006 to address issues of concern to LIS. A special 2 day meeting is planned for July 2006.</p>
<p>4. The Science and Technical Advisory Committee (STAC) met in February, June, and November 2005. The STAC developed and approved a new Mission Statement and By Laws and re-elected its Connecticut co-chair for another two-year term; formed a new Steering Committee to help guide its LISS agenda and coordinate its internal management priorities; welcomed two new LIS Fellows, who began projects in support of the STAC and the LISS; was briefed on the Broadwater Energy liquefied natural gasification (LNG) proposal, the status of a regional marine/ocean observing system, and the long-term monitoring program conducted by the Millstone Power Station. The STAC received updates on the 2005/2006 LIS budget processes and provided input into LISS program and research priorities. The STAC added two new members in 2005: Dr. Ann Bucklin from UConn, and Mr. William Wise from SBU.</p>	<p>Continue STAC meetings in 2006. Continue annual joint meeting with the CAC.</p>
<p>5. The Citizens Advisory Committee met in March, June, September, and December 2005. The CAC continued to advocate for development of a LIS stewardship system and passage of the LIS Stewardship Act; 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 Broadwater Energy concerning its proposed LNG facility in LIS. The US Coast Guard and representatives from the Federal Energy Regulatory Commission briefed the CAC on both their roles in, and the environmental review process. The CAC invited and had briefings from LIS Congressional Caucus staff on the federal budget process and recent changes in the Congressional committee structure that affect EPA programs. The CAC added a new Connecticut member in 2005: Joel L. Rinebold, LLC. As of December 2005 CAC membership stood at 36 members, 18 from NY and 18 from CT.</p>	<p>The CAC will continue to increase its representation and advocate for the full \$40 million appropriation for the LISS.</p>
<p>6. The EPA LISO continued to coordinate the work of the Management Committee, the STAC, and CAC. The LISO 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. The LISO continued coordination of the Management Conference, development of the annual budget and work plan, the LISS research agenda and Requests for Initial and Final Proposals in the LIS Research Fund. The LISO coordinated the EPA Headquarters Implementation Review of the program under the National Estuary Program (NEP); the LISS received a 'passing' grade and will continue to be eligible to receive EPA NEP funding for the next three years.</p>	<p>The LISO will continue to support implementation of the CCMP and the Management Conference partners.</p>

# ELIMINATING ADVERSE IMPACTS OF LOW DISSOLVED OXYGEN IN THE SOUND

THE CCMP IDENTIFIED LOW DISSOLVED OXYGEN (HYPOXIA) AS THE MOST SIGNIFICANT WATER QUALITY PROBLEM IN LIS AFFECTING CRITICAL LIFE CYCLES OF LIVING MARINE RESOURCES. SINCE 1990, EPA AND THE STATES OF CONNECTICUT AND NEW YORK HAVE IMPLEMENTED A PHASED PROGRAM TO REDUCE HUMAN-CAUSED NITROGEN LOADS TO LIS AND IMPROVE DISSOLVED OXYGEN LEVELS TO MEET WATER QUALITY STANDARDS.

**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 in the Sound.

**LIS 2003 Agreement Goal:** *Eliminate the adverse impacts of hypoxia resulting from human activities.* The management goal is to establish Phase IV nitrogen reduction agreements to address atmospheric deposition and watershed management for portions of the Long Island Sound watershed outside of New York and Connecticut. Connecticut and New York are 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, is working to identify and validate sources of nitrogen from upland states as an antecedent to developing formal agreements with these jurisdictions.

**Environmental Indicators/Results/Trends:** Total point source nitrogen loads in 2005 increased by 6,060 lbs/day from 2004 (see Figure 1). This is attributed to several New York City plants with holding tanks coming 'off line' for construction of nitrogen removal upgrades. This upward '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 177 square miles at peak, and lasted 69 days compared to the 19 year averages of 203 square miles and 58 days. This continues a slightly downward 19-year trend. (see Figures 2 and 3).

## **2005 Highlights:**

- The estimated nitrogen load from STPs in the LIS drainage basin in 2005 is approximately 160,172 lbs/day, a decrease of more than 52,000 lbs/day from the base level. As of December 2005, New York's point source nitrogen load was 124,099 compared with 117,873 lbs/day in 2004; Connecticut's point source nitrogen load was 36,073 lbs/day compared with 36,100 lbs/day in 2004. Figure 1 shows point source nitrogen load reductions since 1994.
- In 2005, the maximum area and duration of dissolved oxygen less than 3 mg/l observed in LIS was 177 mi<sup>2</sup> and 69 days. The 19 year averages are 203 mi<sup>2</sup> and 58 days. Figure 2 shows the maximum areal extent of hypoxia in 2005. Figure 3 shows the areal extent and duration of hypoxia in LIS since 1987.
- Connecticut completed the third year of its Nitrogen Credit Exchange program. Thirty-seven of 79 participating STPs reduced nitrogen output below assigned permit limits, making them eligible to sell a total of \$2.43 million in nitrogen credits.
- The LISS, through its Connecticut River Work Group chaired by NEIWPC, continued meeting with the states of Connecticut, Massachusetts, Vermont, and New Hampshire on the need to reduce nitrogen loading from the Connecticut River watershed to Long Island Sound and to identify sources and quantify loads of nitrogen from the upland states.

Figure 1

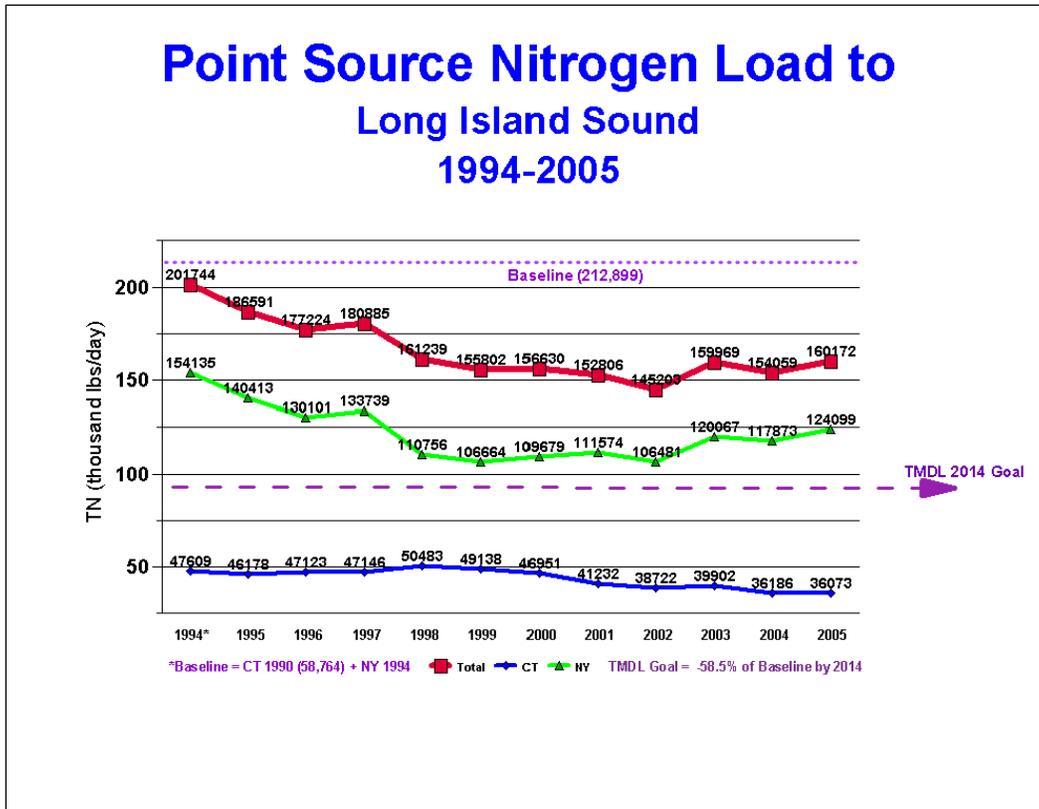
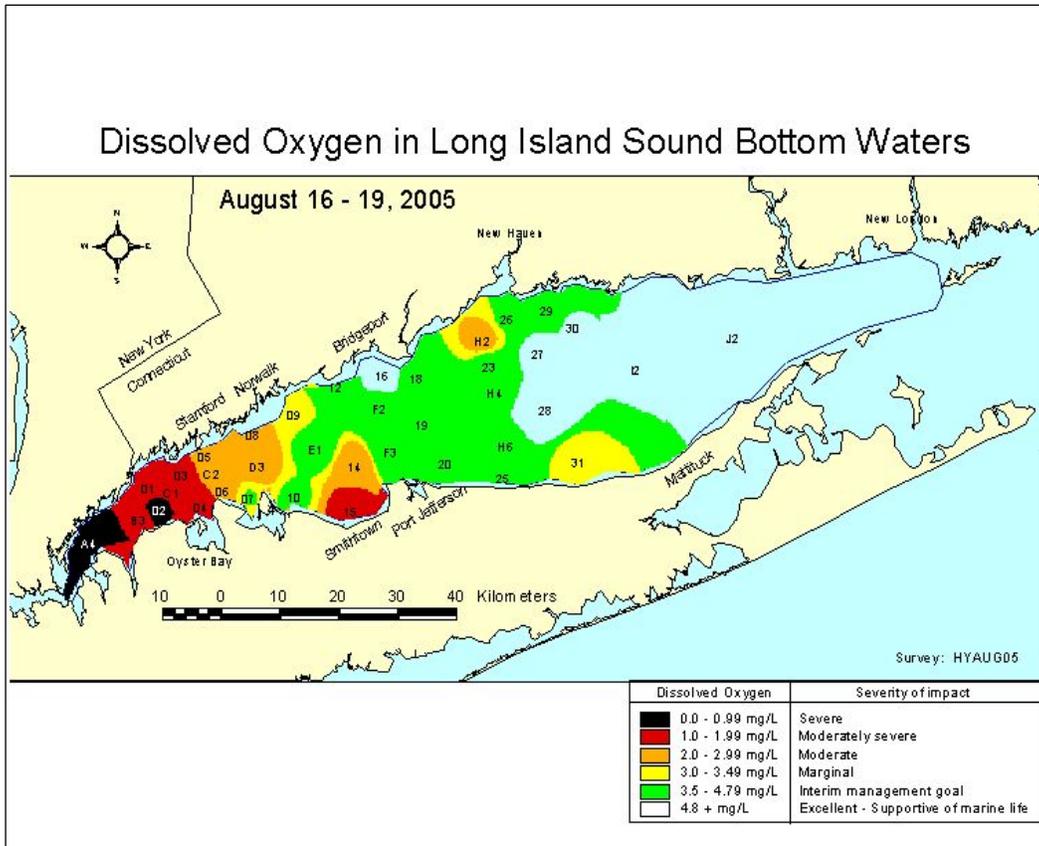


Figure 2



# Long Island Sound Study

## Maximum Area/Duration of Hypoxia

1987-2005 (June-September)

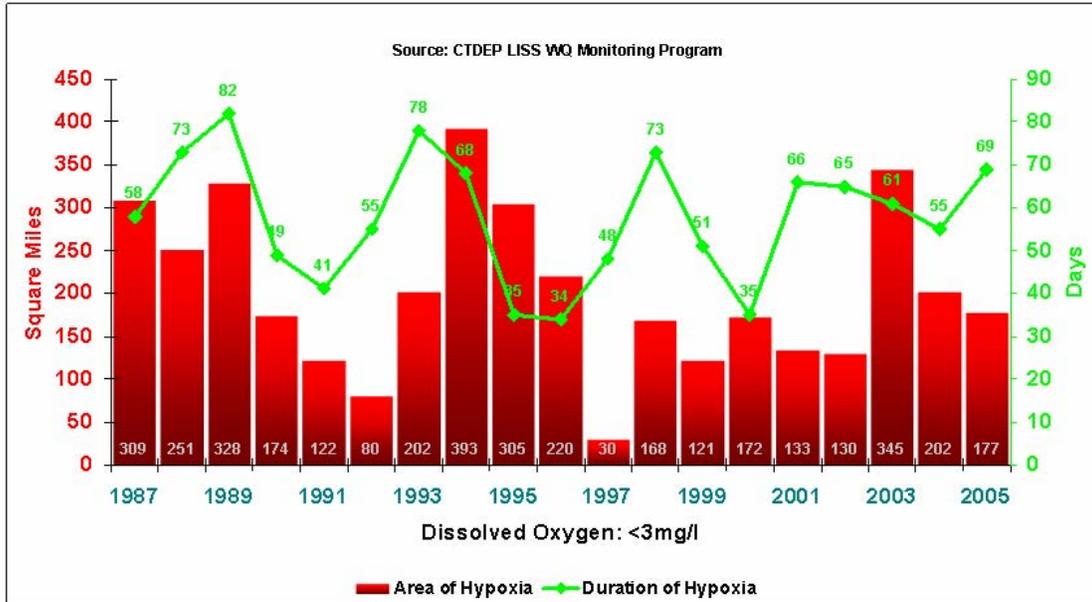


Figure 3

CTDEP  
RV John  
Dempsey



## SUMMARY OF CCMP MANAGEMENT ACTIONS: HYPOXIA

<b>H-1. REDUCING NITROGEN FROM SEWAGE TREATMENT PLANTS AND OTHER POINT SOURCES (CCMP TABLE 4, P. 32)</b>		
<b>KEY ELEMENTS: THE STATES OF CONNECTICUT AND NEW YORK COMMITTED TO REDUCING NITROGEN LOADS IN THEIR PORTIONS OF THE LONG ISLAND SOUND BASIN USING A MIXED APPROACH OF STP RETROFITS, PILOT STUDIES AND UPGRADES UNDER EXISTING PERMITTING AUTHORITIES. WITH ADOPTION OF THE TMDL, STATE REQUIREMENTS TO REMOVE NITROGEN LOADS HAVE BEEN FORMALIZED AND EXPANDED BEYOND THE ORIGINAL COMMITMENTS IN THE CCMP.</b>		
	<b>2005 Description</b>	<b>2006 Planned Action</b>
1.	The total estimated point source (end of pipe) nitrogen load to LIS in 2005 was 160,172 lbs/day, a decrease of more than 52,000 lbs/day from the base level. New York loads totaled 124,099 lbs/day compared with 117,873 lbs/day in 2004; Connecticut loads totaled 36,073 lbs/day compared with 36,100 lbs/day in 2004. The total reduction as of December 2005 is 25 percent below baseline levels and represents 42 percent of the total nitrogen reduction goal of 58.5 percent by 2014. The increase in NY loadings is attributed to Bowery Bay construction, which started in late 2000, and with its secondary tanks starting to be taken out of service in mid-2002; Hunts Point started construction in late 2003 and its secondary tanks starting to come out of service in early 2004, thus affecting nitrogen removal. There are 104 STPs that collectively discharge more than one billion gallons of treated effluent per day to the Sound.	Continue emphasis on achieving TMDL point source nitrogen reduction targets.
2.	In Connecticut to date a total of 31 nitrogen removal construction projects at municipal wastewater treatment plants have been completed. Eleven 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 20 projects involved retrofits of existing facilities that are designed to reduce levels to 8 mg/l for total nitrogen discharged. One STP completed upgrades in 2005 - Jewett City. There are 6 nitrogen removal projects currently under construction with four designed for the long-term goal of 4 mg/l. Three municipal STPs currently have initiated more than \$100 million of upgrades including nitrogen removal — Stamford, North Haven, and Wallingford all under construction in 2005. 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.
3.	Nitrogen removal facility planning has been very successful to date in Connecticut. It is anticipated that by the end of 2006, 75 out of 79 municipal treatment facilities covered under the general permit will have completed a detailed nitrogen removal engineering study. The studies will result in the evaluation of each facility's potential to cost effectively remove nitrogen. They will also 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.	
4.	In 2003, NYSDEC modified the 14 SPDES permits for the Water Pollution Control Plants (WPCPs) in New York City. The six facilities that discharge to the East River have effluent permit limits consistent with the Long Island Sound TMDL for nitrogen. Hearings on the draft permits were completed in 2004 and all permits became final in 2005. Compliance schedules were developed by agreement between NYSDEC and NYCDEP.	Implement activities to achieve the compliance schedule with the adjusted permit limits.
5.	NYSDEC signed a Consent Order for the four WPCPs in Westchester County on December 24, 2004 (Blind Brook, Mamaroneck, New Rochelle, Port Chester). The permits were issued and became effective on January 1, 2005 with limits consistent with the Long Island Sound TMDL for nitrogen. The Order requires the permittee to develop and submit an engineering plan.	The engineering plan is expected at the end of 2006.
6.	The Village of Northport was awarded approximately \$2.1 million for UV and nitrogen removal upgrades. The design stage is complete and construction started in September 2003. As of December 2005, this project is 95 percent complete.	The plant will start denitrification in spring of 2006.
7.	Nitrogen removal and facility improvements have been completed at the Glen Cove STP. The project was funded by two NYS Bond Act grants for a total of approximately \$3.6 million. The project is complete and the plant is meeting 2014 nitrogen permit and helping Zone 10 to meet the aggregate limit.	UV and chemical bulk storage system upgrades are planned for operation in 2006.

2005 Description		2006 Planned Action
8.	The Port Washington Water Pollution Control District was awarded approximately \$11 million for a denitrification upgrade. The plant is continuing to run the Biological Nutrient Removal Demonstration Project that is treating 1 MGD (1/3 of the plant's flow).	Start construction in 2006; completion in 2009.
9.	The twelve SPDES permits for the WWTPs on the north shore of Long Island that discharge into Long Island Sound have been modified to reduce discharge limits for nitrogen in accordance with the Long Island Sound TMDL analysis. Eleven of the twelve permits have been issued; one is in final draft permit negotiation status. The discharge limits are consistent with the 5, 10, and 15 year waste load allocations that are specified in the Zone Nitrogen Management Plans. Treatment plant permits added in 2005 include: <ul style="list-style-type: none"> <li>Village of Great Neck WPCP; (Permit issued Fall 2005)</li> <li>Great Neck WPCD; (Hearing requested and is pending)</li> <li>Port Washington WPCD; (Permit issued January 2005)</li> </ul>	
10.	NYSDEC made the following 2005 Long Island Sound Water Quality Infrastructure grants: <ul style="list-style-type: none"> <li>\$1,469,650 to Westchester County for upgrades to the Mamaroneck wastewater treatment plant to reduce nitrogen discharged to Long Island Sound.</li> <li>\$1,298,500 to Suffolk County to reconstruct and upgrade the wastewater treatment plant to reduce levels of nitrogen and bacteria in water discharged to Port Jefferson Harbor and Long Island Sound.</li> <li>\$459,000 to the Village of Greenport to upgrade the Village wastewater treatment plant to reduce levels of chlorine in water discharged from the facility.</li> <li>\$1,237,295 to the Belgrave Water Pollution Control District to continue a series of upgrades to the wastewater treatment plant first initiated in 2001 to reduce the amount of nitrogen and pathogens in water discharged from the facility to the Sound.</li> </ul>	Begin implementation of the projects in 2006.
11.	CTDEP established a General Permit for Nitrogen Discharges and set up a Nitrogen Credit Exchange (NCE) Program in 2002. There are presently 29 municipal treatment facilities in Connecticut covered under the general permit that have a nitrogen removal project under design and waiting to be funded by the Clean Water Fund. The third year of the NCE resulted in additional equalized nitrogen reductions with 28 STPs discharging below their assigned permit limits, making them eligible to sell a total of \$1.31 million in nitrogen credits in 2005 (based on their 2004 discharges). The 2005 report of the Nitrogen Credit Advisory Board is available at: <a href="http://www.dep.state.ct.us/wtr/lis/nitrocntr/2005annrpt.pdf">http://www.dep.state.ct.us/wtr/lis/nitrocntr/2005annrpt.pdf</a> .	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.

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

**KEY ELEMENTS:** THE STATES OF CONNECTICUT AND NEW YORK HAVE BROAD AUTHORITIES TO MANAGE NONPOINT SOURCES OF POLLUTION AND HAVE AGREED IN THE CCMP TO EMPHASIZE CONTROL OF NITROGEN IN ONGOING STATE AND FEDERAL PROGRAMS. THESE INCLUDE STATE NONPOINT SOURCE PROGRAMS (CWA §319), THE COASTAL NONPOINT SOURCE CONTROL PROGRAM (CZARA §6217), AND STORMWATER PERMITTING PROGRAMS. MOST OF THE SITE SPECIFIC STUDIES AND ACTIVITIES IDENTIFIED IN THE CCMP HAVE BEEN COMPLETED. THE STATES HAVE COMMITTED TO USING NONPOINT SOURCE CONTROL PROGRAMS TO BEGIN REDUCING NONPOINT SOURCES OF NITROGEN AND ANTICIPATE CONTINUING THOSE EFFORTS AS THE PRIMARY MEANS TO MEET THE REDUCTION GOAL SPECIFIED IN THE TMDL.

2005 Description		2006 Planned Action
1.	Connecticut agencies purchased more than 125 new hybrid gasoline-electric vehicles for the state fleet in May 2005, including the Toyota Prius, Honda Civic and Ford Escape. These vehicles have substantially improved fuel economy and lowered greenhouse gas emissions by 50 percent or greater compared to the ones they replaced.	Continue to purchase low emission vehicles in the future.

	2005 Description	2006 Planned Action
2.	<p>Currently CTDEP is implementing 134 active §319 projects from FY99-2005 grants, 22 projects were closed out in 2005. In FY05, \$800,000 was awarded under the PPG, and \$1,233,847 was awarded under a separate "categorical" grant to support 19 projects. The categorical grant funds include \$557,200 for base or statewide programs, \$430,339 for watershed projects and \$146,308 for watershed-based planning (Cognichaug River Watershed). The FY05 grant also included \$100,000 for the tenth and last year of the Jordan Cove Urban Watershed National Monitoring Project. This 10-year long-term monitoring project is part of the U.S. Environmental Protection Agency's (EPA) Section 319 National Monitoring Program, and is the only such project focusing on runoff from residential development.</p>	<p>CTDEP will continue to emphasize LIS nitrogen control in the §319 grant process.</p>
3.	<p>CTDEP and the Town of Old Saybrook reached an agreement in December 2005, leading to the establishment of the state's first decentralized wastewater management district, the "Old Saybrook Waste Water Management District". Wastewater within the District will be managed through a combination of septic system upgrades and alternative technology installations. Old Saybrook will upgrade existing septic systems in two ways. For properties near sensitive environmental receptors or those with inadequate space an advanced onsite technology will be required. For those with adequate space but systems not meeting current health code requirements, septic tanks and leaching fields conforming to current codes will be required. These upgrades will help meet nitrogen reduction needs for the town.</p>	<p>It is anticipated the District will be set up by 2007 and over a period of 8 years the upgrades will be performed.</p>
4.	<p>CTDEP's Aquifer Protection Level A Mapping Regulations received approval from the Legislative Regulation Review Committee on August 23rd, 2005 and became effective on September 1, 2005. The mapping regulations specify the methodology used to define the boundaries of protection areas around large public water supply wells. Towns must adopt the mapped areas as aquifer protection areas and will impose land use restrictions within those areas. The aquifer protection area maps can be viewed on the DEP web site at <a href="http://dep.state.ct.us/wtr/aquiferprotection/index.htm">http://dep.state.ct.us/wtr/aquiferprotection/index.htm</a>. There is a town tracking table on the web page to indicate each town's progress, as well as other program information.</p>	<p>The mapping regulations, combined with the completion of the model municipal regulations in June 2006, will give municipalities tools to get Level A areas approved and local ordinances adopted. DEP staff will assist municipalities as they develop their local programs.</p>
5.	<p>CTDEP selected a contractor to develop a watershed protection plan for the Niantic River Basin using CZARA 6217 funds. An advisory committee was formed made up of DEP and other agency staff, basin town reps. The committee meets with the primary contractor and subcontractors in developing the Plan. The objective is to create a nonpoint source 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. In summer 05 a science workshop was held to gauge state of the watershed resource management issues.</p>	<p>A timeline includes submittal of a watershed plan to DEP by August 2006. Two public information workshops will be held during 2006.</p>
6.	<p>In 2005 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 goal is to include eelgrass bed demise on CT's Section 303(d) list once management criteria are available to address the problem. Sources are primarily nonpoint in the eastern LIS embayments where eelgrass is still extant. (also see L-9, page 17)</p>	<p>Steering Committee is set up and a student will be hired to provide technical support to the project</p>
7.	<p>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. Partners have received many requests for presentations and lessons are incorporated into NEMO.</p>	<p>Emphasis will be on data analysis and education outreach. The NEMO educational component will include: 1. development of power point presentation focused on project design, challenges, results, and conclusions; 2. production of a multi-media CD for CT municipalities summarizing research results, and video clips of interviews with project principals; and 3. an enhanced web site on the project.</p>

	2005 Description	2006 Planned Action
8.	Connecticut's Phase II MS4 storm water permit program completed its first full year of implementation. There are 113 towns covered by this permit. As of the end of 2005, 90 submitted their 2004 reports with 70 of those municipalities completing sampling. All towns are developing their Stormwater Management Plans. CTDEP conducted four workshops and 75 towns took advantage of grant assistance to purchase a stormwater software package and receive training to manage their programs.	The second Annual Reports are due January 1, 2006. Stormwater-software and training will be available one more year to remaining towns in the permit. CTDEP will be developing a "DOT MS4 Permit" and a "Non-traditional MS4 Permit".
9.	The Westchester County Department of Planning, along with 11 municipalities, under the auspices of Watershed Advisory Committee (WAC) 7, continued development of a watershed management plan to control polluted storm water in the Bronx River and Grassy Sprain watersheds. The plan will recommend actions to control nonpoint source pollution via municipal ordinances and comprehensive plans, streams and wetlands, storm water management practices, and outreach and education. Information on the County's LIS watershed efforts may be found at: <a href="http://www.westchestergov.com/planning">http://www.westchestergov.com/planning</a> .	The WAC 7 plan is now expected to be completed in early 2007, not in 2006 as reported last year.
10.	Through LISS CT River Work Group, the states of Connecticut, Massachusetts, Vermont, and New Hampshire, along with NEIWPCC and EPA continued meetings in 2005 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: <a href="http://www.neiwpcc.org/ctrivernitrogenproject.htm">http://www.neiwpcc.org/ctrivernitrogenproject.htm</a> .	The CT River work group will continue to meet to discuss options for reducing nitrogen loading from upland states
11.	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. A draft final plan is with Suffolk County for review.	Finalize the Suffolk County North Shore Embayment Watershed Plan in 2006.
12.	The LISS Nonpoint Source Work Group is working 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 AUGWLF Mode I(ArcView Generalized Watershed Loading Function) to accomplish these objectives. Work in 2005 focuses on application of the model in test watersheds and overall calibration of the model.	Complete final report.
13.	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 and data validation was begun. 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 is expected by the end of 2006. Data will be presented to interested states.
14.	IEC conducted Ms4 outfall inspections during dry weather conditions on the north shore of Nassau County, New York. During 2005, 66 outfalls were inspected of which 7 were flowing. These observations were reported to NYS DEC, Region 1, for remediation.	Continue dry weather inspections during 2006.
15.	The Westchester County Soil and Water Conservation District began drafting a technical guidance document 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. Approximately 7,500 full-color copies of this document will be printed and will be included on the various Westchester County websites and web pages. When completed, the document will be shared with other districts or appropriate entities that would like to re-print it or post it on a website. The technical guidance document will be distributed to municipalities throughout Westchester County including communities within the Hudson River, Croton River, Long Island Sound and Bronx River watersheds. It will also be distributed to watershed coalitions and committees including the Saw Mill River Coalition, Bronx River Watershed Coalition and Northern Westchester Watershed Committee. Copies will also be distributed to libraries, environmental education centers and other interested entities.	Complete and print document by the end of 2006.

**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.

2005 Description		2006 Planned Action
1.	The LISS Nutrient Workgroup, in cooperation with the NY/NJ Harbor Estuary Program, continued applying the System-Wide Eutrophication Model (SWEM) to 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 2005 work continued on three scientific research projects funded by the LISS in 2004 that focused eutrophication: <ul style="list-style-type: none"> <li>• <i>A Biological-Physical Numerical Simulation Model for the Investigation, Prediction &amp; Management of Oxygen Production &amp; Consumption in Long Island Sound: Data Analysis and Model Formulation.</i> (PIs: Dr. Nicole Goebel and Dr. Jim Kremer, UConn, \$71,010) EPA grant #LI-97127101</li> <li>• <i>Natural Isotopic Tracers for Anthropogenic Nitrogen in Long Island Sound.</i> (PIs: Dr. Mark Altabet, UMASS, and Dr. Johan Varekamp, Wesleyan University, \$125,591). EPA grant #LI-97101301-1</li> <li>• <i>Assessment Of The Effects Of Bottom Water Temperature &amp; Chemical Conditions, Sediment Temperature, Sedimentary Organic Matter (Type &amp; Amount) On Release Of Sulfide &amp; Ammonia From Sediments In Long Island Sound: A Laboratory Study.</i> (PI: Dr. Carmela Cuomo, University of New Haven, \$80,186). EPA grant #LI-97101501</li> </ul>	Continue to fund scientific research as funding allows, to improve the understanding and management of hypoxia in the Sound.  The PI has been granted a No Cost Time Extension from EPA to September 2007.
3.	In 2005, work was completed on the following LISS-funded research projects: <ul style="list-style-type: none"> <li>• <i>Phytoplankton Dynamics in LIS:</i> (PI: Dr. J.E. Ward, UConn, \$157,360)</li> <li>• <i>Water Column Oxygen Production and Consumption;</i> (PI: Dr. J. Kremer, UConn \$188,433)</li> </ul>	Final reports were submitted to EPA in 2005.
4.	In 2005 CTDEP completed work under an \$85,000 EPA grant to evaluate the success of Connecticut's Nitrogen Trading program during its first two years in operation.	Report will be available for review in the first quarter of 2006.

**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.

2005 Description		2006 Planned Action
1.	Presently, the projected demand for Clean Water Fund financing to support construction projects is significantly more than the amount available. Seventeen projects and the non-funded portion of 3 other projects (Milford, Stratford and Meriden) estimated at 410 million dollars will not be reachable within the nest two fiscal years due to Clean Water Fund	Continue to administer awarded bond funds toward nutrient reduction projects benefiting hypoxia reduction.

	2005 Description	2006 Planned Action
	bonding limitations. In 2005 the Connecticut Bond Commission awarded over \$55 million of CWF financing for grants and loans for STP and stormwater upgrade 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 Clean Water Fund had a carry-over of previously authorized funds of \$2.8M. This is the lowest carry-over balance since the inception of the Clean Water Fund program in 1987.	The Clean Water Fund 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 Long Island Sound Restoration Act of 2000 created an authorization of federal funds for upgrading of wastewater treatment facilities to protect Long Island Sound, and grants discretionary authority to the EPA Administrator to give priority to distressed communities in awarding funds for this purpose. Since 2001, CTDEP has used EPA's Long Island Sound Infrastructure Grant funds to assist distressed communities in Connecticut. A total of \$9.82 million dollars to date has been awarded to Connecticut by EPA, which has assisted 20 distressed municipalities with planning and design of nitrogen removal projects. A complete list of projects is provided in Appendix B.	Continue to administer LISS funding for STP nitrogen removal projects in economically distressed municipalities.

#### 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.**

	2005 Description	2006 Planned Action
1.	In Summer 2005, hypoxic conditions (<3mg/l DO) in LIS were estimated to have extended for a period of 69 days and covered a maximum area of 177 square miles compared to the 19 year averages of 58 days and 203 square miles. LIS monitoring information is posted on the CTDEP website: <a href="http://dep.state.ct.us/wtr/lis/monitoring/summer2005.htm">http://dep.state.ct.us/wtr/lis/monitoring/summer2005.htm</a>	The LISS is continuing to fund the CTDEP ambient monitoring of LIS in 2006.
2.	The LISS partners continued ambient monitoring of LIS in 2005:  CTDEP continued its ambient monitoring of LIS stations in 2005. CTDEP expanded its scope of monitoring parameters to support the changing ecosystem perspective. CTDEP modified its summer sampling strategy. Currently, 17 stations are monitored on a monthly basis, year-round and 25-30 stations are added for bi-weekly hypoxia monitoring from June through September. Maps and summaries are available on the CTDEP website at: <a href="http://dep.state.ct.us/wtr/lis/monitoring/lis_page.htm">http://dep.state.ct.us/wtr/lis/monitoring/lis_page.htm</a> .  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. Unique events, i.e., fish kills, were called in from the field and disseminated to the appropriate agencies. IEC made weekly data transmissions to LISO, CTDEP, NYCDEP, NYSDEC, CSHH and HydroQual. The IEC Annual Report details all monitoring activities. All IEC data are entered into the EPA database, STORET.	Continue the ambient monitoring program.
3.	CTDEP and NYSDEC, in cooperation with Stony Brook University, continued participation in EPA's National Coastal Assessment (NCA) in 2005. 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 2005. EPA is also provided funding for analysis of water samples for photopigments, an inexpensive means to identify presence of key phytoplankton groups. In 2005, the LISS provided \$20,000 to NYSDEC to	In Summer 2006 CT and NY will continue to participate in the NCA by recording water quality parameters and collect sediment samples from the remaining fixed

2005 Description	2006 Planned Action
supplement NCA work on Long Island Sound.	(sampling point) stations
<p>4. The UConn Department of Marine Sciences at Avery Point, Connecticut, continued to operate and maintain a real-time water quality monitoring network, MYSound, in 2005. 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: <a href="http://www.mysound.uconn.edu">http://www.mysound.uconn.edu</a>.</p>	Continue to operate and maintain the MYSound stations and website as funding allows.
<p>5. In 2005 work continued on the following LISS research project to investigate the effects that hypoxia has on toxic contaminants: <i>Temporal and Spatial Changes in Copper Speciation and Toxic Metal Concentrations in Long Island Sound: Effect of Changes in Water Temperature and Dissolved Oxygen Levels.</i> \$101,136. PI: Dr. Sergio Sañudo-Wilhelmy, Stony Brook University, EPA Grant #LI-97296600-1.</p>	The project was scheduled for completion in May 2006. The PI was granted a no-cost time extension to complete the technical analysis of data.
<p>6. In 2005 the New York State Governor's Office of Regulatory Reform (GORR) continued to review an 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.</p>	The NYSDEC will take appropriate action on the rule based on GORR review results.
<p>7. In 2005, the LISS approved a second year of funding for ferry water quality monitoring programs in eastern (Orient Point, NY to New London, CT) and western (Port Jefferson, NY to Bridgeport, CT) Long Island Sound. The following EPA grant awards were extended through September 2006: <i>Ferry-based Observations for Science Targeting Estuarine Research in Long Island Sound</i> (\$54,743) PI: Dr. Daniel Codiga, Univ. of Rhode Island. EPA Grant #LI-97106001-1 <i>Ferry-based Marine &amp; Atmospheric Observing System</i> (\$70,000) PI: Dr. Robert Wilson, Stony Brook University. EPA Grant #LI-97286205-0</p>	Due to lack of funding to sustain these projects, the Management Committee did not approve continued funding in 2006. These grants are scheduled for completion in September 2006.
<p>8. The New England SPATIally Referenced Regressions On Watershed Attributes (SPARROW) model is an application of the 1:100,000-scale National Hydrography Dataset (NHD). New England SPARROW is a spatially detailed, regression model that relates phosphorus and nitrogen stream concentrations to pollution sources and watershed characteristics. These statistical relations are then used to predict nutrient loads in unmonitored streams. Watersheds for each NHD reach were delineated by use of the National Elevation Dataset (NED) and the National Watershed Boundary Dataset. Estimates of stream flow and velocity were assigned to the NHD reaches using the NHD navigation functionality along with NED and other datasets.</p>	The LISS will continue use of SPARROW in assessing TMDL requirements.

## 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, i.e., improper disposal of pet wastes, inappropriate feeding of wildlife, access to boat pumpouts, changes in such behaviors may benefit the Sound.

**LIS 2003 Agreement Goal:** *Increase the area for shellfish harvesting and eliminate bathing beach closures while maintaining protection of human health.* There are several goals in this section of the Agreement, including nomination of No Discharge Areas (NDAs) in Connecticut and New York, decreasing the acreage of shellfish beds closed due to pathogen contamination, and minimizing and eliminating chronic beach closures due to pathogen contamination. EPA approved Connecticut's request for NDA designation from Groton to Guilford in 2005. A pending approval for the NDA area of the Connecticut side of LIS from Guilford to Greenwich is expected in 2006. This together with the designation of the Stonington/Pawcatuck River area in 2004 will bring the entire Connecticut coast of LIS into NDA status. No action has been taken on New York NDA designations as of this writing.

**Environmental Indicators/Results/Trends:** LISS environmental indicators for pathogens include the number of beach closure days and number of vessel pumpout stations. There were 450 LIS beach closure days reported in 2005, with Connecticut reporting 140 (down from 183 in 2004) and New York reporting 310 (down from 414 in 2004), approximately 1.8 percent of the total beach days. There are 240 LIS beaches that are monitored for pathogen contamination by local health departments and agencies. Most closures are due to rainfall levels that require action by local health officials to close beaches as a health precaution due to polluted runoff from local storm sewer systems.

### **2005 Highlights:**

- CTDEP entered the second year of its Phase II MS4 storm water permit program. Workshops and training were conducted during the year. In 2005 CT DEP received MS4 General Permit Annual Reports from 70 municipalities and approximately 90 municipalities have submitted their Part B registrations. Connecticut anticipates spending \$800 million over the next 20 years to eliminate combined sewer system overflows in the state.
- The New York Sea Grant Nonpoint Education for Municipal Officials (NEMO) program expanded its program throughout Long Island and assisted local governments' implementation of effective storm water management programs. NYSG NEMO provided technical support to facilitate watershed-based local efforts to target priority pollutants, geographic areas, and audiences of concern.
- Bacteria TMDLs for the Mill River, Rooster River, Sasco Brook, Norwalk River, Silvermine River, and Mattabeset Regional Basin in Connecticut were completed in 2005.

## SUMMARY OF CCMP MANAGEMENT ACTIONS: PATHOGEN CONTAMINATION

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

**KEY ELEMENTS: MANY MUNICIPALITIES WITH OLDER SEWERAGE FACILITIES HAVE COMBINED STORMWATER AND SANITARY SYSTEMS. THESE SYSTEMS OVERFLOW DURING RAINFALLS, CAUSING UNTREATED SEWAGE TO REACH THE SOUND. ABATEMENT OF COMBINED SEWER OVERFLOWS (CSOs) WILL REDUCE A MAJOR SOURCE OF PATHOGENS TO THE SOUND. CSO ABATEMENT PROGRAMS ARE UNDERWAY IN NEW YORK AND CONNECTICUT.**

2005 Description	2006 Planned Action
<p>1. In 2005, New York City continued:</p> <ul style="list-style-type: none"> <li>• developing waterbody/watershed facility plans for the East River and its tributaries: the Bronx River, Westchester Creek, Hutchinson River, Alley Creek (Little Neck Bay), Flushing Creek and Flushing Bay. As part of the CSO Long Term Control Plan (LTCP) project, the goal of the waterbody/watershed plans is to protect the applicable water quality standards and designated uses of these waters through the control of combined sewage overflows (CSOs) and other discharges of sewage. This effort specifically addresses pathogen controls for the City's current CSO abatement plans and is evaluating opportunities for improvements in the plans, and includes a review of existing and attainable recreation water uses affected by pathogens.</li> <li>• construction of its Flushing Creek CSO Retention Facility to provide storage capacity of 43 million gallons (28 MG in the tank and 15 MG in upstream sewers) that will abate CSO discharges to the head end of Flushing Creek. Phase 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. Construction is progressing toward beneficial use of the storage facility and is scheduled for completion in November 2006.</li> <li>• 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 on major elements of double-barreled outfall sewers for drainage work. Design work for the CSO storage facility continued.</li> <li>• 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 Waterbody/Watershed Facility Plan to be completed under the LTCP Project.</li> <li>• 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. ULURP application was approved and CEQR activities were successfully completed. Site acquisition activities continued. Work was initiated for the Waterbody/Watershed Facility Plan report to be completed under the LTCP Project.</li> <li>• planning for maximizing wet weather flow to its Wastewater Pollution Control Plants (WPCPs) through operation optimization. Wet weather operation plans (WWOPs) have been developed for the Hunts Point, Wards Island, Bowery Bay, Newtown Creek, Tallman Island, and Red Hook WPCPs to reduce CSO discharges to the East River portion of Long Island Sound. These WWOPs were submitted to the NYSDEC. WWOPs have also been developed for the wet-weather facilities now operating (the Corona Avenue Vortex Facility) or under construction (the Flushing Creek and Alley Creek CSO Storage Facilities).</li> </ul>	<p>Continue development of waterbody/watershed facility plans as approvable CSO Long Term Control Plans that meet the requirements specified in EPA's CSO Control Policy and in conformance with the 2005 CSO Consent Order.</p> <p>Continue and complete construction.</p> <p>Continue drainage system improvements and initiate construction of CSO facilities. Prepare draft Waterbody-Watershed Facility Plan report under LTCP Project.</p> <p>Continue field work and preliminary design activities. Complete draft Waterbody/Watershed Facility Plan.</p> <p>Continue design activities and site acquisition. Complete draft Waterbody/Watershed Facility Plan report.</p> <p>Continue to operate the facilities to increase treated flow volumes to the maximum extent possible.</p>

2005 Description	2006 Planned Action
<ul style="list-style-type: none"> <li>• 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 2005, work continued for CSO facility planning in the Bronx River under the LTCP Project.</li> <li>• 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.</li> <li>• updating its Comprehensive City-Wide CSO Floatables Plan as part of the CSO Long Term Control Project with the submittal of a draft, modified Floatables Plan to NYSDEC in August 2005.</li> <li>• 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).</li> <li>• 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).</li> </ul>	<p>Continue USA evaluations on the upper East River and its tributaries. Continue review of recreational use attainability and finalize the Bronx River Waterbody/Watershed Facility Plan under the LTCP Project.</p> <p>Continue headworks upgrades at the Bowery Bay, Newtown Creek, Wards Island, Tallman Island, and Hunts Point treatment plants.</p> <p>Respond to NYSDEC comments on the updated Floatables Plan and continue floatables control planning in individual waterbodies/watersheds as determined through LTCP development.</p> <p>Continue the Sentinel Monitoring Program as necessary.</p> <p>Continue to participate in the USACE Ecosystem Restoration project as necessary.</p>
<p>2. New York City will be completing construction of its Flushing Creek CSO Retention Facility to provide storage capacity of 43 million gallons (28 MG in the tank and 15 MG in upstream sewers) that will abate CSO discharges to the head end of Flushing Creek.</p>	<p>Construction to be completed in 2006</p>
<p>3. The City of New Haven is continuing to implement its approved (2002) Long Term Control Plan (LTCP) for the containment of a 2-year storm and elimination of the City's 22 CSOs by separating the City's storm water and sanitary sewer systems. In 2005 a 5.5 million gallon CSO storage tank installation was completed.</p>	<p>The City plans to eliminate remaining CSOs over the next 13 years. Anticipated completion of CSO projects on Lombard Street and James Street in 2006.</p>
<p>4. The City of Bridgeport, Connecticut's LTCP, under review by CTDEP in 2005, will be disapproved and will need to be resubmitted. The project is divided into several geographical areas. In 2005 Bridgeport completed the pipe portion of Contract G-1. Contract G-2 has been advertised for bids and will be awarded and started under construction in 2006</p>	<p>Contract G-1 the final paving and restoration will be completed in Spring 2006. Finalization of design of the remaining G area contracts will be completed in 2006. These include the G-3 Hallett Street sewer separation project, new River Street Pump Station and the interconnect sewer between the old River Street and Island Brook Avenue pump stations to the new River Street PS. All work in the G area is now expected to be complete by 2008.</p>

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

**KEY ELEMENTS:** NONPOINT SOURCE RUNOFF, INCLUDING URBAN STORMWATER RUNOFF, IS ONE OF THE MOST SIGNIFICANT SOURCES OF PATHOGEN CONTAMINATION IN LONG ISLAND SOUND. PATHOGENS IN URBAN STORMWATER RUNOFF CAN ORIGINATE FROM MANY SOURCES, PRESENTING A MANAGEMENT CHALLENGE. METHODS OF CONTROLLING PATHOGENS FROM NONPOINT SOURCES INCLUDE BEST MANAGEMENT PRACTICES; PERMITTING ACTIVITIES; CHANGES IN BUILDING CODES; CONSENT AGREEMENTS; AND TECHNICAL ASSISTANCE AND EDUCATION.

2005 Description		2006 Planned Action
1.	CTDEP staff began development of the state DOT MS4 Permit in 2005.	Anticipated issuance of the DOT MS4 Permit.
2.	CTDEP continued to implement its Phase II MS4 Permit program. In 2005 CTDEP received MS4 General Permit Annual Reports from 70 municipalities. Approximately 90 municipalities have submitted their Part B registrations. All towns are developing their Stormwater Management Plans. Workshops were conducted for towns.	Second year annual reports are due to the DEP by January 2006. CTDEP will collect reports and do follow-up for Part B registrations and late 2004 Reports.
3.	Bacteria TMDLs for a number of waterbodies, including the Mill River, Rooster River, Sasco Brook, Norwalk River, Silvermine River, and Mattabeset Regional Basin were completed in 2005. These waterbodies were included on the 2004 List of Connecticut Waterbodies Not Meeting Water Quality Standards for Recreational Uses.	Continue to pursue TMDL implementation through the MS4 permit program, as well as work with local stakeholders to improve watershed conditions.
4.	The Westchester County Planning Department has begun the following stormwater abatement projects: <ul style="list-style-type: none"> <li>• Installation of StormTreat Units, Glen Island County Park, City of New Rochelle; and,</li> <li>• Installation of Vortech Units, Playland Park, City of Rye</li> </ul>	Proceed with projects during 2006.

**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.

2005 Description		2006 Planned Action
1.	In September 2005 the Stamford, Connecticut STP came into compliance with a Consent Order and the expanded nitrogen removal facilities and UV disinfection are up and running.	Operated equipment at capacity.
2.	The Manchester, Connecticut STP completed an Ultra Violet disinfections conversion project.	Other CT STPs continue plans to convert from chlorine gas disinfections to UV disinfections
3.	In 2005, the Interstate Environmental Commission: <ul style="list-style-type: none"> <li>• conducted 54 unannounced effluent surveys at CT and NYS WPCPs that discharge into the LIS portion of the Interstate Environmental District (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. Additional samples were analyzed for fecal streptococcus and</li> </ul>	Continue to conduct effluent surveys at CT and NY WPCPs.

2005 Description		2006 Planned Action
	enterococcus in support of TMDL development.	
	<ul style="list-style-type: none"> <li>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 1998-2004, the number of events has been consistent. During 2005, 229 bypass events were reported to the Commission; 3 percent of the events occurred in Long Island Sound and its embayments; 56 percent occurred in the East River and its tributaries.</li> </ul>	Continue to chair the RBWG. Seek funding for model updates.
4.	<p>In January 2005, New York awarded additional funding as follows:</p> <ul style="list-style-type: none"> <li>\$1.2 million to Belgrave for nitrogen removal and UV related work.</li> <li>\$1.3 million to Suffolk County Sewer District 1 for nitrogen removal and UV related work.</li> <li>\$459,000 to the village of Greenport for UV upgrade.</li> </ul> <p>Construction of the UV system for the City of Glen Cove commenced in late 2005 and is scheduled to be completed by late 2006.</p> <p>The UV system for the Village of Northport was completed in early 2005 and has since been on line.</p>	Construction for the Belgrave UV system is scheduled to begin in early 2006.

**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.

2005 Description		2006 Planned Action
1.	CTDEP received \$713,495.00 from the USFWS Clean Vessel Act (CVA) Pumpout grants program in 2005 for coastal projects. By the end of the 2005 boating season there were 91 total pumpout facilities (including fourteen boats) and 22 dump stations, (including one floating rest room) at 89 boating locations. The pumpout directory is posted on the CTDEP website: <a href="http://dep.state.ct.us/olisp/cva/cva.htm">http://dep.state.ct.us/olisp/cva/cva.htm</a> , along with a variety of information about Connecticut's CVA program.	A decision on Federal FY 2006 funding for CT is anticipated in May 2006. CT proposes to construct two stationary pumpout and provide further O&M funding. Two replacement pumpout boats are also proposed.
2.	<p>A goal of the Long Island Sound 2003 Agreement was: <i>By 2003, nominate vessel no-discharge areas for the Pawcatuck and Mystic Rivers in Connecticut and for all the Long Island Sound embayments in New York.</i></p> <p>Connecticut has exceeded the goal for designation of No Discharge Areas (NDA) by pursuing statewide coverage. In 2005 CTDEP submitted its application requesting EPA approval of the designation of portions of Long Island Sound and its navigable tributaries from Guilford east to Eastern Point Groton as a NDA. Public outreach sessions were held at six venues to explain the NDA purposes and to solicit public input on the application.</p>	<p>EPA approved the NDA designation from Groton to Guilford in May 2006.</p> <p>Connecticut has submitted an application for the remaining coastline of Connecticut to be designated as a NDA.</p>
3.	<p>As of December 2005 New York State has completed more than 300 projects with total CVA reimbursements of more than \$3.5 million. Project information is posted on the New York Environmental Facilities Corporation website at: <a href="http://www.nysefc.org/home/index.asp?page=250">http://www.nysefc.org/home/index.asp?page=250</a>.</p> <p>Pumpout facility locations are posted at: <a href="http://www.cce.cornell.edu/seagrant/pumpouts/lipumpouts.html">http://www.cce.cornell.edu/seagrant/pumpouts/lipumpouts.html</a>.</p>	Continue implementation of the CVA program in 2006.

**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.**

	<b>2005 Description</b>	<b>2006 Planned Action</b>
<b>1.</b>	<p>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 <i>Old Saybrook Wastewater Management District</i>. 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 <a href="http://www.dep.state.ct.us/whatshap/press/2005/121605.htm">http://www.dep.state.ct.us/whatshap/press/2005/121605.htm</a> to view press release.)</p>	<p>In 2006, the goal of the Town and DEP will be 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 when available.</p> <p>After local adoption of the Wastewater Management District, which is anticipated in 2007, upgrades will be performed over approximately 8 years.</p>
<b>2.</b>	<p>Five Connecticut municipalities have submitted applications for studies or modifications for existing studies to implement decentralized "Wastewater Management Districts" for communities with septic systems.</p>	<p>CT DEP will review for approval, as appropriate, additional "Wastewater Management Districts".</p>
<b>3.</b>	<p>The town of East Lyme has submitted plans and specifications for installing a centralized sewer system in the community of Pine Grove in Niantic Bay. CTDEP approved those plans. An application for funding the project has been submitted. USGS is conducting monitoring to determine nutrient concentration impacts of ground water seeping into the Bay from this community. This sewerage project presents a unique opportunity to study the benefits of this change by documenting the improvements in nitrate concentrations of the ground water beneath the neighborhood and loading of nitrogen to Niantic Bay with a before and after data set.</p>	<p>Sewer installation is expected to begin in 2006 pending funding approval of a \$2.8 million low interest loan. The Pine Grove neighborhood contains 172 homes on an area of about 35 acres. It is expected an added benefit of this project will be a reduction in pathogen sources to the bay.</p>

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

**KEY ELEMENTS:** IN MANY CASES, SIMPLE LIFESTYLE CHANGES CAN REDUCE OR ELIMINATE A SOURCE OF PATHOGEN CONTAMINATION IN THE SOUND. UPON AVAILABLE FUNDING, THE CCMP CALLED FOR DEVELOPMENT AND IMPLEMENTATION OF A PUBLIC EDUCATION PLAN, TARGETING SPECIFIC AUDIENCES, IN COOPERATION WITH FEDERAL, STATE AND LOCAL PUBLIC OUTREACH EXPERTS AND ENVIRONMENTAL EDUCATORS.

2005 Description		2006 Planned Action
1.	Boater education continued to be a focus of the CTDEP CVA program in 2005. 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 are under development 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 has been published and will be 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 2005 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: <a href="http://longislandsoundstudy.net/publications.htm#posters">http://longislandsoundstudy.net/publications.htm#posters</a>	Continue to reprint and distribute materials as appropriate.
3.	In 2005 the New York Sea Grant Nonpoint Education for Municipal Officials (NEMO) program initiated efforts to expand the program throughout Long Island and proceeded in advancing Long Island local governments' implementation of effective PH II storm water management programs. NYSG NEMO assisted in the development of state-wide guidance materials and continued to provide presentations, materials, consultations and technical support designed to facilitate watershed-based local efforts to target priority pollutants, geographic areas and audiences of concern.	Deliver outreach and support designed to ensure integration of municipal PH II stormwater management with advancement of LIS CMP objectives. Promote municipal efforts to meet pathogens TMDL stormwater 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.

2005 Description		2006 Planned Action
1.	During 2005 there were 450 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: 140 beach-day closures at private and municipal beaches. New York: 310 beach-closure days in the New York portion of Long Island Sound.	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 2006.
2.	The CT Dept. of Public Health (CTDPH) received \$224,290 from EPA for FY2005 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 \$354,580 from EPA for FY2005 Beach Act funding in New York state.	Expect continued EPA funding for Beach Act monitoring in 2006. Beach Act funding for CT is a projected \$223,370.  Expected Beach Act funding for New York in 2006 is \$348,740.

2005 Description	2006 Planned Action
<p>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.</p>	<p>Continue to monitor shellfish beds for health and viability.</p>
<p>4. In 2005, more than 60 volunteers and staff from Harbor Watch/River Watch analyzed 79 sites and performed over 3,000 bacteria tests in the Norwalk, Aspetuck, Silvermine and Saugatuck Rivers, and Sasco Brook, identifying sources of pathogens and working with local landowners and towns to address contamination problems.</p>	
<p>5. In 2005, the Interstate Environmental Commission:</p> <ul style="list-style-type: none"> <li>• continued to conduct its tri-state water quality monitoring program and summarized its results in its 2005 Annual Report. The Report, Tri-state Environmental District, 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 2005. Attendees representing all levels of government and citizen groups viewed Lower and Upper NY Harbor, the Kills and Raritan Bay during a 6-hour tour. IEC continued to improve its website at <a href="http://www.iec-nynjct.org">www.iec-nynjct.org</a>.</li> <li>• conducted dry weather inspections of MS4s. For the period January 1 through December 31, 2005, 66 inspections were completed on the north shore of Nassau County, NY, and seven flowing MS4s under dry weather conditions were reported to NYS DEC, Region 1 for remediation.</li> <li>• continued pathogen monitoring in the NY-NJ Harbor Complex. Influent and effluent monitoring at WPCPs was conducted for <i>fecal</i> and <i>total coliforms</i>, <i>fecal streptococcus</i>, and <i>enterococcus</i>. Beginning in late 2005, pathogen sampling is being conducted across 5 Hudson River transects to characterize concentrations across the river, as well as to determine pathogens die-off.</li> <li>▪ 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 2005. Remediation is under way.</li> </ul>	<p>Continue preparation of the Annual Report, which is a statutory requirement due annually on January 24; continue the municipal WPCP monitoring; conduct the annual boat inspection trip in August 2006.</p> <p>IEC will continue dry weather MS4 inspections in 2006.</p> <p>IEC will continue pathogen monitoring in support of TMDL development.</p> <p>IEC will continue pathogen monitoring, laboratory analysis and data sharing during 2006, under dry weather conditions only in the Byram River.</p>

# PROTECTING THE SOUND FROM THE ADVERSE EFFECTS OF TOXIC SUBSTANCES

TOXIC SUBSTANCES CAN CAUSE ADVERSE HUMAN AND ECOSYSTEM HEALTH EFFECTS, AND CAN RESULT IN SIGNIFICANT NEGATIVE ECONOMIC IMPACTS ON THE VALUE OF THE NATURAL RESOURCES OF THE SOUND.

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

**LIS 2003 Agreement Goal:** *Eliminate toxicity or bioaccumulation impacts on living resources by reducing contaminant inputs and cleaning up contaminated sites, and manage risk to humans from seafood consumption.* There 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 2005 the LIS Fellows updated a technical characterization of toxic contaminants in LIS. The report will provide a basis for updates to the Contaminants of Concern list in 2006. In 2005, New York and Connecticut initiated discussions concerning the PCB fish consumption advisory and will continue this work in 2006.

**Environmental Indicators/Results/Trends:** Toxic emissions in the region and to the Sound continue to decline 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 stormwater and atmospheric deposition, which are more difficult to control. Regulatory programs strive to reduce chemical discharges and minimize toxicity of effluents. However, the contaminants released in the past remain in the sediments of Long Island Sound long after the discharges cease.

## **2005 Highlights:**

- The Management Committee approved LISS 2006 funding to study PCB contamination in several key fish species in LIS. Samples will be collected by CTDEP during its regular fish trawl surveys in Summer 2006, which will be analyzed by New York State, with possible revision of 25-year old PCB data for human consumption of fish as an outcome.
- Connecticut passed Public Act 05-252, *An Act Concerning Pesticides at Schools and Day Care Facilities*. The Act bans application of lawn care pesticides at public/private preschools and day care facilities except to eliminate an immediate threat to human health including mosquitoes, ticks, and stinging insects. It completely prohibits the use of lawn care pesticides at public or private elementary schools by July 1, 2008.
- Public Act 05-7, the *Connecticut Clean Diesel Plan*, was signed June 24, 2005. CTDEP prepared a comprehensive plan that evaluated the costs and benefits of installing emission controls on transit buses, school buses and construction equipment. A number of additional cost effective measures were presented, including low sulfur heating oil, anti-idling, and controls on outdoor wood-burning furnaces. In May 2006, EPA awarded the Connecticut Clean Diesel Team an Environmental Merit Award for its comprehensive plan to reduce diesel emissions in the state.

## 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.**

2005 Description		2006 Planned Action
1.	Eagleville Brook, Mansfield, CT, was listed on the 2004 List of Connecticut Waterbodies Not Meeting Water Quality Standards for not meeting aquatic life goals, although the cause was unknown. In 2005, CTDEP completed a stressor identification analysis and has determined that the complex array of pollutants carried by storm water is the most probable cause of the degraded macroinvertebrate and fish communities. A draft TMDL for impervious cover, a surrogate measure of storm water impacts, was developed for Eagleville Brook and the TMDL is available for public comment.	Follow-up monitoring to measure progress of TMDL implementation.
2.	CTDEP developed a plan to continue water quality improvements in a five-mile stretch of the Naugatuck River near Thomaston. This TMDL Plan was developed for whole effluent toxicity in the Upper Naugatuck River, Thomaston, and was approved by EPA in August 2005. The plan will be used as a basis for allocating the discharge of pollutants to the river among all the sources within the five-mile stretch. NPDES permits for 3 industrial facilities and 1 sewage treatment plant are being revised based on the whole effluent toxicity TMDL.	Follow-up monitoring to measure progress of TMDL implementation.
3.	In 2005, 82 of 84 Connecticut STPs passed toxicity testing, showing 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: New Milford WPCF; and Shelton WPCF	CTDEP will continue working with STPs to stay in compliance with toxicity tests.
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 2005 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, 150 had access to at least one household hazardous waste collection.	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 develop programs for the separation and recycling or proper disposal of wastes that contribute to toxicity, such as consumer electronics and appliances, household batteries, mercury-containing lamps (including fluorescent light bulbs), and thermostats

2005 Description	2006 Planned Action
<p>5. CTDEP completed Connecticut's largest urban school bus retrofit project in the City of New Haven. The Clean School Bus Program is an important part of CTDEP's overall efforts to address diesel emissions from school buses. This initiative includes the use of cleaner fuels and innovative technology to reduce harmful emissions from school buses in New Haven.</p> <p>The New Haven Clean School Bus pilot program combined clean diesel fuel and state-of-the-art pollution control devices. To educate students about air pollution and diesel reduction efforts, an air quality curriculum was implemented in middle school science classes throughout the City of New Haven. DEP worked with science teachers in New Haven to implement an air quality curriculum to complement the school bus retrofit project. Funding for the program was provided by U.S. EPA.</p> <p>The New Haven Clean School Bus Program required multiple partners including: the New Haven Public Schools, the Mayor's office, DEP, First Student, the Northeast States for Coordinated Air Use Management (NESCAUM), and Department of Motor Vehicles (DMV).</p> <p>At a minimum, fine particulates and carbon monoxide are expected to be reduced by approximately 40 percent and hydrocarbons by 45 percent. In addition, a small reduction in nitrogen oxides is expected.</p> <p>CT has completed 370 bus retrofits out of an estimated fleet of 6,100. The grants awarded to Fairfield and Lyme/Old Lyme will add another 70 buses to the total.</p>	<p>Results of this project are being used to promote CTDEP's Clean School Bus initiative into other urban school districts. Planning efforts for a retrofit project in Bridgeport are underway, and, in 2005, EPA Clean School Bus USA grants were issued to schools in Fairfield and in the Lyme/Old Lyme School District</p>
<p>6. The Hockanum River was listed on the 2002 List of Connecticut Waterbodies Not Meeting Water Quality Standards for not meeting aquatic life goals, although the cause was unknown. Work has continued to determine the sources of aquatic life impairments in the upper Hockanum River from Shenipsit Lake to Union Pond.</p>	<p>Continue to work on Stressor ID for impairments.</p>
<p>7. A number of TMDLs were established for nutrients (nitrogen and phosphorus) to lakes in 2004 and 2005. These lakes, Kenosia Lake, Batterson Park Pond, Cedar Pond, and Linsley Pond, are included on the 2004 List of Connecticut Waterbodies Not Meeting Water Quality Standards for Recreational Use and Aquatic Life Support due to excess nutrient loading.</p>	<p>Continue to work with local stakeholder to improve watershed conditions. Modification of one industrial permit for the discharge of storm water is anticipated in order to help achieve the TMDLs for Cedar and Linsley Ponds.</p>
<p>8. Public Act 05-7, the Connecticut Clean Diesel Plan, was signed June 24, 2005. CT DEP prepared a comprehensive plan that went far beyond the legislative mandate of evaluating the costs and benefits of installing emission controls on transit buses, school buses and construction equipment. A number of additional cost effective measures were presented, including low sulfur heating oil, anti-idling and controls on outdoor wood-burning furnaces. In May of 2006, EPA awarded the Connecticut Clean Diesel Team an Environmental Merit Award for its comprehensive plan to reduce diesel emissions in the state.</p> <p>Through construction contracts for the "Q Bridge" project in New Haven, CT DOT has completed retrofits on over 100 pieces of construction equipment. Other agencies are adopting contract specifications to require retrofits of diesel construction equipment.</p>	<p>CT DEP will reconvene stakeholders to identify diesel reduction priority efforts for next year. Anti-idling regulations are being drafted at DEP and CT DOT is proposing to use CMAQ funds to retrofit CT Transit buses in Hartford and New Haven with diesel particulate filters.</p>
<p>9. CT DEP applied for EPA funding to establish an electrified truck stop in Milford as part of Connecticut's Idle Free Corridor. Allowing diesel trucks to plug into kiosks at the site would have reduced the idling necessary to maintain heating and cooling in the cabs overnight or during mandated rest periods. While the grant application was not successful, it has piqued interest in truck stop electrification in other areas of the state.</p>	<p>CT DEP will provide technical assistance and other support to DOT and private groups seeking to establish electrified truck stops in Connecticut.</p>
<p>10. In 2005, CTDEP assisted the Lyme/Old Lyme School District in applying for EPA Clean School Bus USA funding. They were awarded \$168,000 under the program and Fairfield Public Schools received an additional \$369,000.</p> <p>These grants will help the communities of Fairfield, Lyme and Old Lyme add diesel particulate matter filters to most of the school buses serving these communities, and to fuel all of them with cleaner ultra-low sulfur diesel fuel. The combination of a diesel particulate matter filter and cleaner diesel fuel will reduce per bus emissions by more than 90 percent.</p>	<p>CT DEP will lend technical assistance and other support to Fairfield and Old Lyme as they proceed with the retrofit process. DEP will also continue to leverage its success with school bus retrofits to assist other communities in applying for</p>

	2005 Description	2006 Planned Action
		Clean School Bus USA funds and in developing retrofit programs.
11.	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 PFCs are classified as 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.	DEP will pursue revisions to the PFC regulations in 2006, including improvements in the design of the spill-proof spout. The proposed regulations will also follow California in further restricting the sale of non-compliant containers for use with gasoline and in extending emission control requirements to kerosene containers.
12.	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 <sub>2.5</sub> 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 will be studying the emissions from OWFs. CT DEP will continue to support state and regional efforts to control emissions from these sources.
13.	Volatile Organic Compounds (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 will be developing new regulations to control VOCs from consumer products such as paints and stains and from architectural and maintenance (AIM) coatings and metal cleaning.
14.	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 will be developing regulations to implement EPA's model anti-idling rule.
15.	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.	Due in part to the General Assembly's actions in 2003, DEP anticipates that by 2008, the mercury emissions from the state's three coal-fired EGUs will be lower than EPA's 2018 Connecticut budget.  CT DEP is also developing mercury control measures for compliance with federal CAMR requirements.
16.	New York City, through the Department of Environmental Protection (NYCDEP), continued its Industrial Pretreatment Program (IPP). Under this program, metals discharges Citywide have fallen by about 70 percent over the last 14 years.	Continue the IPP.

**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.

2005 Description		2006 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. Initially, dredged material disposal will be limited to two designated sites in the WLIS and CLIS disposal sites. The use of those sites will be limited to three projects that already have permits, and for no more than three years. Those dredge projects include one in Norwalk, CT, and one each in New Rochelle and Rye, N.Y. Decisions about future projects will be made by a team of state and federal experts who will first look for treatment options and disposal on land. If practical alternatives cannot be found, a provision of the agreement allows the two designated disposal sites to continue to be used.	

**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.

2005 Description		2006 Planned Action
1.	<p>The Long Island Sound 2003 Agreement action item for this area is: <i>By 2003, New York and Connecticut will meet to jointly review their approaches for Long Island Sound fish consumption advisories and to discuss a process to achieve the goal of consistent fish consumption advisories for Long Island Sound.</i></p> <p>In 2005, New York and Connecticut environmental agencies and departments of health began cooperating in an effort to re-test fish samples for PCB contamination in LIS. CTDEP, NYSDEC, NYDOH and CTDPH are participating in a LISS-funded project to collect and analyze fish tissue samples for this toxic chemical. CTDEP will collect samples in its regular fish trawl surveys and provide samples for testing by New York State. Results will be analyzed and data for determining fish advisories updated.</p> <p>Connecticut's current LIS fish consumption advisory is for PCBs in striped bass, bluefish, and lobster hepatopancreas; the CT fish advisory is posted on the CTDOH website: <a href="http://www.dph.state.ct.us/Publications/BCH/EEOH/fishweb02.pdf">http://www.dph.state.ct.us/Publications/BCH/EEOH/fishweb02.pdf</a></p> <p>New York's current LIS fish consumption advisory is for PCBs in bluefish and American eels from LIS, for PCBs in striped bass from LIS west of the Wading River; and for PCBs, cadmium, and dioxin in crab and lobster hepatopancreas. The New York fish consumption</p>	<p>Samples will be collected in Summer 2006, with subsequent analysis to determine chemical concentrations.</p>

2005 Description	2006 Planned Action
advisory is posted on the NYSDOH website: <a href="http://www.health.state.ny.us/nysdoh/environ/02fish.pdf">http://www.health.state.ny.us/nysdoh/environ/02fish.pdf</a>	
2. As of January 1, 2005 commercial pesticide applicators in New York state are required to provide notification language and visual site markers when treating an area with pesticides.	
3. Governor George E. Pataki, Senate Majority Leader Joseph Bruno and Assembly Speaker Sheldon Silver signed a Memorandum of Understanding (MOU) that makes available \$30 million for local communities to develop strategies to cleanup and reuse Brownfields, as well as for grants to assist communities in participating in the redevelopment of Brownfields. The Agreement authorizes the allocation of funds for the Brownfields Opportunity Area Program and Technical Assistance Grants created as part of the historic Superfund and Brownfields Law. The MOU also provides funding for the development of a state-wide groundwater database to assist communities in evaluating groundwater issues related to the cleanup of contaminated properties.	Implement the program in 2006.
4. Connecticut passed Public Act 05-252, <i>An Act Concerning Pesticides at Schools and Day Care Facilities</i> . The Act bans the application of lawn care pesticides at public and private preschools and day care facilities except to eliminate an immediate threat to human health including mosquitoes, ticks, and stinging insects. It will completely prohibit the use of lawn care pesticides at public or private elementary schools starting July 1, 2008	Implement and enforce the ban on lawn care pesticides at preschools and day care facilities.

**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.

2005 Description	2006 Planned Action
1. The Long Island Sound 2003 Agreement goal for this area is: <i>By 2003, update the Long Island Sound Contaminants of Concern list after considering National Coastal Assessment monitoring results and other sources of data.</i>  The LIS Fellows updated a technical characterization of toxic contaminants in LIS in 2005, which was reviewed by the LISS Science and Technical Advisory Committee (STAC).	The STAC will consider how to best use the revised list.
2. NYSDEC, through the Waste Management and Reduction Institute of Stony Brook University, and CTDEP continued participation in the EPA-sponsored National Coastal Assessment monitoring program in 2005. The LISS provided \$20,000 to NYSDEC for this project in 2005. Elements of the existing NYCDEP harbor water quality survey, the LIS ambient water quality monitoring program, Suffolk County DOHS and the Town of Hempstead water quality monitoring programs have been integrated with the National Coastal Assessment. The program is monitoring and assessing water and sediment quality parameters and biota in LIS.	Continued participation in 2006 is planned in NY waters of LIS by using a combination of LISS and EPA funding. The Management Committee approved \$20,000 in LISS funding for New York's continued NCA data collection activities in NY LIS waters in 2006.
3. In 2005, 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.	Continue cooperation with CARP.

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

**KEY ELEMENTS:** TOXIC CONTAMINANTS IDENTIFIED IN LONG ISLAND SOUND ARE NUMEROUS; THEIR PATHWAYS TO THE SOUND ARE VARIED, AND THEIR EFFECTS ON THE ENVIRONMENT, MARINE LIFE AND HUMAN HEALTH ARE NOT FULLY UNDERSTOOD. THESE FACTORS MUST BE UNDERSTOOD IF EFFECTIVE MANAGEMENT IS TO BE ACCOMPLISHED. THE CCMP IDENTIFIED THESE NEEDS ARE IDENTIFIED AS RECOMMENDATIONS, THOUGH CONTINUATION OF WORK BEGUN BY LISS THROUGH THE EPA LONG ISLAND SOUND OFFICE AND OTHER PARTIES SHOULD RECOGNIZE THESE RECOMMENDATIONS AS PRIORITY RESEARCH TOPICS.

2005 Description		2006 Planned Action
1.	The following LISS-funded research project was completed in August 2005: <ul style="list-style-type: none"> <li><i>New Approaches For Assessing Mutagenic Risk of Contaminants in LIS</i>, Stony Brook University, (Dr. Ann McElroy, PI, UConn) [\$99,561]</li> </ul>	The final project report was submitted to EPA in March 2006.
2.	Work continued on the following LISS-funded research project in 2005: <ul style="list-style-type: none"> <li><i>Temporal and Spatial Changes In Copper Speciation And Toxic Metal Concentrations In Long Island Sound: Effect Of Changes In Water Temperature And Dissolved Oxygen Levels</i>. (Dr. Sergio Sañudo-Wilhelmy, PI, Stony Brook University) [\$101,136]</li> </ul>	The PI was granted an extension of the project period to complete data collection, which is expected in 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.* LISS awarded funds in 2003 to the University of Connecticut to begin impervious surface mapping. The two-year project is ongoing, and preliminary results are expected to be reported in 2006.

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

### **2005 Highlights:**

- As a result of National Beach Clean Up Day in September 2005, volunteers from Connecticut and New York removed thousands of pounds of debris from many LIS beaches and recreational sites. In New York, 2,024 volunteers removed nearly 40,000 pounds of debris from 113 miles of beaches. In Connecticut, more than 900 volunteers collected nearly 6,000 pounds of debris on 28 miles of shoreline. In addition, 16 volunteer scuba divers removed 73 pounds of debris from underwater areas in New York waters of Long Island Sound.
- 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 91.9 percent in 2005, compared to 86 percent in 2004. The percentage of streets rated Filthy in 2005 was 0.69 percent, down from a level of 1.7 percent in 2004 and 4.5 percent in 1995.
- The City of Norwalk, Connecticut installed new filters in selected catch basins in the Norwalk River watershed in 2005 to test the effectiveness of this technology in capturing and removing sediments, oils and floatables from storm drains discharging to Norwalk Harbor and Long Island Sound.
- CTDEP distributed 87,323 storm drain markers to municipalities, non-profit groups and private entities; all English markers have been distributed. The Spanish version is still available for bilingual communities desiring to mark their storm drains.

## 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.**

2005 Description	2006 Planned Action
<p>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:</p> <ul style="list-style-type: none"> <li>• 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;</li> <li>• continued to increase the number of hooded catch basins through re-construction of un-hoodable basins;</li> <li>• 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;</li> <li>• evaluated its current <i>Interim Floatables Containment Program</i> to identify methods of improvement to maximize CSO floatables capture throughout the City including the upper East River and several of its tributaries. Made improvements in the existing program in 2004. Ongoing facility improvements and maintenance activities continued throughout 2005 to improve the efficiency of collection; and</li> <li>• 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.</li> <li>• 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 will continue in 2006.</li> </ul>	<p>Continue re-inspections.</p> <p>Continue construction of new basins.</p> <p>Continue to develop waterbody/watershed plans during which the need for additional floatable controls will be evaluated.</p> <p>Assess the effects of the improvements made in the Interim Program and evaluate potential changes to the program.</p> <p>Continue to operate control program.</p>
<p>2. In 2005 New York City collected debris from the floatables containment system in Little Bay near the Throgs 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.</p>	<p>Continue to collect debris from this facility in 2006.</p>
<p>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.</p>	<p>Develop a contract to provide for detailed facility planning, design and construction bidding.</p>

2005 Description	2006 Planned Action
<p>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.</p>	<p>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.</p>

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

**KEY ELEMENTS: ANTI-LITTER EDUCATIONAL CAMPAIGNS, ANNUAL BEACH CLEAN-UPS, LITTER CONTROL DEMONSTRATION PROJECTS AND STORM DRAIN STENCILING PROGRAMS ARE PART OF EFFECTIVE DEBRIS PREVENTION AND CONTROL PROGRAMS.**

2005 Description	2006 Planned Action
<p>1. <i>National Beach Clean Up Day</i> in September 2005 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, 2,024 volunteers collected 39,338 pounds of debris from more than 113 miles of beaches. In Connecticut, more than 900 volunteers collected nearly 6,000 pounds of debris on 28 miles of coast. In addition, 16 volunteer scuba divers removed 73 pounds of debris from underwater areas in Long Island Sound. Beach cleanup data is available on the Ocean Conservancy website at: <a href="http://www.coastalcleanup.org">www.coastalcleanup.org</a>.</p>	<p>Save the Sound, Inc., in cooperation with the CT Sea Grant program and the American Littoral Society in New York will promote National Clean Up Day on September 16, 2006.</p>
<p>2. The LISS Small Grants program awarded a \$5,000 grant to the Northeast Chapter of the American Littoral Society in New York to assist in conducting its annual beach cleanup program on Long Island Sound beaches in 2005.</p>	
<p>3. The amount of litter entering area waters from New York City has continued to decrease from 1995 baseline levels through the City's street sweeping efforts. The amount of streets rated <i>Acceptably Clean</i> was 91.9 percent in 2005 compared with 86 percent in 2003 and 77 percent in 1995. The number of streets rated <i>Filthy</i> in 2005 was 0.69 percent, down from 1.7 percent in 2004 and down from a 1995 level of 4.9 percent.</p>	<p>Continue street sweeping programs.</p>
<p>4. CTDEP has distributed 87,323 Storm Drain Markers to various municipalities, non-profit groups and private entities. All of the English markers have been distributed. Spanish versions of the markers are still available for bilingual communities desiring to mark their storm drains. CT DEP continues to maintain the Storm Drain Marker web page for communities seeking information on storm drain marking.</p>	<p>Cities and towns are encouraged to purchase Storm Drain Markers. CTDEP will provide information on where to purchase markers.</p>
<p>5. Connecticut's <i>Clean Marina</i> program includes a recreational boater outreach and education component, part of which addresses control of solid waste on boats. Seasonal Boating Education Assistants distributed "Clean Boating Packets" to Connecticut's boaters at marinas and boat launch ramps. Laminated <i>Clean Boating Tips</i> cards detail methods to minimize the environmental impacts of common boating practices are part of the program. As of 2005, twenty-eight (28) marinas have pledged to become a certified "Clean Marina". CWA 319 grant funds were used to provide Clean Marina Cost-Share Assistance Grants. One project was completed in 2005. These projects included: dustless vacuum sanders, a high-volume, low-pressure spray gun, used oil furnaces, and a recycling parts washer.</p>	<p>Continued implementation of a "Clean Marina certificate program. CTDEP will continue to distribute "Clean Boating Packets".</p> <p>CWA 319 funds are being closed out. A supply of vacuum sanders will be purchased with remaining funds and be available to Clean Marinas upon request.</p>
<p>6. As a companion to the Clean Marina Program, Connecticut's Clean Boater Program encourages boaters to learn about and use clean boating techniques. The Clean Boaters pledge is: <i>"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."</i></p>	<p>Seasonal "boating education assistants" will visit marinas and boat launches in Summer 2006 to answer questions, distribute Clean Boater Packets, and encourage boaters to sign the Clean Boaters Pledge.</p>

## 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 2005, only one had not been initiated, four are ongoing, one has been modified to a biennial task, and three have been completed, one in 2005: *identify sites of outstanding and exemplary scientific, educational, or biological value.* The Management Committee approved an initial 33 Stewardship sites in October 2005, and federal legislation was introduced in the 109<sup>th</sup> Congress to formalize the Long Island Sound Stewardship Initiative. 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 570 acres as of December 2005. Of the 2008 goal to reopen 100 river miles to fish passage, more than 90 miles have been restored as of December 2005.

### **2005 Highlights:**

- In 2005 CTDEP, with the assistance of many scientific experts and conservation organizations throughout the state, developed Connecticut's "Comprehensive Wildlife Conservation Strategy" (CWCS). The US Fish & Wildlife Service approved the plan in January 2006. The strategy identifies 475 species of "Greatest Conservation Need" (GCN) including 27 mammals, 148 birds, 30 reptiles and amphibians, 74 fish and 196 invertebrates. In addition, 12 key habitats and 43 sub-habitats related to the species of GCN were identified as priorities for conservation. These habitats include several types of forest, wetlands, and other unique communities such as sparsely vegetated areas, caves, and coastal beaches.
- Connecticut adopted Public Act 05-281, An Act Implementing a Lobster Restoration Program. The Act requires that a restoration program be established by the CTDEP. Under the program, the tails of mature female lobsters that licensed commercial fisherman land are marked with a V-shaped notch and then released in order to increase lobster egg production. The act requires DEP to compensate, if funds become available, each commercial fisherman who 1) lands, has marked, and releases lobsters, and 2) reports these landings as required by law.
- 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 and wetlands, as well as the installation of storm water management practices. By the end of 2005, 21 projects had been completed or were under construction and ten 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.



**A Connecticut Fishway**

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

<b>L-1. RESTORATION AND ENHANCEMENT OF AQUATIC AND TERRESTRIAL HABITATS (CCMP TABLE 40, P.107)</b>		
<b>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.</b>		
	<b>2005 Description</b>	<b>2006 Planned Action</b>
<b>1.</b>	The LISS continued to provide funding to support the New York and Connecticut habitat restoration coordinator positions and programs in 2005. The state coordinators provide technical assistance to municipal and local landowners and other partners in implementing the LISS habitat restoration plan. The NY State Habitat Coordinator position remained vacant through 2005. LISS funding was provided to NEIWPC to employ the NY Habitat Restoration Coordinator. NEIWPC advertised this position in late 2005 and it was filled in early 2006.	The Management Committee approved base program funding for the LISS habitat restoration program coordinator positions in 2006.
<b>2.</b>	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 2005, 53.9 acres of coastal habitat were restored and 24.9 river miles were reopened for fish passage. As of December 2005, the LISS has restored over 570 acres and reopened more than 90 miles of riverine migratory corridor toward its restoration goals.	Continue habitat restoration work in 2006.
<b>3.</b>	CTDEP continues to award grants and participate in restoration of riverine migratory corridors (RMC) for anadromous fish in the streams and rivers of the state. CT projects include: <ul style="list-style-type: none"> <li>• completion of a fishway at Branford Water Supply Dam on Queach Brook, Branford, CT, which opened 5.6 miles of RMC.</li> <li>• completion of a fish by-pass at Cannondale Dame on the Norwalk River in Wilton, CT, opening 3.3 miles of RMC.</li> <li>• completion of a fishway at Occum Dam on the Shetucket River, Norwich, CT, which opened 11.5 miles of RMC.</li> <li>• removal of the Pizzini Dam on the Eightmile River in East Haddam, CT, opening 4.5 miles of RMC.</li> </ul>	Continue to work with partners to open additional fish passages and provide funding for design and construction of fish bypasses and ladders toward the LISS goal to restore 100 RMC miles by 2008.
<b>4.</b>	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 and wetlands, as well as the installation of storm water management practices. By the end of 2005, 21 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 2005, construction of the following projects were initiated or completed: <ul style="list-style-type: none"> <li>• Storm water Management Practices Demonstration Site (storm water wetlands, swales and rain garden), Crestwood Maintenance Facility, Bronx River Parkway Reservation, Tuckahoe</li> <li>• Storm water (Vortechncs Unit) Management, Playland Park, Rye City</li> <li>• Stream Buffer Restoration, Rich Manor Park, Rye Brook</li> </ul> <p>The follow are the major projects whose planning and design was initiated or completed in 2005:</p> <ul style="list-style-type: none"> <li>• Tidal Wetland Restoration and Creation, Harbor Island Park, Mamaroneck Village</li> <li>• Stream, Pond and Freshwater Wetland Restoration, Maple Moor Golf Course, White Plains</li> </ul>	Continue to develop and implement projects in 2006.

2005 Description	2006 Planned Action
<ul style="list-style-type: none"> <li>• Pond Restoration, Gardens Lake, Mamaroneck Town</li> <li>• Pond Restoration, Carpenters Pond, New Rochelle</li> <li>• Integrated Pest and Natural Resources Management Program, Bonnie Briar Country Club, Mamaroneck Town</li> <li>• Stream Restoration, Bonnie Briar Country Club, Mamaroneck Town</li> <li>• Freshwater Wetland Restoration, Nature Study Woods, New Rochelle</li> </ul> <p>Program and project information and photographs can be viewed at:  <a href="http://www.westchestergov.com/planning/environmental/AquaticRestorationSites/index.html">http://www.westchestergov.com/planning/environmental/AquaticRestorationSites/index.html</a></p>	
<p>5. Connecticut continued to participate in the LISS Habitat Restoration Initiative and to restore degraded tidal wetlands through its existing programs. CTDEP has also established a Tidal Wetland Restoration Team that identifies annual work priorities. Tidal flow was returned to 13.9-acre Lynde Point Marsh in Old Saybrook; to 1.9 acres of marsh in Bluff Point State Park in Groton; a 0.5-acre marsh surrounding Davis Pond in East Lyme; and to Great Meadows marsh parcel 2 (21.4 acres) and parcel 3 (5 acres), in Stratford. In 2003, restoration plans were developed for Coastal Barrier Beaches, i.e., Ocean Beach Park in New London and Waterford Town Beach in Waterford. Restoration grants for these two beaches were received through the NRCS Wildlife Habitat Incentive Program (WHIP). As of December 2005, work has not yet begun at Ocean Beach Park, but Waterford has erected some dune fencing and is pursuing additional funds through the LIS License Plate Program to expand upon its original design.</p> <p>Connecticut continued to use the Coves and Embayments Program to fund preliminary engineering, design and construction for the restoration of degraded coves especially those dominated by tidal wetlands.</p>	<p>Habitat restoration and invasive species control efforts will continue in 2006.</p>
<p>6. In 2005, CTDEP used the following funding sources to implement habitat restoration projects: USFWS – Coastal Program, Partners for Fish and Wildlife, National Wetland Conservation Grant, NOAA – Ducks Unlimited Funds, American Rivers, Restore America’s Estuaries funds, Partnership Funds, Restoration Center, &amp; Direct Solicitation funds; Trout Unlimited; NRCS – Wetlands Restoration Partnership funds &amp; Wildlife Habitat Incentives Program; CT Duck Stamp program; CT Corporate Wetland Restoration Partnership; Connecticut River Watershed Council; Stratford Development Corporation; Save the Sound - A Program of the Connecticut Fund for the Environment; The Nature Conservancy; City of Norwich; Borough of Fenwick; Lynde Point Land Trust; Town of Waterford; National Fish &amp; Wildlife Foundation - Long Island Sound Futures Funds; and CTDEP – Clean Water Funds, Long Island Sound Licence Plate Program, Supplemental Environmental Project funds, Flood and Erosion Control Board funds, Office of Long Island Sound Programs, and Wildlife Division.</p>	<p>On-going</p>
<p>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.</p>	<p>Project pending assignment of staff.</p>
<p>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.</p>	<p>Continue to work with the states, Coastal America and the corporate partners to expand the CWRP and implement priority restoration projects.</p>
<p>9. The USFWS Coastal Program established a cooperative agreement with the Branford Land Trust and allocated \$10,000 for site preparation for the Branford Fishway located at the Branford Supply Ponds dam, Branford, CT.</p>	<p>The fishway is expected to be operational in the spring of 2006.</p>

**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.**

	<b>2005 Description</b>	<b>2006 Planned Action</b>
1.	The LISS sponsored six public meetings in Connecticut and New York in June 2005 to discuss the Stewardship Initiative and to solicit public input on the draft list of proposed Inaugural Stewardship Areas. The list of areas was revised in response to the comments received and was presented to the LISS Management Committee for approval. In October 2005, the LISS Management Committee approved the 33 proposed inaugural areas. Information on the proposed inaugural areas is posted on the LISS website at: <a href="http://longislandsoundstudy.net/stewardship">http://longislandsoundstudy.net/stewardship</a>	The LIS Stewardship Work Group will present the proposed inaugural areas to the Policy Committee for approval.
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 and 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 the 2005 Connecticut Legislative Session, an act was passed which creates a mechanism to fund affordable housing, farmland acquisitions, open space purchases, and historic preservation. <i>The Community Investment Act</i> requires Town Clerks to collect an additional \$30 fee for each document they record in the towns land records. The state receives \$26 of each recorded document fee and the Town keeps \$4. Of the monies collected, CTDEP will receive 25 % for municipal open space grants.	As funds are available, CTDEP will continue to evaluate and acquire land for open space preservation. As Bond Funds are allocated, a "twelfth round" of grants to municipalities and other entities will be announced in Spring 2006.
5.	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 2005, the state owns 250,684 acres in its system of state park, forest, wildlife, fishery, and natural resource management areas. During this past year, an additional 513 acres in conservation easements were acquired in the Towns of East Hampton and Chaplin through the Forestry Legacy program. Thus CTDEP currently holds 78 percent of the 320,576 acres targeted for state open space acquisition. In 2005 more than \$6.6 million was awarded to purchase 2,011 acres of permanently protected open space land. Connecticut has set a goal to preserve 21% of the state's land as open space by 2023.	CTDEP's Land Acquisition & Management division will continue collecting data to complete a "Protected Open Space Mapping" Project (POSM), an open space inventory project.

	<b>2005 Description</b>	<b>2006 Planned Action</b>
	Currently 475,982 acres have been preserved. This is 70.7% of the goal.	
6.	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 2006 Futures Fund proposals.
7.	The Village of Larchmont, NY received a \$150,000 Environmental Protection Fund grant to create a passive recreational area in Flint Park, along its 700 linear foot Little Harbor Sound in conjunction with a planned expansion of Village playing fields. Work will include planting of native vegetation, construction of viewing platforms, installation of a waterfront trail, interpretive signage, and seating areas.	Begin work on project.

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

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

	<b>2005 Description</b>	<b>2006 Planned Action</b>
1.	<p>Connecticut completed a statewide Comprehensive Wildlife Conservation Strategy in 2005. The Connecticut CWCS was approved by the US Fish &amp; Wildlife Service in January 2006. The goals of Connecticut's CWCS are to:</p> <ul style="list-style-type: none"> <li>• Reverse the decline of wildlife populations and the loss of key habitats.</li> <li>• Minimize the need to list additional species as endangered or threatened by "keeping common species common."</li> <li>• Initiate landscape-level stewardship for key species.</li> <li>• Provide science-based data on species distribution and abundance and the location of key habitats to local land-use decision makers that will help municipalities make sound land use decisions in the future.</li> </ul> <p>The strategy identifies 475 species of "Greatest Conservation Need" (GCN), including 27 mammals, 148 birds, 30 reptiles and amphibians, 74 fish, and 196 invertebrates. Twelve key habitats and 43 sub-habitats related to the species of GCN were identified as priorities for conservation. The CWCS can be viewed on the CT DEP web site at <a href="http://dep.state.ct.us/burnatr/wildlife/geninfo/fedaid/cwcs/home.htm">http://dep.state.ct.us/burnatr/wildlife/geninfo/fedaid/cwcs/home.htm</a></p>	To maintain eligibility for federal wildlife grants, all the states were required by Congress to develop and obtain U.S. Fish & Wildlife Service approval of a CWCS. Connecticut will begin implementation of its CWCS in 2006.
2.	The USFWS Coastal Program continued to participate on the Steering Committee of the Waterbird Working Group in 2005. 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.	In 2005, the Connecticut River Estuary Regional Planning Agency continued their 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# LI-97105801-1	Complete mapping, distribute maps to all lower CT River communities; produce educational brochure about importance of riparian buffers.

**L-4. MANAGING ENDANGERED AND THREATENED SPECIES  
(CCMP TABLE 43, P.116)**

**KEY ELEMENTS: CONTINUE ENDANGERED SPECIES PROGRAMS AND DEVELOP LISTS OF LONG ISLAND SOUND ENDANGERED SPECIES TO AID MANAGEMENT PROGRAMS**

2005 Description	2006 Planned Action
1. NYSDEC's Natural Heritage Program updated its <i>Rare Plant List</i> in May 2005, which is posted at: <a href="http://www.dec.state.ny.us/website/dfwmr/heritage/plants.htm">http://www.dec.state.ny.us/website/dfwmr/heritage/plants.htm</a> .	NYSDEC NHP will re-evaluate the list in 2006.
2. In 2005 CTDEP prohibited the taking of alewives and blueback herring from inland and marine waters of the State of Connecticut. This action was initially taken in April 2002 and then extended in 2003 & 2004 with an expiration date of March 31, 2005. The current action by CTDEP extends the prohibition through March 31, 2006. 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.
3. In 2005 CTDEP conducted a project to assess the status and distribution of the least shrew, Connecticut's only state-endangered mammal. A number of volunteers helped DEP Wildlife Division staff conduct this survey at 11 sites along the coastline during the summer and fall of 2005. Only two sites produced shrew captures and only one of those sites producing least shrew captures.	Efforts to learn more about least shrews will continue in 2006.
4. A couple of pairs of common eiders were nesting near Fishers Island this year, and it apparently marks the first time (or one of the few times) that they have been recorded nesting on the Sound.	

**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**

2005 Description	2006 Planned Action
1. In CT, some changes in the 2005 fishing seasons were made. The open seasons for recreational fishing for black sea bass have been changed to January 1- November 30. These measures became effective August 1, 2005, and are necessary to meet the requirements of	Regulations for other species may change in 2006 depending on

2005 Description	2006 Planned Action
<p>the interstate fishery management plan for black sea bass. This coast wide change was made to accommodate the desire to keep the recreational fishery open through the Labor Day weekend, meet recreational harvest limits required by the plan, and provide uniform open seasons in the region. CT also adopted new fishery management measures for the recreational fishery for scup. The recreational creel limit and minimum length for scup will be: 25 fish at a 10-1/2 inch minimum length. The split seasons have been returned back to one season for scup: from July 1 - October 31. But Party/Charter boat anglers will be able to keep 60 fish per angler from September 1- October 31. These measures will become effective January 1, 2006.</p>	<p>monitoring data results.</p>
<p>2. In 2005 CT passed Public Act 05-281, An Act Implementing a Lobster Restoration Program. This act requires DEP to establish a lobster restoration program involving the V-notching of the tails of mature female lobsters caught by commercial fishermen and releasing them in order to increase lobster egg production. It requires, if funds become available, DEP to compensate commercial fishermen who: 1) lands, has marked, and releases lobsters and 2) reports it as required by law. The compensation must equal the average market value, which the commissioner determines.</p>	<p>Implement the program and apply for federal and state funds for the program.</p>
<p>3. NYSDEC adopted emergency marine recreational fishing regulations for 2005-06 affecting summer flounder (fluke), scup, black sea bass, striped bass, and bluefish. NYSDEC adopted these changes by emergency rule to provide timely relief to New York's marine anglers and fishing businesses. The changes of season, size, and catch limits for fluke, scup and sea bass are a reflection of stable or increasing quotas for these species, coupled with the reduction in harvest resulting from the more restrictive regulations implemented in 2004 that were necessary to bring New York State into compliance with Atlantic States Marine Fisheries Commission (ASMFC) requirements. The bluefish and striped bass season changes are a reflection of amendments to the Interstate Fishery Management Plan that were adopted by ASMFC. Adoption and announcement of the 2005-06 regulations by DEC is supported by the Marine Resources Advisory Council and many in the recreational fishing industry. Effective April 8, 2005, emergency regulations implement the following changes:</p> <p>Summer Flounder - Minimum size limit: 17.5" Total Length  Possession Limit: 5  Open Season: April 29 through October 31</p> <p>Scup - Minimum size limit: 10.5" Total Length  Possession Limit: 25  Open Season: July 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.</p> <p>Black Sea Bass - Minimum size limit (unchanged): 12" Total Length  Possession limit (unchanged): 25  Open Season: January 1 through November 30</p> <p>Striped Bass - Possession Limit: 1 fish between 28" and 40" Total Length and 1 fish 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</p> <p>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</p>	

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

**KEY ELEMENTS: DEVELOP MEASURES TO PREVENT THE INTRODUCTION OF UNDESIRABLE SPECIES AND IMPLEMENT A PROGRAM TO REDUCE THE ABUNDANCE OF MUTE SWANS.**

	<b>2005 Description</b>	<b>2006 Planned Action</b>
1.	<p>In 2005, development of a LIS Aquatic Nuisance Species (ANS) Management Plan was identified as a priority by the LISS. CT Sea Grant, CTDEP, and the CT Institute of Water Resources coordinated the development of the Connecticut Aquatic Nuisance Species Management Plan. The plan was the subject of public meetings in June 2005, and then submitted to the federal Aquatic Nuisance Species Task Force in July 2005 for preliminary review. Following revisions, the plan was submitted to CTDEP for agency review in December 2005. 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.</p>	<p>ANS Plan development was included in the 2006 Enhancement Grants program request for proposals, administered by NEIWPC. Review proposals, select applicant, and oversee development of LIS ANS Plan.</p>
2.	<p>Under a 2004 Federal Aid in Wildlife Restoration grant, New York State is studying the status and ecology of mute swans in the state. Researchers began collecting nesting and productivity data across New York State. These data provide information on nesting distribution, clutch sizes (eggs per nest), hatching rates, cygnet survival, and proportions of breeding birds within the populations. Ground, boat, and aerial surveys are also being done across the state to monitor current population numbers, seasonal distribution and movement patterns, and habitat use. These data, along with productivity estimates, help to determine and predict population trends. As part of this research, some swans have been tagged with identification markers, including aluminum leg bands, plastic neck collars, and even satellite-tracked radio-transmitters. Past research on swans and other waterfowl indicate that these methods of marking swans have little to no impact on the well-being of marked individuals. Information on mute swans is available at: <a href="http://www.dec.state.ny.us/website/dfw/wmr/wildlife/waterfowl/muswfs.html">http://www.dec.state.ny.us/website/dfw/wmr/wildlife/waterfowl/muswfs.html</a></p>	<p>Future research plans include: 1. continuing studies of productivity, survival, and movements; 2. determining the impact of mute swan feeding on submerged aquatic vegetation, 3. documenting mute swan aggression toward people and other waterfowl and 4. determining the extent to which feeding by people contributes to mute swan population growth and survival. A comprehensive report is expected by March 2006.</p>
3.	<p>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.</p>	
4.	<p>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.</p>	<p>Applications for the Aquatic Invasive Species Eradication Grant Program will be accepted until February 28, 2006.</p>
5.	<p>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.</p>	<p>The planning phase is expected to be completed during Spring 2006.</p>

2005 Description		2006 Planned Action
6.	Water chestnut harvesting continued on the Connecticut River in the greater Hartford area in attempts to prevent its spread downstream into RAMSAR wetlands and embayments. With assistance from the USFWS Silvio O. Conte Fish & Wildlife Refuge staff, and from faculty and students of the Two Rivers Magnet School in East Hartford, CT, approximately 1.5 tons of water chestnut were removed from seven locations in the Hartford area, in addition to several private ponds, lake sites, and numerous small patches along the CT River. Excluding the numerous small patches distributed throughout the CT River's main stem, six new populations of water chestnut were discovered during the summer of 2005 – Baker's Pond, Litchfield; Beeslick Pond, Salisbury; Chapman Pond, East Haddam; Strastrom Pond, New Milford; and Meadow Brook Pond & North Hartford Flood Pond, both in Hartford	Habitat restoration and invasive species control efforts will continue in 2006.

L-7. EDUCATING THE PUBLIC ABOUT THE PLANTS AND ANIMALS OF LONG ISLAND SOUND (CCMP TABLE 46,.120)		
<b>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.</b>		
2005 Description		2006 Planned Action
1.	CT Sea Grant reprinted <i>Living Treasures: The Plants and Animals of Long Island Sound</i> , with the support of the EPA LISS, as the existing supply was reduced to 300 copies. An additional 10,000 copies were printed for distribution. Six boxes were shipped to NY Sea Grant. Since 1991 and four printings, more than 40,000 copies have been distributed throughout the Long Island Sound watershed to schools, educators and other interested groups and institutions. Copies of <i>Living Treasures</i> are distributed free of charge to teachers and students upon request. Copies are also distributed through the public aquariums, informal marine education programs, the LIS Mentor Teacher Program workshops, and at the LIS Educators Conference. Copies may be obtained by contacting CT Sea Grant College Program at 860-405-9127 or at <a href="http://www.seagrant.uconn.edu/publ.html">http://www.seagrant.uconn.edu/publ.html</a> .	. A PowerPoint® presentation that compliments the text of <i>Living Treasures</i> will be produced and distributed on CD-ROM, along with a PDF of <i>Soundfacts</i> , for use by LIS Mentor Teachers and other educators.
2.	In 2005 the Westchester County Soil and Water Conservation District began drafting a technical guidance document 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. 7,500 full-color copies of this document will be printed on glossy paper and will be included on the various Westchester County websites and web pages. When completed, the document will be shared with other districts or appropriate entities who would like to re-print it or post it on a website. The technical guidance document will be distributed to municipalities throughout Westchester County including communities within the Hudson River, Croton River, Long Island Sound and Bronx River watersheds. It will also be distributed to watershed coalitions and committees including the Saw Mill River Coalition, Bronx River Watershed Coalition and Northern Westchester Watershed Committee. Copies will also be distributed to libraries, environmental education centers and other interested entities.	Complete and print document by the end of 2006.

**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

2005 Description		2006 Planned Action
1.	In 2005 the USFWS Coastal Program worked with NYSDEC and CTDEP to identify the highest priority ecological areas around the Sound as part of the Stewardship Initiative. This information was used to develop the proposed list of inaugural stewardship areas.	Develop fact sheet and CD of ecological resource inventory data
2.	The LISS established development of a habitat restoration database as a funding priority in its CCMP Enhancements grants RFP, which was released in 2005.	Evaluate RFP projects and determine appropriate funding for project.
3.	The New York Natural Heritage Program, in collaboration with the New York Flora Association and the New York State Museum, has finalized the New York Flora Atlas, a web-based atlas that details the distribution of the more than 4,000 plant species that grow in the state. The Flora Atlas is the most sophisticated and detailed online flora atlas available in New York State. It maps the distribution of all plant types across the state, gives information on how rare or common they are, the habitats they prefer and whether they are native, non native or invasive. The atlas can also generate county-specific lists of rare species or those that grow only in wetlands to help target conservation efforts. The Atlas may be found at: <a href="http://atlas.nyflora.org">http://atlas.nyflora.org</a> .	

**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.

2005 Description		2006 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.	<p>The CTDEP marine fisheries program continued its fish trawl survey of Long Island Sound in 2005, funded with a 'Federal Aid in Sport Fish Restoration' grant from the USFWS. Trawl survey maps and finfish survey results are posted on the CTDEP web at: <a href="http://dep.state.ct.us/burnatr/fishing/marineinfo/marineinfo2.htm#Trawl_Survey_Maps">http://dep.state.ct.us/burnatr/fishing/marineinfo/marineinfo2.htm#Trawl_Survey_Maps</a></p> <ul style="list-style-type: none"> <li>• A total of 197,004 finfish, lobster and squid weighing 13,522.1kg were collected in 2005.</li> <li>• Fifty-seven finfish species and thirty-seven invertebrate species (or taxa) were collected from 200 tows conducted in 2005. The total fish species count of 57 is within the observed range of 50 to 70 species per year. One species (American plaice) was recorded for the first time in the trawl survey.</li> <li>• Hickory shad were at an all time record high abundance in 2005 while menhaden, alewife and weakfish (YOY) were at near record high levels. Winter flounder and cunner remained at low abundance but came up from 2004 numbers. American lobster abundance indices remained low, ranking 21st of 22 years in the spring survey and 22nd in the fall and for the first time in 22 years, no longhorn sculpin were caught in the tows.</li> <li>• Adult scup abundance remains high with 2005 ranking as the third highest in the Fall</li> </ul>	Continue to conduct trawl and estuarine seine surveys.

	2005 Description	2006 Planned Action
	<p>trawl for 22 years, while summer flounder abundance increase from 2004 levels remaining well above average for the 22 years of survey data.</p> <ul style="list-style-type: none"> <li>The Spring 2005 striped bass abundance index increased the second highest under the record abundance recorded in 2002 remaining above average as the index has since 1995. The total count of 469 for the combined spring and fall trawls tied with 2002 as record high for number of striped bass.</li> <li>The Spring 2005 survey index for tautog increased from 2004 at 0.57 fish/tow, but remaining below the recent peak abundance of 0.9 fish/tow in 2002.</li> </ul> <p>The abundance of several recreationally important species remains moderate to high including bluefish, striped bass and summer flounder. The increased abundance of hickory shad in recent years provides an additional recreational fishing opportunity, especially to near-shore anglers.</p>	
3.	<p>The LISS had provided funding in 2004 for the USFWS to map eelgrass beds in LIS to evaluate trends in eelgrass acreage over time. An inter-agency agreement was developed with the National Wetlands Inventory program of the USFWS. The survey was planned for 2005, but weather conditions prevented its completion.</p>	<p>The photographic flight and field verification will take place in Spring and Summer of 2006.</p>

**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.**

	2005 Description	2006 Planned Action
1.	<p>In 2005, Dr. Chris Elphick completed work on his LISS-funded research project entitled <i>Salt-marsh Breeding Sparrows in Long Island Sound: Status and Productivity of Globally Important Populations</i>. Information about this research is available at: <a href="http://www.eeb.uconn.edu/faculty/Elphick/sparrows/saltmarsh_sparrows.htm">http://www.eeb.uconn.edu/faculty/Elphick/sparrows/saltmarsh_sparrows.htm</a>.</p>	<p>Project complete.</p>
2.	<p>The Long Island Sound Lobster Initiative is investigating the role that pesticides may have played in the 1999 lobster die-off. The Steering Committee met in 2005 to review data and determine future direction of the Initiative in this area. The final report on the 1999 mortality event, <i>Responding to a Resource Disaster: American Lobsters in Long Island Sound 1999-2004</i> is available at: <a href="http://www.seagrant.sunysb.edu/LILobsters/FinalSummary06/index.htm">http://www.seagrant.sunysb.edu/LILobsters/FinalSummary06/index.htm</a>.</p>	
3.	<p>Through the LIS Research Grant Program, the following three projects that were awarded EPA grants in 2004 through the LISS continued in 2005:</p> <ul style="list-style-type: none"> <li><i>Application of Remote Sensing Technologies for the Delineation &amp; Assessment of Coastal Marshes &amp; Their Constituent Species</i>. PIs: Dr. Daniel Civco, UConn, and Dr. Martha Gilmore, Wesleyan University; EPA grant #LI-97100901</li> <li><i>Food Webs in Long Island Sound: Review, Synthesis &amp; Potential Applications</i>. PI: Dr. Roman Zajac, University of New Haven; EPA grant #LI-97101401</li> <li><i>Understanding the Role of Nutrient Enrichment in Tidal Marsh Loss in Long Island Sound</i>. PI: Dr. Shimon Anisfeld, Yale University; EPA grant #LI-97100801</li> </ul>	<p>Report progress on ongoing research projects.</p>

## 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 2005, one action item has been completed, three are ongoing, and one has not been initiated. In 2005, work continued on development of a new issue of *Sound Health 2006*, the LISS biennial report on the state of the health of the Sound. 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. The LISS also funded a public survey to be conducted by Stony Brook University to assess the public's perception of the state and health of the Sound. Results of the survey should be available in Fall 2006. The CAC continued to expand its membership base by adding a new organizational member in 2005. One long-time member of the CAC, Dr. Steve Matthews, passed away in 2005, and will be missed by the members and the LISS.

**Environmental Indicators/Results/Trends:** Changing human behavior to improve the environment is an inherent goal of any environmental education and public outreach program. While it is difficult, at best, to estimate the direct effects of these programs on the population, several indirect indicators can be used. Demand for information on the health of the Sound from students, educators, researchers, managers, and the public continues to increase. The LISS world wide website has 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.

### **2005 Highlights**

- LISS outreach and education program staff responded to more than 450 information requests, developed and staffed displays at 6 events that reached more than 1,475 people; and conducted seven presentations reaching about 170 people. CTDEP produced three issues of the LISS/NOAA-funded publication, *Sound Outlook*.
- The LISS Web site continued to be a popular site to view information about Long Island Sound. The [longislandsoundstudy.net](http://longislandsoundstudy.net) web site was visited by about 11,800 hits per month in 2005 more than double the monthly visits in 2004. More than 200 people requested LISS information and materials through the web site e-mail address, 'feedback@longislandsoundstudy.net.'

- Through 2005, the LISS public information and education Small Grants Program has funded 131 educational, informational, and habitat restoration projects totaling over \$512,000. These projects assisted hundreds of teachers and thousands of school children, and produced more than 20,000 pieces of LIS literature. In 2004, the LISS funded 15 small grants projects totaling more than \$67,255.
- The CTDEP Long Island Sound License Plate Fund distributed more than \$347,200 in 2005 for 18 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

<b>E-1. COMMUNITY AWARENESS AND STEWARDSHIP (CCMP TABLE 51, P.146)</b>		
<b>KEY ELEMENTS: THE CCMP EMPHASIZES EXISTING AND ENHANCED PUBLIC INVOLVEMENT AND EDUCATION PROGRAMS AT LOCAL, REGIONAL AND NATIONAL LEVELS TO PROMOTE UNDERSTANDING AND MANAGEMENT OF LIS. THE DEVELOPMENT OF INFORMATIONAL MATERIALS FOR SPECIFIC AUDIENCES, INCLUDING PRINTED MATERIALS, PUBLIC EXHIBITS, EDUCATIONAL CURRICULA, AND RESEARCH PROGRAMS WAS IDENTIFIED AS A PRIMARY OUTREACH AND EDUCATION MECHANISM.</b>		
	<b>2005 Description</b>	<b>2006 Planned Action</b>
1.	<p>The LISS Outreach Program:</p> <ul style="list-style-type: none"> <li>• responded to more than 450 information requests, developed and staffed displays at six events that reached more than 1,475 individuals; and conducted seven presentations reaching about 170 individuals.</li> <li>• produced and distributed more than 4,500 copies of the LISS <i>UPDATE</i> newsletter; the issue covered liquefied natural gas in the Sound, horseshoe crab research and how the Sound inspires artists.</li> <li>• assisted in producing and distributing three issues of the CTDEP LIS newsletter <i>Sound Outlook</i> to a circulation of 2,850 in addition to making it available on the CTDEP website. The Sound Outlook webpage averages 130 hits per month.</li> </ul>	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 completed distribution to municipalities of 10,000 copies of its storm water runoff brochure entitled: <i>Step By Step: A Citizens Guide to Curbing Polluted Runoff</i> . Municipalities also requested and received 118 sets of the popular LISS 'pollution guy' posters, and 58 copies of the Step By Step brochure on CD-ROM. Eight municipalities and environmental groups used the electronic image to print an additional 41,000 copies of the brochure. The LISS also developed a polluted runoff web page on its website.	LISS communications staff will continue to send out posters and CDs, and encourage municipalities to print their own brochures. LISS will also reprint the storm water brochure as necessary.
3.	The LISS outreach staff created a power point presentation on the LISS 20th Anniversary Retrospective that was presented at the July 20-21, 2005 Management Committee meeting as well as the December 8, 2005 CAC meeting. As a result there have been 12 requests for copies.	
4.	Since its inception, the NY Sea Grant Program annually coordinated the review of the LISS Small Grants program, assembling a team of federal, state, and citizen partners to review proposals and make funding recommendations to the Management Committee. In 2005, the USFWS, CTDEP, NYSDEC, EPA, and CAC participated on the Small 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 2006 the Small Grants program will be transferred to the LIS Futures Fund and the Small Grants review team will be combined with the Futures Fund review team.
5.	LISS printed 6,000 copies of a new general brochure describing the Long Island Sound Study. <i>Long Island Sound Study: Partners in Protecting the Sound</i> replaces <i>Long Island Sound Study: an Estuary of National Significance</i> .	Communications team members will be distributing the brochures to community groups, libraries, and coastal parks. In addition, team members will be distributing <i>Sound Health 2006</i> , LISS's environmental indicators report to parks, libraries, schools, and community groups. <i>Sound Health</i> will also be distributed as an insert in Sunday newspapers throughout the Long Island Sound region.

	2005 Description	2006 Planned Action
6.	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 are under development 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 has been published and will 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.
7.	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 <i>Connecticut Coastal Management Manual</i> is available on the DEP's website ( <a href="http://www.dep.state.ct.us/olisp/manual/manual.htm">http://www.dep.state.ct.us/olisp/manual/manual.htm</a> ) and fact sheets from the manual are made available upon request. In addition, a Coastal Nonpoint Source Program website was developed by CTDEP ( <a href="http://dep.state.ct.us/olisp/coastalnonpoint/index.htm">http://dep.state.ct.us/olisp/coastalnonpoint/index.htm</a> ).	CTDEP will continue to provide coastal management and coastal nonpoint source workshops to municipalities as necessary. Website updates will also be conducted as necessary.
8.	The "Focus on the Coast" workshops and supplemental information developed for coastal municipalities by the CTDEP, the University of Connecticut's NEMO program, Sea Grant, and The Nature Conservancy continue to be made available on the internet ( <a href="http://nemo.uconn.edu/coastal/index.htm">http://nemo.uconn.edu/coastal/index.htm</a> ). The materials highlight the need to protect submerged aquatic vegetation, tidal wetlands, and migratory fish habitat.	"Focus on the Coast" workshops and materials will continue to be made available including the coastal nonpoint source website developed by NEMO, as well as pamphlets explaining the various components of the state's coastal nonpoint source program.
9.	CTDEP announced its new initiative "No Child Left Inside." The initiative is designed to encourage the public – especially families and children from urban areas – to enjoy the outdoors by taking advantage of the recreational opportunities our 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". Participants, primarily families, will 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.).	Expand a marketing campaign initiated in October 2005 to increase awareness about the opportunities available to the public at Connecticut's state parks and forests. The Great Park Pursuit adventure challenge will be launched in May and conclude at the end of June.

**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.

	2005 Description	2006 Planned Action
1.	<p>The LISS assisted the National Fish and Wildlife Foundation with a news release announcing the 2005 LIS Future Fund grant program:</p> <ul style="list-style-type: none"> <li>• <i>Federal and State officials Award Grants to Restore the Health and Living Resources of Long Island Sound, May 12, 2005.</i></li> </ul> <p>The LISS issued two news releases to publicize important events affecting LIS:</p> <ul style="list-style-type: none"> <li>• <i>LISS Identifies Significant Coastal Areas for Stewardship, June 10, 2005</i></li> <li>• <i>LISS Futures Fund: Nearly \$1 Million in Grants Awarded on May 12 to Community Groups, May 12, 2005.</i></li> </ul>	Continue to issue press releases as needed.
2.	<p>The number of individuals who visited the LISS Web site per month doubled—from 5,662 visits per month in 2004 to 11,804 visits per month in 2005. More information posted on the Web site, and an increase use of the Web site by the public as a primary source for information are the probable reasons for the increased usage. In addition, more than 200 individuals contacted the LISS Communications team via the feedback from on the LISS Web site.</p>	The LISS Communications Team will continue to work to update the Web site in 2005, and further encourage the use of the Internet to communicate with the public.
3.	<p>CTDEP LISS Outreach staff continued as contributing editor of <i>Sound Outlook</i>, the CTDEP Long Island Sound newsletter funded through a LISS grant. This newsletter is a cooperative effort between the Coastal Zone Management and National Estuary Programs at the state level. <i>Sound Outlook</i> has a circulation of 2,850 and is available on the CTDEP web site: <a href="http://dep.state.ct.us/olisp/soundout/soundout.htm">http://dep.state.ct.us/olisp/soundout/soundout.htm</a>. The <i>Sound Outlook</i> web page received nearly 1100 hits in 2005 (averaging 91 hits per month. Staff contributed eight articles and assisted in editing other articles.</p>	Continue to publish <i>Sound Outlook</i> and cooperate with the LISS newsletter UPDATE.
4.	<p>Staff distributed over 2,000 copies of Sound Health indicators report to three CT coastal State Parks in summer 2005.</p>	Sound Health 2006 will be printed and 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.

2005 Description		2006 Planned Action
1.	The LISS funded 15 small grants projects totaling over \$67,255 in 2005. The American Littoral Society, LI Seaport and Ecocenter, The Waterfront Center, Earthplace, Solar Youth, Residents for a More Beautiful Port Washington, Alley Pond Environmental Center, CT River Coastal Conservation District, Cornell Cooperative Extension of Suffolk County, Manhasset Bay Protection Committee, Rivers Alliance of CT, The Maritime Aquarium at Norwalk, City of Glen Cove, Town of Oyster Bay, and Yale University's Peabody Museum received small grants funding for environmental education and implementation projects and programs for teachers and students.	The LISS Small Grants program will be combined with Futures Fund in 2006.
2.	The CTDEP Long Island Sound License Plate Fund provided \$73,976 in 2005 for education grants.	
3.	The LIS Citizens Advisory Committee (CAC) met in January, March, June, September and December 2005 to identify and address issues concerning LIS and CCMP implementation. The CAC: <ul style="list-style-type: none"> <li>• increased its membership base by adding <i>Joel Rinebold LLC.</i> as a new member;</li> <li>• approved 2005 budget and work plans and recommended budget and work plan priorities to the Management Committee for 2006; and</li> <li>• briefed members of Congress on LIS priorities and problems in January 2005 as part of the Clean Water/Jobs coalition.</li> </ul>	Quarterly meetings are planned for 2006.

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

**KEY ELEMENTS:** THE CCMP COMMISSIONED THE EPA AND THE STATES OF CONNECTICUT AND NEW YORK, IN COMBINATION WITH A MANAGEMENT CONFERENCE PUBLIC OUTREACH WORKGROUP, TO HELP COORDINATE ONGOING GOVERNMENTAL AND NON-GOVERNMENTAL PUBLIC OUTREACH EFFORTS. DURING THE CCMP IMPLEMENTATION PHASE, AND THEREAFTER, THE PARTNERS ARE TO ENCOURAGE PRIVATE AND NON-PROFIT GROUPS TO CONTINUE TO DEVELOP AND IMPLEMENT LIS EDUCATIONAL AND OUTREACH PROGRAMS.

2005 Description		2006 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. CTDEP staff made a LISS presentation to the CTDEP Environmental Education workgroup.	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.

	2005 Description	2006 Planned Action
1.	CT Sea Grant continued the LIS Mentor Teacher Program. Three teams (9 certified teachers) of "mentor" teachers (grades K-4, 5-8, and high school) with experience in using LIS in their classroom curricula were established through an application process. After attending a planning session, the teachers were asked to prepare and offer a one-day workshop for their peers to demonstrate effective "tried and true" ways to incorporate age-appropriate information on the Sound into the classrooms.	Continue in 2006.
2.	The Connecticut State Department of Education developed a new <i>Core Science Curriculum Framework</i> . The framework describes major science concepts that all students in Connecticut schools can reasonably be expected to learn in order to develop and expand their scientific literacy. Included in the framework are standards for 6 <sup>th</sup> grade that include content standards and expected performances covering how human activity may impact water resources in CT, such as ponds, rivers, and the Long Island Sound ecosystem.	The public schools in CT will adopt curriculum that will meet the goals of the framework, and include a goal of the LIS 2003 Agreement to provide a LIS experience.
3.	NY Sea Grant, as a member of the Executive board of the NYS Marine Education Association (NYSMEA), distributed new LISS materials to members and kept them informed of LISS activities. Staff assisted with planning the NYSMEA annual conference at Dowling College on June 3-5, 2005. Staff provided a presentation to 25 participants and staffed a display that was viewed by the 100 participants of the conference..	Staff will continue on the Board and distribute information. Staff will also assist with the organization of the National Marine Education Association Conference to be held in Brooklyn, NY on July 15-22, 2006.
4.	In October 2005, IEC conducted <i>in situ</i> testing of water quality parameters in the upper East River and western Long Island Sound as part of the third annual World Water Monitoring Day to promote water quality awareness internationally. The data IEC collected was submitted to the World Water Monitoring Day website, <a href="http://www.worldwatermonitoringday.org">www.worldwatermonitoringday.org</a> .	IEC will continue participation in this annual event.
5.	In a series of TV editorials from August 23-September 30,2005, <i>Cablevision, Inc.</i> presented various editorial opinions on topics concerning Long Island Sound -- <i>State of the Sound, Hempstead Harbor, Stewardship, Broadwater, Oyster Bay Mill Pond, Eelgrass Farmers, What Killed the Lobsters, and Friends of Flax Pond</i> . The public was invited to present opposing views on issues raised, and there were several editorial replies. <i>Cablevision</i> editorials may be reviewed at: <a href="http://www.cablevisioneditorials.com">www.cablevisioneditorials.com</a> .	

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

**KEY ELEMENTS: CONNECTICUT, NEW YORK AND THE EPA ARE TO PUBLICIZE GRANT OPPORTUNITIES WHENEVER POSSIBLE AND TO ENCOURAGE ALL ORGANIZATIONS ASSOCIATED WITH THE PUBLIC INVOLVEMENT AND EDUCATION EFFORT, BOTH GOVERNMENTAL AND NON-GOVERNMENTAL, TO TAKE ADVANTAGE OF THE VARIOUS GRANT PROGRAMS AVAILABLE THAT PROVIDE FUNDING FOR EDUCATIONAL ACTIVITIES AND PRODUCTS. PRIVATE SECTOR FUNDING SHOULD ALSO BE SOUGHT WHEN AND WHEREVER POSSIBLE AND IDENTIFY OTHER GRANT PROGRAMS FOR WHICH LIS PROJECTS WOULD BE ELIGIBLE.**

	2005 Description	2006 Planned Action
1.	The CTDEP Long Island Sound License Plate Fund distributed more than \$347,206 in 2005 for 18 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 <a href="http://dep.state.ct.us/olisp/licplate/projects.htm">http://dep.state.ct.us/olisp/licplate/projects.htm</a> .	CTDEP will issue a Request for Proposals for 2006. Grants of up to \$25,000 will be awarded in November.
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 2005, the LISS provided grant funds totaling \$67,255 for 15 projects.	The program will be combined with Futures Fund in 2006
3.	The National Fish and Wildlife Foundation (NFWF) conducted four grant workshops in November and December 2005 to assist potential applicants in developing grant applications in response to the NFWF Request for Proposals (RFP) under the 2005 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: <a href="http://www.nfwf.org">www.nfwf.org</a> . 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 and LIS Infrastructure Grants programs since 2001.	NFWF will work with the LISS to select projects for funding in 2006. NFWF will award funds and track progress in implementing projects.

## **Appendix A**



# 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.

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## 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.

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**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.

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**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.

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**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.

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

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

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

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

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

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

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

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

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

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

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## **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.

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**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.

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**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.

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**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.

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**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.

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**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.

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## 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.

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**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.

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**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.

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**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.

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**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.

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### **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.

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- 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.
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## **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.

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**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.

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**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.

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

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

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

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

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

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

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

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

**L5-9.** Enhance municipal shellfish restoration programs.

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

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

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

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

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**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.

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**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.

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**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.

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**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.

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**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.

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### **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.

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**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.

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**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.
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**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.

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**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.

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**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.

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## **Appendix B**



**Long Island Sound Study  
Appendix B**

<b>Summary of Congressional Earmark Funding For Long Island Sound Infrastructure Projects Under the Long Island Sound Restoration Act (P.L. 106-457) FY 2001-2005</b>			
<b>Fiscal Year</b>	<b>Total Appropriation</b>	<b>New York Share</b>	<b>Connecticut Share</b>
<b>2005</b>	\$3,968,000	\$1,984,000	\$1,984,000
<b>2004</b>	\$4,968,455	\$2,483,250	\$2,485,250
<b>2003</b>	\$3,576,600	\$1,788,300	\$1,788,300
<b>2002</b>	\$4,000,000	\$2,000,000	\$2,000,000
<b>2001</b>	\$3,160,000	\$1,580,000	\$1,580,000
<b>Total:</b>	\$19,673,055	\$9,835,550	\$9,837,550

<b>Long Island Sound Futures Fund Under the Long Island Sound Restoration Act (P.L. 106-457)</b>					
<b>Fiscal Year</b>	<b>USDA NRCS</b>	<b>EPA</b>	<b>NOAA</b>	<b>USFWS</b>	<b>Total</b>
<b>2006</b>	\$20,000	\$535,000	\$100,000	\$200,000	\$855,000
<b>2005</b>	\$20,000	\$500,000	\$100,000	\$200,000	\$820,000
<b>Total</b>	\$40,000	\$1,035,000	\$200,000	\$400,000	\$1,675,000

**Long Island Sound Restoration Act Funding  
P.L. 106-457  
New York State Projects  
2001-2005**

<b>Nassau County</b>			
<b>Community/Organization</b>	<b>Federal Funds</b>	<b>Project Description</b>	<b>LIS Funding Source</b>
Town of North Hempstead [\$125,500 match]	\$127,500	Restore shoreline along Hempstead Harbor Cove, reducing the amount of sediment and pollutants entering the harbor. The restoration will provide wildlife habitat and improve the aesthetics of the area.	LIS Infrastructure 05
Belgrave Water Pollution Control District [\$1,237,295 match]	\$1,237,295	Upgrade the wastewater treatment plant to reduce the amount of nitrogen and pathogens in water discharged from the facility.	LIS Infrastructure 0102/0405
Great Neck Water Pollution Control District [\$3,406,205 match]	\$3,406,205	Diversion of Discharges to Manhasset Bay, eliminating 125 tons of nitrogen/year to the Bay.	LIS Infrastructure 0102
City of Glen Cove [\$50,000 match]	\$50,000	Glen Cove Stormwater Treatment	LIS Infrastructure 0304
Port Washington Water Pollution Control District [\$291,125 match]	\$291,125	Process and Operational Enhancements to BNR	LIS Infrastructure 0304
Village of Bayville [\$350,000 match]	\$350,000	Bayville Wetlands Redevelopment Project	LIS Infrastructure 0304
Village of Laurel Hollow [\$49,000 match]	\$49,000	Laurel Hollow Bathing Beach Water Quality Improvement Project	LIS Infrastructure 0102
Coalition to Save Hempstead Harbor [\$65,400 match]	\$30,000	Enhance and expand its Citizen Water Monitoring Program for Hempstead Harbor. A Quality Assurance Project Plan will be prepared to improve the quality of data collected by the Coalition increasing its potential use by public and private partners. The data will be used in a comprehensive water monitoring report for the 2005 season.	LISFF/EPA
Town of North Hempstead [\$125,000 match]	\$75,000	Restore approximately 4 acres of tidal wetland within Hempstead Harbor Cove by stabilizing shoreline, removing debris, fill, and invasive plants, and planting native wetland species. The project is located near a former industrial area and enhances	LISFF/USFWS

		the biological value and visual appeal of the site near a shoreline nature trail. This project expands on a successful community-based wetland restoration completed in 2003.	
County Total:	\$5,616,125		
<b>Suffolk County</b>			
<b>Community/Organization</b>	<b>Federal Funds</b>	<b>Project Description</b>	<b>LIS Funding Source</b>
Suffolk County [\$1,298,500 match]	\$1,298,500	Reconstruct and upgrade the wastewater treatment plant to reduce levels of nitrogen and bacteria in water discharged to Port Jefferson and Long Island Sound.	LIS Infrastructure 05
Village of Greenport [\$459,000 match]	\$459,000	Upgrade the Village wastewater treatment plant to reduce levels of chlorine in water discharged from the facility.	LIS Infrastructure 05
Village of Nissequogue [\$242,000 match]	\$138,625	Moriches Road Drainage Project	LIS Infrastructure 0304
Town of Huntington [\$242,000 match]	\$268,400	Town of Huntington Stormwater Pilot Program Phase II	LIS Infrastructure 0304
Village of Northport [\$110,000 match]	\$110,000	MS4 Phase II Stormwater Permit Implementation & Nonpoint Source Abatement and Control; Segment 1:Northport Norwood Ave.	LIS Infrastructure 0304
Cornell Coop Extension [\$18,930 match]	\$30,000	In partnership with the Waterfront Center, will promote a greater understanding of the Long Island Sound by educating 30 groups of students from schools in low-income communities in Suffolk and Nassau County. Up to 750 children will be reached through fully funded Long Island Sound field and learning experiences	LISFF/EPA
Cornell Coop Extension [\$24,400 match]	\$60,000	Create a 2-acre eelgrass meadow located at St. Thomas Point, 3.5 miles west of Mulford Point, the only other eelgrass meadow on the north shore of Long Island. Test plantings of 1,000 shoots each will be conducted at two additional sites, one east and one west of St. Thomas point. The project will develop restoration methods uniquely suited to the high energy nature of the Long Island Sound.	LISFF/NOAA

Regional Plan Association [\$75,000 match]	\$40,000	Convene and work with a Stakeholder Committee to compile natural resources data, and identify issues and opportunities in the Nissequogue River watershed. This project will ultimately result in a comprehensive analysis of opportunities and challenges to protecting and stewarding the natural and recreational resources of one of Long Islands most important watersheds.	LISFF/EPA
Riverhead Foundation for Marine Research & Preservation [\$19,520 match]	\$20,000	Develop a voluntary citizen based marine mammal and sea turtle monitoring program to coordinate survey efforts with ongoing aerial, ship, and land based projects. Weekly lectures open to people of all ages and backgrounds will be conducted to educate communities around the Long Island Sound about the marine ecology of the area. Hands-on activities, interactive tours of the hospital facility, and animal identification exercises will reinforce the information given at the lectures.	LISFF/EPA
Friends of Flax Pond [\$34,095 match]	\$25,000	Conduct 5 habitat monitoring studies in Flax Pond, a series of 4 scientific lectures to the local public to disseminate the results of these studies and stimulate community interest and involvement in the preservation of Flax Pond. The lecture series will reach 150 local residents and 15 to 20 high school students and community residents will be recruited to participate in the habitat monitoring studies. All habitat and species monitoring data recorded will be used to foster the development of a community supported stewardship plan for Flax Pond in the future.	LISFF/USFWS
Peconic Land Trust [\$204,043 match]	\$40,000	Preserve 11.72 acres of globally rare marine freshwater wetland as open space adjacent to County owned Peconic Dunes County Park by developing a stewardship management plan and a program to control invasive species. Preserving this habitat will serve to protect rare native plant and animal species including: Iris prismatica, native cranberry, pitch pine carpets, carnivorous sundew, box and snapping turtles, red fox, ospreys,	LISFF/USFWS

		bob-whites, pheasants, and Eastern screech owls. The project will promote habitat knowledge among approximately 360 Camp Sea Wolf environmental students (10-15 years old) plus the 740 regular campers who annually attend Peconic Dunes Camp.	
Ward Melville Heritage Organization [\$11,245 match]	\$15,000	Provide public access to and education about Stony Brook Harbor and the surrounding wetlands along West Meadow Beach and West Meadow Creek. Through boat cruises, restoration activities, onsite classes and distance learning technology, people of all ages and across Long Island will learn about the importance and fragility of the wetlands ecosystem. Up to 4,800 adults and children will be reached annually through this project including the Ward Melville Youth Corps, a group of 30 youth volunteers who plant native vegetation in eroding areas of this special salt marsh ecosystem	LISFF/USFWS
County Total:	\$2,504,525		
<b>Westchester County</b>			
<b>Community/Organization</b>	<b>Federal Funds</b>	<b>Project Description</b>	<b>LIS Funding Source</b>
Westchester County [\$1,469,650 match]	\$1,469,650	Upgrade the Mamaroneck wastewater treatment plant to reduce nitrogen discharged to Long Island Sound.	LIS Infrastructure 05
Westchester County Planning Department [\$132,000 match]	\$132,000	Mamaroneck River Water Quality and Aquatic Habitat Restoration	LIS Infrastructure 0304
Westchester County [\$242,000 match]	\$242,000	Glen Island County Park Stormwater Runoff (New Rochelle)	LIS Infrastructure 0304
Village of Rye Brook [\$242,000 match]	\$218,750	East Branch Blind Brook Stormwater Control	LIS Infrastructure 0304
Edith G. Read Natural Park and Wildlife Sanctuary [\$17,900 match]	\$36,400	Improve water quality in an 80.2-acre tidal wetland located next to an amusement park by limiting the amount of contaminants that enter the lake from run-off from the Playland parking lot. Storm drain inserts will be installed which remove a variety of contaminants including heavy metals and oils. The inserts will be maintained for one year and water samples will be tested before an after installation.	LISFF/EPA

Town of Mamaroneck [\$20,540 match]	\$20,000	Create a demonstration planting of native species to encourage use of native species in homeowners' gardens, especially near bodies of water. Signs will be installed along with each species planted to give information on species, best planting locations, soil requirements, blooming season and color. Planting native species will discourage use of herbicides, pesticides, and fertilizers which add to non-point pollutants reaching the Long Island Sound. Additionally, an existing pathway will be redesigned using recycled material and gravel and add 480 linear feet of pathway to the new native plants area.	LISFF/EPA
Village of Larchmont [\$438,000 match]	\$25,000	Open the publicly-owned waterfront of Flint Park, portions of which closest to the Long Island Sound are presently inaccessible to the public, to create a recreational and educational area. Approximately 700 linear feet of waterfront will be open. Additionally, a new pervious walking trail linked to the Town of Mamaroneck's Hommock's Conservation area, interpretive signage, and a bird watching platform will be installed at the Park.	LISFF/EPA
County Total:	\$2,143,800		
<b>Queens County</b>			
City Parks Foundation [\$170,000 match]	\$35,000	Conduct educational workshops and 80 public outreach programs as well as engage in restoration and recreation activities at seven waterfront parks to raise awareness about the Long Island City waterfront	LISFF/NYET
<b>New York Grand Total:</b>	\$10,299,450		

**Long Island Sound Restoration Act Funding  
Both States — CT and NY**

<b>Bi-State Project</b>			
<b>Community/Organization</b>	<b>Federal Funds</b>	<b>Project Description</b>	<b>LIS Funding Source</b>
National Audubon Society: NY & CT Audubon [\$76,319 match]	\$40,000	Utilize <i>Important Bird Areas</i> in New York and Connecticut (e.g. Marshlands Conservancy, Pelham Bay Park, Oyster Bay, Orient Point and Plum Island, and Great Gull Island) as "test areas" to implement and evaluate communication and cooperation on stewardship planning and action. These sites provide geographic diversity as well as the opportunity to engage a variety of municipal, state, private, and Federal stewards. While the initial Stewardship Initiative sites have not been approved, there is an opportunity to facilitate cooperation in selected resource areas, learn from these situations.	LISFF/EPA/USFWS

**Long Island Sound Restoration Act Funding  
P.L. 106-457  
Connecticut State Projects  
2001-2005**

**New London County**

Community/Organization	Federal Funds	Project Description	LIS Funding Source
CT DEP Wildlife Division, Bureau of Natural Resources, Wildlife Division [\$14,400 match]	\$28,200	Design, install, and maintain a one-half acre exhibit of native plants common to the Connecticut coastal area at the Barn Island Wildlife Management Area. Educational signage will be installed to describing the importance of using native plants and individual markers will identify featured species.	LISSFF/EPA
Eastern CT Resource Conservation & Development [\$71,000 match]	\$40,000	Implement 4-day community-based land use leadership training workshops in the Connecticut River Valley, reaching up to 70 public officials from 13 towns, in the spring of 2006. The program will provide information, training, and technical assistance about land use law and natural resources protection to strengthen community planning.	LISSFF/EPA/USDA-NRCS.
Interdistrict Committee for Project Oceanology [\$65,700 match]	\$35,000	Immerse middle/high school students in a 2-day harbor seal research monitoring educational program. Students will observe behavior and collect data on a wild population of harbor seals in Eastern Long Island Sound. The project will involve 840 students and their teachers from schools in Connecticut and New York. The data collected will be entered into a database for access and use by regional harbor seal researchers.	LISSFF/EPA/NOAA
Lyme Land Conservation Trust, Inc. [\$12,500 match]	\$45,500	Construct a fishway to restore access to a river blocked since Colonial times. The project will establish a vital spawning area for blueback herring and trout and improve conditions for commercial/recreational game fishing. The completed project will maintain the restoration of migratory fish to the entire	USFWS/NOAA

		Eightmile River Watershed, which is currently under study for designation under the Federal Wild and Scenic Program.	
City of Groton [\$54,850 match]	\$54,850	Planning and design for nutrient removal at sewage treatment plants	LIS Infrastructure 02
City of Groton [\$410,150 match]	\$410,150	Planning and design for nutrient removal at sewage treatment plants	LIS Infrastructure 04
City of Norwich [\$117,821 match]	\$117,821	Planning and design for nutrient removal at sewage treatment plants	LIS Infrastructure 01
Town of Sprague [\$36,572 match]	\$36,572	Planning and design for nutrient removal at sewage treatment plants	LIS Infrastructure 01
<b>County Total:</b>	<b>\$768,093</b>		
<b>New Haven County</b>			
<b>Community/Organization</b>	<b>Federal Funds</b>	<b>Project Description</b>	<b>LIS Funding Source</b>
Branford Land Trust [\$120,000 match]	\$60,000	Restore anadromous fish passage by constructing a fishway over a dam at the Supply Ponds on the Queach Brook. The project supports migration of alewife, blueback herring and brown trout, provides a research opportunity for a local university to observe the ecology of sea-fish in inland waters. The fishway will open 75-86 acres of lake habitat, 9 acres of riparian swamps, and 4-5 miles of free-flowing streams to anadromous fish runs.	LISFF/USFWS/NOAA
Solar Youth, Inc. [\$15,500 match]	\$20,000	Conduct the fifth year of the Citywide Steward Program, a 5-week environmental education and youth development summer program that provides positive, educational opportunities to children who live in the low-income communities of New Haven. Up to 30 youth ages 9-14 will participate in the program using watersheds as the program theme, as the foundation of all exploration, community service, and public education.	LISFF/EPA
Sound School Regional	\$25,000	Provide direct educational	LISFF/EPA

Vocational Aquaculture Center [\$121,944 match]		experiences for high school students through hands-on marine research focused on water quality monitoring of pollutants and sediments, and determining changes to the ecology of New Haven Harbor and the central Long Island Sound in concert with researchers to provide critical information to municipal leaders engaged in development of new watershed management plans. The students will prepare Benthic Community and Sediment Sector Studies to observe the impacts of development on benthic communities such as fish and aquatic vegetation living in or migrating through the Harbor.	
City of Meriden [\$82,99 match]	\$82,997	Planning and design for nutrient removal at sewage treatment plants	LIS Infrastructure 01
City of New Haven [\$79,500 match]	\$79,500	Planning and design for nutrient removal at sewage treatment plants	LIS Infrastructure 01
City of West Haven [\$239,260 match]	\$239,260	Planning and design for nutrient removal at sewage treatment plants	LIS Infrastructure 01
City of West Haven [\$1,307,148 match]	\$1,307,148	Planning and design for nutrient removal at sewage treatment plants	LIS Infrastructure 04/05
City of Ansonia [\$120,000 match]	\$120,000	Planning and design for nutrient removal at sewage treatment plants	LIS Infrastructure 01
City of Ansonia [\$1,199,397 match]	\$1,199,397	Planning and design for nutrient removal at sewage treatment plants	LIS Infrastructure 05
<b>County Total:</b>	<b>\$3,133,302</b>		
<b>Fairfield County</b>			
<b>Community/Organization</b>	<b>Federal Funds</b>	<b>Project Description</b>	<b>LIS Funding Source</b>
City of Norwalk [\$50,000 match]	\$35,000	Implement six storm water Best Management Practices (BMPs) in order to reduce sediment and pollutants reaching Norwalk Harbor. After installation, water quality will be monitored for several rainfall events and the results will be used to develop a City-wide	LISSEFF/EPA

		plan for storm water management.	
Friends of Sherwood Island State Park, Inc. [\$20,000 match]	\$20,000	Conduct an educational program, <i>Habitats: Nature's Classroom</i> , to describe and demonstrate the existing habitats and inhabitants of Sherwood Island and Long Island Sound. A permanent display will be created that will address awareness, understanding and conservation of species and habitats present on Sherwood Island and in the Sound.	LISSFF/EPA
Sacred Heart University [\$13,050 match]	#30,000	Conduct research on and educate the public about the economic and ecological importance of horseshoe crabs in Long Island Sound. The public will be educated through direct involvement, educational displays, scientific papers, presentations, and a website. Training sessions will be provided for community members to participate in the research, with at least 50 teachers from several school districts and their K-12 students participating to learn to measure, tag, and record data for the project.	LISSFF/EPA/NOAA
Saugatuck Watershed Partnership [\$11,000 match]	\$25,000	Create a watershed partnership and Watershed Action Plan to foster protection and enhancement of biodiversity within the Saugatuck River Watershed. Three workshops will be organized for representatives from each of the eleven towns within the watershed including environmental experts, natural resources agencies and stakeholder groups to develop the Watershed Action Plan.	LISSFF/EPA/NOAA
Town of Stratford [\$1,713,486 match]	\$1,713,486	Planning and design for nutrient removal at sewage treatment plants	LIS Infrastructure 0203
Town of Greenwich [\$25,000 match]	\$40,000	Install an observation walkway to a local fishway providing safe, direct access to the facility for town staff, volunteers, students, and the general public to observe the winter to spring migration of thousands of alewife, blueback herring, gizzard shad, and American eel.	LISFF/NOAA

Town of Stratford [\$1,713,486 match]	\$1,713,486	Planning and design for nutrient removal at sewage treatment plants	LIS Infrastructure 03
<b>County Total:</b>	<b>\$3,491,972</b>		
<b>Hartford County</b>			
<b>Community/Organization</b>	<b>Federal Funds</b>	<b>Project Description</b>	<b>LIS Funding Source</b>
Friends of the Hockanum River Linear park of Vernon, Inc. [\$14,000 match]	\$25,000	Collect and evaluate chemical and biological water quality monitoring data at up to 8 key locations within the Tankerhoosen River Watershed. Current baseline water quality conditions will be established, water quality impacts from potential point and non-point pollution sources will be identified, and a water quality database for the watershed to guide environmental decision-making and measure the progress toward meeting water quality goals in the watershed will begin to be developed.	LISSEFF/EPA
City of Bristol [\$29,250 match]	\$29,250	Planning and design for nutrient removal at sewage treatment plants	LIS Infrastructure 02
Town of Enfield [\$12,579 match]	\$12,579	Planning and design for nutrient removal at sewage treatment plants	LIS Infrastructure 02
MDC [\$27,500 match]	\$27,500	Planning and design for nutrient removal at sewage treatment plants	LIS Infrastructure 02
MDC [\$128,906 match]	\$128,906	Planning and design for nutrient removal at sewage treatment plants	LIS Infrastructure 0203
Town of Plainville [\$608,308 match]	\$678,276	Planning and design for nutrient removal at sewage treatment plants	LIS Infrastructure 02
Town of Plainville [\$275,049 match]	\$275,049	Planning and design for nutrient removal at sewage treatment plants	LIS Infrastructure 04
Town of Plainville [\$77,500 match]	\$77,500	Planning and design for nutrient removal at sewage treatment plants	LIS Infrastructure 01
Town of Windsor Locks [\$95,800 match]	\$95,800	Planning and design for nutrient removal at sewage treatment	LIS Infrastructure 02

		plants	
<b>County Total:</b>	<b>\$1,349,860</b>		
<b>Middlesex County</b>			
<b>Community/Organization</b>	<b>Federal Funds</b>	<b>Project Description</b>	<b>LIS Funding Source</b>
Old Saybrook Land Trust [\$56,354 match]	\$75,000	Repair the Ingham Hill Pond Dam and install a fishway pass unit. The project will provide a path for migrating Atlantic salmon, alewife, blueback herring and brown trout in a watershed which is currently being considered for designation as a Federal Wild and Scenic River.	USFWS/NOAA
District of Mattabassett [\$10,195 match]	\$10,195	Planning and design for nutrient removal at sewage treatment plants	LIS Infrastructure 02
District of Mattabassett [\$249,275 match]	\$249,277	Planning and design for nutrient removal at sewage treatment plants	LIS Infrastructure 01
Town of Meriden [\$989,733 match]	\$989,733	Planning and design for nutrient removal at sewage treatment plants	LIS Infrastructure 04
<b>County Total:</b>	<b>\$1,324,205[</b>		
<b>Windham County</b>			
<b>Community/Organization</b>	<b>Federal Funds</b>	<b>Project Description</b>	<b>LIS Funding Source</b>
Town of Windham [\$1,053,500 match]	\$989,500	Planning and design for nutrient removal at sewage treatment plants	LIS Infrastructure 02
Town of Windham [\$85,525 match]	\$85,525	Planning and design for nutrient removal at sewage treatment plants	LIS Infrastructure 01
Town of Thompson [\$57,850 match]	\$57,850	Planning and design for nutrient removal at sewage treatment plants	LIS Infrastructure 02
Putnam [\$59,995 match]	\$59,995	Planning and design for nutrient removal at sewage treatment plants	LIS Infrastructure 01
Town of Killingly [\$96,355 match]	\$96,355	Planning and design for nutrient removal at sewage treatment plants	LIS Infrastructure 01

Town of Plainfield [\$24,500 match]	\$24,500	Planning and design for nutrient removal at sewage treatment plants	LIS Infrastructure 01
<b>County Total:</b>	<b>\$1,377,725</b>		
<b>Litchfield County</b>			
<b>Community/Organization</b>	<b>Federal Funds</b>	<b>Project Description</b>	<b>LIS Funding Source</b>
Town of Winsted [\$53,450 match]	\$44,200	Planning and design for nutrient removal at sewage treatment plants	LIS Infrastructure 0203
Town of Winsted [\$23,250 match]	\$23,250	Planning and design for nutrient removal at sewage treatment plants	LIS Infrastructure 01
City of Torrington [\$101,172 match]	\$101,172	Planning and design for nutrient removal at sewage treatment plants	LIS Infrastructure 01
<b>County Total:</b>	<b>\$177,872</b>		
<b>Tolland County</b>			
<b>Community/Organization</b>	<b>Federal Funds</b>	<b>Project Description</b>	<b>LIS Funding Source</b>
Town of Stafford [\$57,410 match]	\$57,410	Planning and design for nutrient removal at sewage treatment plants	LIS Infrastructure 01
Town of Stafford [\$19,500 match]	\$19,500	Planning and design for nutrient removal at sewage treatment plants	LIS Infrastructure 04
<b>County Total:</b>	<b>\$76,910</b>		

## **Appendix C**



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

<b>Total Nitrogen Wasteload Allocation for New York Point Source Discharges.</b>							
<b>Facility (Capacity, MGD)</b>	<b>Baseline End-of-Pipe (lbs/day)</b>	<b>TMDL WLA End-of-Pipe (lbs/day) 2014</b>	<b>2005 Nitrogen Discharge (lbs/day)</b>	<b>BNR Upgrade Planned (Yes/No)</b>	<b>Year Upgrade To Be/or Completed</b>	<b>Cost Estimate \$\$ (M)</b>	<b>2014 Design Capability (Mg/l)</b>
<b>Zone 7</b>							
Mamaroneck (20.6)	2135	829	1429	yes	unknown	unknown	unknown
Port Chester (6.0)	563	219	632	yes	unknown	unknown	unknown
Blind Brook (5.0)	338	131	304	yes	unknown	unknown	unknown
New Rochelle (13.6)	1516	589	1802	yes	unknown	unknown	unknown
North Castle ( ? )	33	13	33				
<b>Subtotal</b>	4585	1780	4,200				
<b>Zone 8</b>							
Wards Island (250)	43140	17903	28600	yes	2009	\$776	
Hunts Point (200)	28630	11881	21100	yes	2007	\$497	
Bowery Bay (150)	17270	7167	20000	yes	2010	\$486	
Tallman Island (80)	6860	2847	8500	yes	2009	\$308	
CSOs	3170	1316					
<b>Subtotal</b>	99070	41114	78200				
<b>Zone 9</b>							
Newtown Creek (310)	45270	18787	35100	no			
Red Hook (60)	4610	1913	4100	no			
CSOs	1721	714					
<b>Subtotal</b>	51601	21414	39200				
<b>Zone 10</b>							
Belgrave (2.0)	213	77	277	yes	2006	\$3.5	5-6
Glen Cove (8.0)	893	323	234	yes	2003	\$3.4	4-5
Great Neck SD (3.8)	457	165	461	yes	2006	\$18	0
Great Neck (Village) (1.5)	212	77	228	yes	2006	inc.above	0

<b>Total Nitrogen Wasteload Allocation for New York Point Source Discharges.</b>							
<b>Facility (Capacity, MGD)</b>	<b>Baseline End-of-Pipe (lbs/day)</b>	<b>TMDL WLA End-of-Pipe (lbs/day) 2014</b>	<b>2005 Nitrogen Discharge (lbs/day)</b>	<b>BNR Upgrade Planned (Yes/No)</b>	<b>Year Upgrade To Be/or Completed</b>	<b>Cost Estimate \$\$ (M)</b>	<b>2014 Design Capability (Mg/l)</b>
Oyster Bay (1.8)	220	80	194	yes	2006	\$9.1	4-5
Port Washington (4.0)	655	237	438	yes	2008	\$22.7	6
<b>Subtotal</b>	2650	958	1832				
<b>Zone 11 West</b>							
SUNY (SCSD #21) (2.5)	208	40	62	**	2006	\$14.2	4-5
Port Jefferson (SCSD1) (.85)	202	39	131	yes	2006	\$14.2	4-5
Huntington (2.5)	448	87	295	yes	2005	\$10.5	4-5
Kings Park (SCSD #6) (2.0)	134	26	51	yes	2004	\$9.3	4-5
Northport (Village) (.34)	52	10	52	yes	2004	\$1.5	5-6
<b>Subtotal</b>	1044	202	591				
<b>Zone 11 East</b>							
Greenport (Village) (?)	76	11	76	yes	2005	\$1.5	7
<b>Total Zones 7-11</b>	159026	65479	124099				

\*\*currently denitrifying, considering recharge

**Wasteload Allocation and Upgrade Progress  
by Management Zone -- Connecticut**

<b>Total Nitrogen Wasteload Allocation for Connecticut Point Source Discharges.</b>							
<b>Facility</b>	<b>Baseline End-of- Pipe (lbs/day)</b>	<b>WLA End- of-Pipe (lbs/day) 2014</b>	<b>2005 Nitrogen Discharge (lbs/day)</b>	<b>BNR Upgrade Planned (Yes/No) *</b>	<b>Year Upgrade To Be/or Completed</b>	<b>Cost Estimate \$\$ (M) **</b>	<b>Design Capability (Mg/l) ****</b>
<b>Zone 1</b>							
Groton City	272	99	132	*	-	-	Phase II
Groton Town	420	153	445	*	-	-	Phase II
Jewett City	42	15	13	Yes	2005	1.5	Phase III
Killingly	359	131	176	*	-	-	Monitoring
Ledyard	20	7	5	Yes	1997	0.35	Phase III
Montville	323	118	92	*	-	-	Phase II
New London	1057	386	440	Yes	2002	2.67	Phase II
Norwich	550	201	748	*	-	-	Monitoring
Plainfield North	94	34	90	*	-	-	Monitoring
Plainfield Village	65	24	49	*	-	-	Monitoring
Putnam	145	53	193	*	-	-	Monitoring
Sprague	20	7	13	*	-	-	Monitoring
Stafford Springs	164	60	131	*	-	-	Monitoring
Stonington Borough	37	14	47	*	-	-	Monitoring
Stonington Mystic	74	27	48	*	-	-	Monitoring
Stonington Pawcatuck	66	24	30	*	-	-	Monitoring
Thompson	28	10	33	*	-	-	Monitoring
UConn	120	44	65	Yes	1996	1.058	Phase II
Windham	344	125	166	*	-	-	Monitoring
Pfizer (Industrial)	2900	1059	99	N/A	-	-	-
<b>Subtotal</b>	<b>7100</b>	<b>2591</b>	<b>3015</b>				

<b>Total Nitrogen Wasteload Allocation for Connecticut Point Source Discharges.</b>							
<b>Facility</b>	<b>Baseline End-of-Pipe (lbs/day)</b>	<b>WLA End-of-Pipe (lbs/day) 2014</b>	<b>2005 Nitrogen Discharge (lbs/day)</b>	<b>BNR Upgrade Planned (Yes/No)</b>	<b>Year Upgrade To Be/or Completed</b>	<b>Cost Estimate \$\$ (M)**</b>	<b>Design Capability (Mg/l)</b>
<b>Zone 2</b>							
Bristol	1091	398	569	Yes	2004	0.584	Phase II
Canton	66	24	106	*	-	-	Monitoring
Mattabassett	2285	834	1413	*	-	-	Monitoring
East Hampton	148	54	85	Yes	2001	0.69	Phase II
East Hartford	801	292	803	Yes	2007	1.96	Phase II
East Windsor	163	59	45	Yes	1996	1.0	Phase III
Enfield	763	278	542	Yes	2004	1.76	Phase II
Farmington	486	178	400	*	-	-	Monitoring
Glastonbury	268	98	214	*	-	-	Monitoring
Hartford	6512	2377	6795	*	-	-	Monitoring
Manchester	855	312	773	*	-	-	Monitoring
Middletown	569	208	485	*	-	-	Monitoring
Plainville	277	101	285	*	-	-	Monitoring
Plymouth	114	42	75	*	-	-	Phase II
Portland	86	31	31	Yes	2002	1.05	Phase III
Rocky Hill	789	288	917	*	-	-	Monitoring
Simsbury	293	107	368	Yes	2007	4.18	Phase III
South Windsor	289	106	343	*	-	-	Monitoring
Suffield	122	45	72	*	-	-	Phase III
Vernon	504	184	489	*	-	-	Monitoring
Windsor Locks	180	66	143	Yes	2003	1.84	Phase II
Windsor Poquonock	268	98	466	*	-	-	Monitoring
Winsted	175	64	207	*	-	-	Monitoring
<b>Subtotal</b>	17104	6244	15628				

Total Nitrogen Wasteload Allocation for Connecticut Point Source Discharges.							
Facility	Baseline End-of-Pipe (lbs/day)	WLA End-of-Pipe (lbs/day) 2014	2005 Nitrogen Discharge (lbs/day)	BNR Upgrade Planned (Yes/No)	Year Upgrade To Be/or Completed	Cost Estimate \$\$ (M)	Design Capability (Mg/l)
<b>Zone 3</b>							
Branford	526	192	135	Yes	2003	3.158	Phase III
Cheshire	281	103	480	Yes	2007	5.78	Phase III
Meriden	1230	449	783	*	-	-	Monitoring
New Haven East	4294	1568	1702	Yes	1997	8.2	Phase III
North Haven	433	158	420	Yes	2006	1.0	Phase III
Southington	557	204	758	*	-	-	Monitoring
Wallingford	737	269	665	Yes	2006	2.28	Phase III
West Haven	967	353	601	Yes	1996	0.75	Phase II
Cytec (Industrial)	2543	928	954	N/A	-	-	
Upjohn (Industrial)	309	113		N/A	-	-	
<b>Subtotal</b>	11877	4337	6499				

Total Nitrogen Wasteload Allocation for Connecticut Point Source Discharges.							
Facility	Baseline End-of-Pipe (lbs/day)	WLA End-of-Pipe (lbs/day) 2014	2005 Nitrogen Discharge (lbs/day)	BNR Upgrade Planned (Yes/No)	Year Upgrade To Be/or Completed	Cost Estimate \$\$ (M)	Design Capability (Mg/l)
<b>Zone 4</b>							
Ansonia	314	115	286	*	-	-	Monitoring
Beacon Falls	33	12	40	*	-	-	Monitoring
Danbury WPC	1211	442	1768	*	-	-	Monitoring
Derby	195	71	59	Yes	2000	0.677	Phase II
Heritage Village	54	20		<b>This is a private Plant.</b>	<b>No data</b>	<b>Available.</b>	
Litchfield	64	24	49	Yes	2004	1.0	Phase III
Milford Beaver Brook	258	94	126	Yes	1996	1.0	Phase II
Milford Housatonic	844	307	480	Yes	2008	36.4	Phase III
Naugatuck Treatment Co.	675	246	276	*	-	-	Phase II
New Milford	66	24	90	*	-	-	Monitoring
Newtown	115	42	24	Yes	1997	1.06	Phase II

<b>Total Nitrogen Wasteload Allocation for Connecticut Point Source Discharges.</b>							
<b>Facility</b>	<b>Baseline End-of-Pipe (lbs/day)</b>	<b>WLA End-of-Pipe (lbs/day) 2014</b>	<b>2005 Nitrogen Discharge (lbs/day)</b>	<b>BNR Upgrade Planned (Yes/No)</b>	<b>Year Upgrade To Be/or Completed</b>	<b>Cost Estimate \$\$ (M)</b>	<b>Design Capability (Mg/l)</b>
<b>Zone 4</b>							
Norfolk	30	11	20	*	-	-	Monitoring
North Canaan	36	13	30	*	-	-	Monitoring
Salisbury	58	21	28	*	-	-	Monitoring
Seymour	167	61	70	Yes	1993	0.25	Phase II
Shelton	290	106	501	Yes	2008	4.29	Monitoring
Southbury T.S.	41	15	14	*	-	-	Monitoring
Stratford	974	356	536	Yes	1996	0.8	Phase II
Thomaston	114	42	45	Yes	2001	1.16	Phase III
Torrington	680	248	252	*	-	-	Phase II
Waterbury	2766	1010	964	Yes	2000	17.36	Phase III
Watertown ***	106	39		<b>This Plant is Closed.</b>			
Unknown Industrial	1152	420		<b>N/A</b>			
<b>Subtotal</b>	10243	3739	5658				

<b>Total Nitrogen Wasteload Allocation for Connecticut Point Source Discharges.</b>							
<b>Facility</b>	<b>Baseline End-of-Pipe (lbs/day)</b>	<b>WLA End-of-Pipe (lbs/day) 2014</b>	<b>2005 Nitrogen Discharge (lbs/day)</b>	<b>BNR Upgrade Planned (Yes/No)</b>	<b>Year Upgrade To Be/or Completed</b>	<b>Cost Estimate \$\$ (M)</b>	<b>Design Capability (Mg/l)</b>
<b>Zone 5</b>							
Bridgeport East	991	362	435	Yes	2004	2.09	Phase II
Bridgeport West	2852	1041	1467	Yes	2004	2.37	Phase II
Fairfield	1113	406	384	Yes	2003	15.96	Phase III
Westport	238	87	148	Yes	2008	8.25	Phase II
<b>Subtotal</b>	5194	1896	2434				
<b>Zone 6</b>							
Greenwich	1313	479	555	Yes	1996	0.5	Phase II
New Canaan	175	64	30	Yes	2000	1.235	Phase III

<b>Total Nitrogen Wasteload Allocation for Connecticut Point Source Discharges.</b>							
<b>Facility</b>	<b>Baseline End-of-Pipe (lbs/day)</b>	<b>WLA End-of-Pipe (lbs/day) 2014</b>	<b>2005 Nitrogen Discharge (lbs/day)</b>	<b>BNR Upgrade Planned (Yes/No)</b>	<b>Year Upgrade To Be/or Completed</b>	<b>Cost Estimate \$\$ (M)</b>	<b>Design Capability (Mg/l)</b>
Norwalk	1967	718	810	Yes	2000	6.64	Phase II
Ridgefield South St.	80	29	36	Yes	1996	0.2	Phase III
Stamford	2536	926	1412	Yes	2006	59.5	Phase III
<b>Subtotal</b>	6071	2216	2843				
<b>Total Zones 1-6</b>	57589	21023	36073				

- **\* -- 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**

# Glossary of Acronyms

## **A**

ACOE Army Corps of Engineers

## **B**

B Billion  
BAT Best Available Technology  
BMP(s) Best Management Practice(s)  
BNR Biological Nutrient Reduction (Removal)  
BOD Biological Oxygen Demand

## **C**

CAC Citizens Advisory Committee  
CCMP Comprehensive Conservation and Management Plan  
CD Compact Disc  
CD-ROM Compact Disc - Read-Only Memory  
CERCLA Comprehensive Environmental Response, Compensation and Liability Act (Superfund)  
CES Cooperative Extension Service  
CSO(s) Combined Sewer Overflow(s)  
CT Connecticut  
CTDEP Connecticut Department of Environmental Protection  
CTDOA Connecticut Department of Agriculture  
CTDOA/BA Connecticut Department of Agriculture Bureau of Aquaculture  
CTDOHS Connecticut Department of Health Services  
CTDOT Connecticut Department of Transportation  
CVA Clean Vessel Act  
CWA Clean Water Act  
CZM Coastal Zone Management  
CZMA Coastal Zone Management Act

## **D**

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

## **E**

EIS Environmental Impact Statement  
EMPACT Environmental Monitoring for Public Access and Community Tracking (EPA)  
EPF Environmental Protection Fund (New York State)

## **F**

FY Fiscal Year  
FFY Federal Fiscal Year

## **G**

GIS Geographic Information System

## **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

## Long Island Sound Study

## 2005 CCMP Implementation Tracking Report

k kilogram  
km Kilometer  
Km<sup>2</sup> 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<sub>x</sub> Nitrous Oxide  
NPDES National Pollutant Discharge Elimination System  
NPS Nonpoint Source(s)  
NRCS Natural Resource Conservation Service

### N (Cont'd)

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

O  
O<sub>2</sub> 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

**U (Cont'd)**

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

To obtain copies of this report, contact:

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