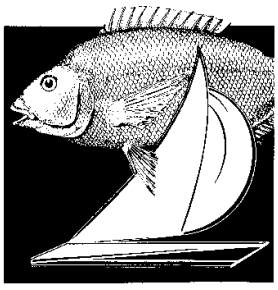

LONG ISLAND SOUND STUDY

A Partnership to Restore and Protect the Sound

2009 Comprehensive Conservation and Management Plan Implementation Tracking Report

January — December 2009

THE LONG ISLAND SOUND STUDY

A Partnership to Restore and Protect the Sound

August 2010

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 date 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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SUMMARY

HYPOXIA

The total 2009 nitrogen load from the 106 New York and Connecticut sewage treatment plants (STPs) that discharge into Long Island Sound is estimated at 39,011Trade-equalized pounds per day. Under the Long Island Sound Total Maximum Daily Load (TMDL) for nitrogen, each STP is assigned a numerical factor that provides a mathematical means of calculating the relative impact of nitrogen it discharges, depending on the STPs' distance and other factors, from the Sound. The 2009 discharge represents a decrease of more than 20,000 TE lbs/day from the TMDL baseline of 59,146 TE lbs/day. Annualized over the 15 year life of the TMDL, the 2009 TE discharge total represents achieving 55 percent of the 2014 goal of 22,774 TE lbs/day.

The maximum area of low dissolved oxygen less than 3 milligrams per liter in the Sound in Summer 2009 covered an estimated 169 square miles at peak lasting for 45 days. The pre-TMDL average from 1987-1999 is 208 square miles and 58 days, while the post-TMDL average from 200-2009 is 186 square miles and 58 days.

LIVING RESOURCES and HABITATS

The program restored 656 acres from 1998-2008 goal period. The LISS met its goal to reopen 100 miles of river corridor to diadromous fish passage, with 145 miles reopened in the 10 year period. The habitat restoration goal continues to be hampered by the inherent complexity of coordinating and managing on-the-ground construction projects with the various levels of state and local governments and public and private property owners. Obtaining adequate funding for restoration projects remains problematic. Often funding sources need to be 'cobbled' together and coordinated with on-the-ground work, adding to the complexity of accomplishing projects.

TOXICS, PATHOGENS and FLOATABLES

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

PUBLIC INVOLVEMENT and EDUCATION.

The Citizens Advisory Committee met in March, June, September, and December 2009. The CAC continued to provide advice to the LISS on program implementation. The Long Island Sound Study's new and revised website, www.longislandsoundstudy.net continues to resonate with the public as new features and information have been added. Website page visits are on the increase, showing a steady public interest in the Sound and its ecosystems. The Small Grants program continued to provide opportunities for citizen involvement and citizen education by funding projects at the local level

SCIENCE and RESEARCH

The LISS Science and Technical Advisory Committee (STAC) met in February, June and November 2009. The STAC elected a new Connecticut co-chair in 2009, Dr. Carmela Cuomo of the University of New Haven, replacing Dr. Charles Yarish of UConn, who stepped down after many long years of service with the STAC and LISS. Ongoing LISS-funded research projects include the development and publication of a synthesis of the scientific research and data on the Sound; a synthesis of water quality monitoring and planktonic data. Projects completed in 2009 include development of a water quality index using cluster analysis and analysis of the SWEM model.

MANAGEMENT and FUNDING

The Management Committee met in January, April, July and October 2009. The 2009 federal budget for the Study totaled $3.5 million, which funds key base program functions and staff positions for the Management Conference. The Long Island Sound base program consists of the water quality monitoring program conducted by the Connecticut Department of Environmental Protection; the public information, education and outreach program conducted by the New York and Connecticut Sea Grant programs; the Long Island Sound Futures Fund large and small grants program administered by the National Fish and Wildlife Foundation; the CCMP Enhancements Projects grant program, administered by the New England Interstate Water Pollution Control Commission; and the Long Island Sound Research grant program jointly administered by the New York Sea Grant program and the Connecticut Sea Grant program.

For federal fiscal year 2010, which runs from October 1, 2009 through September 30, 2010, the LISS budget totaled $7.8 million, a significant increase from 2009 and the most funding ever appropriated for the LISS

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CONTINUING THE MANAGEMENT CONFERENCE

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

CCMP STRATEGY:

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

LIS 2003 AGREEMENT GOAL:

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

2009 HIGHLIGHTS:

- Long Island Sound is included in EPA's Strategic Plan for 2006-2011 under Goal 4, *Healthy Communities and Ecosystems.* The Plan includes four key sub-objectives and may be viewed, ordered or downloaded at EPA's website: www.epa.gov/ocfopage/plan/plan.htm. EPA will be revising its strategic plan beginning in FY2011 covering a new six year period.

- Congress appropriated $3.5 million for the LISS in 2009 under the Omnibus Appropriations Act in the *Environmental Programs and Management* appropriation.

- The STAC met in April, July and November 2009. Progress continued on developing the Long Island Sound synthesis document, which will provide a sweeping overview of scientific research in the Sound.

- The CAC met in March, June, September, and December. In light of Federal Stimulus legislation, the CAC compiled a Long Island Sound Economic Recovery Package outlining the funding needs for LIS including a NY Bond Act, increased loans and funding and the creation of jobs. The package was distributed to Representatives of the LIS Congressional Caucus, CT Governor Rell, and NY Governor Paterson.

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.

	2009 Description	2010 Planned Action
1.	Congress continued to fund the LISS in FY2009 under Clean Water Act Sections 119 and 320. The LISS budget in 2009 was $3.53 million.	The FY2010 budget for LIS is $7.8 million.
2.	Long Island Sound is a subobjective in EPA's Strategic Plan for 2006-2011 under *Goal 4, Healthy Communities and Ecosystems, Objective 4.3 Restore and Protect Critical; Ecosystems, Sub-objective 4.3.6: Restore and Protect Long Island Sound.* Four strategic measures with targets for Long Island Sound include: 1) reduction of point source nitrogen loads to the Sound; 2) reduction in the size and duration of the hypoxic zone in the Sound; 3) protection and restoration of coastal habitat; and 4) reopening of river corridors to diadromous fish passage. Each of these targets has baseline, interim and 2011 goals. EPA's Strategic Plan is available at: www.epa.gov/ocfopage/plan/plan.htm	EPA will be revising its Strategic Plan for 2010-2015 in FY2010. Long Island Sound is expected to continue as a strategic objective in the new plan.
3.	The Management Committee met in January, April, July, and October. The Committee held its fifth annual two-day session in October to review progress in CCMP implementation and to consider ways and means of better coordinating and implementing actions. The Committee established its priorities for 2010.	The Committee will continue to meet in 2010 to address issues of concern to LIS.
4.	The Science and Technical Advisory Committee (STAC) met in April, July, and November. The STAC elected a new CT co-chair, and welcomed two new LIS Fellows, the CT Fellow from UConn, and the NY Fellow from Stony Brook University. The Fellows initiated projects to study methylmercury in the Sound and climate change impacts on copepods. The STAC had briefings from the outgoing Fellows from UConn and SBU. Work continued on the LIS ecosystem data synthesis project to summarize scientific work in several disciplines and produce a volume dedicated to LIS scientific research.	Continue STAC meetings in 2010 and continue to develop and refine LIS research needs based on extant scientific research.
5.	The Citizens Advisory Committee met in March, June, September, and December. The CAC welcomed one new member and as of December 2009 consisted of 36 members organizations. In 2009 the CAC compiled a Long Island Sound Economic Recovery Package outlining the funding needs for LIS including a NY Bond Act, increased loans and funding and the creation of jobs. The package was distributed to Representatives of the LIS Congressional Caucus, CT Governor Rell, and NY Governor Paterson. The CAC drafted a letter which identified its priorities for implementing the LISS CCMP. The Committee reached out to staff of CT DEP and NY DEC for input. The seven priority areas included: Water Quality, Stewardship and Habitat, Wildlife and Marine Resources, Closing the Gaps: Mapping, Monitoring, and Research, Dredging, Climate Change, and Public Education and Outreach. This letter was presented to the Management Committee for LISS 2010 funding. The CAC identified the 400th anniversary of Adrian Block's exploration of LIS coming in 2014 as a special opportunity to celebrate LIS.	The CAC will continue to increase its representation and advocate for the full $40 million appropriation for the LISS and $25 million for the LIS Stewardship initiative.
6.	The EPA LISO continued to coordinate the work of the Management Committee, the STAC, and CAC and continued to support implementation efforts of LISS work groups -- the Nutrients Work Group, Nonpoint Source Work Group, the Connecticut River Work Group, the Habitat Restoration Team, Implementation Team, the Stewardship Work Group, Sentinel Monitoring Work Group. Each of these groups developed and implemented annual work plans linked to the LISS budget request, and are reported elsewhere in this report. The LISO continued coordination of the Management Conference, development of the annual budget and NEP work plan, and the LISS scientific research agenda. In 2009 the LISO assisted NOAA in funding a NOAA ecologist to work on living marine resources and scientific research in support of the LISS; the new staff person came on board in February 2009. The LISS underwent the NEP triennial review process from March – July 2009. A review team from EPA HQ came on-site to review progress in implementing the CCMP. The final review letter was submitted to EPA in October 2009 and the LISS was given a passing grade, making it eligible for continued Section 320 funding.	The LISO will continue to support implementation of the CCMP and the Management Conference partners.

ELIMINATING ADVERSE IMPACTS OF LOW DISSOLVED OXYGEN IN THE SOUND

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

CCMP STRATEGY:

The CCMP identifies a five-part strategy to address the elimination of adverse impacts of low dissolved oxygen on the aquatic habitat and living marine resources of the Sound by: 1) reducing nitrogen from sewage treatment plants (STPs) and other point sources; 2) reducing nitrogen loads from nonpoint sources; 3) continuing the coordinated management of hypoxia; 4) funding implementation of hypoxia management plans; and 5) monitoring and assessing hypoxic conditions and impacts.

LIS 2003 AGREEMENT GOAL:

Eliminate the adverse impacts of hypoxia resulting from human activities. The management goals are to achieve the nitrogen reduction targets in Connecticut and New York and to establish Phase IV nitrogen reduction agreements to address atmospheric deposition and watershed management for portions of the Long Island Sound watershed outside of New York and Connecticut. Connecticut and New York are continuing to make progress in reducing nitrogen loads to the Sound by 58.5 percent. The LISS continues work to identify and validate sources of nitrogen from upland states as an antecedent to developing formal agreements with these jurisdictions and to revise the Total Maximum Daily Load (TMDL) for nitrogen deposition to the Sound.

ENVIRONMENTAL INDICATORS/RESULTS/TRENDS:

Total point source nitrogen loads delivered to Long Island Sound in 2009 decreased by more than 20,000 Trade-equalized (TE) lbs/day from the baseline (see Figure 1). There has been relatively flat progress in reducing point source nitrogen to the Sound over the last four years due to several factors. Several New York City STPs have been under construction for nitrogen removal upgrades and storage and processing capacity has been reduced as a result. This 'bulge' in the nitrogen reduction curve will last for several more years until STP upgrades are completed. Weather and rainfall also affect STPs' ability to effectively remove nitrogen, and the environmental response of the ecosystem is unpredictable. In Summer 2009, the maximum area of hypoxia (less than 3.0 mg/l dissolved oxygen (DO)) covered an estimated 169 square miles at peak, and lasted 45 days compared to the pre-TMDL averages of 208 square miles and 57 days. The maximum area affected by hypoxia in 2009 represents approximately 14 percent of the total surface area (1,218 mi^2) of the Sound and the duration of the hypoxic event represents 12 percent of the calendar year.

2009 HIGHLIGHTS:

- The estimated nitrogen load from STPs in the LIS drainage basin in 2009 is approximately 39,011 TE lbs/day, a decrease of 20,135 TE lbs/day from the baseline. Figure 1 shows point source nitrogen load reductions since 1994. Appendices B and C show the plant-by plant loads in New York and Connecticut.

- In 2009, the maximum area and duration of dissolved oxygen less than 3 mg/l observed in LIS was 169 mi^2 and 45 days. The 13-year pre-TMDL averages are 208 mi^2 and 57 days. The post-TMDL (10 year) averages are 186 mi^2 and 58 days. Figure 2 shows the area and duration of hypoxia over time with pre- and post-TMDL averages.

- In 2009 Connecticut public-noticed a proposed revision to its water quality standards developed under Clean Water Act Section 303(d). These proposed amendments are made with the intent to ensure that Connecticut's Water Quality Standards reflect the best available science, and support water quality management policies to improve and protect the water resources. The public comment period was extended into 2010 and is being reviewed before final revisions.

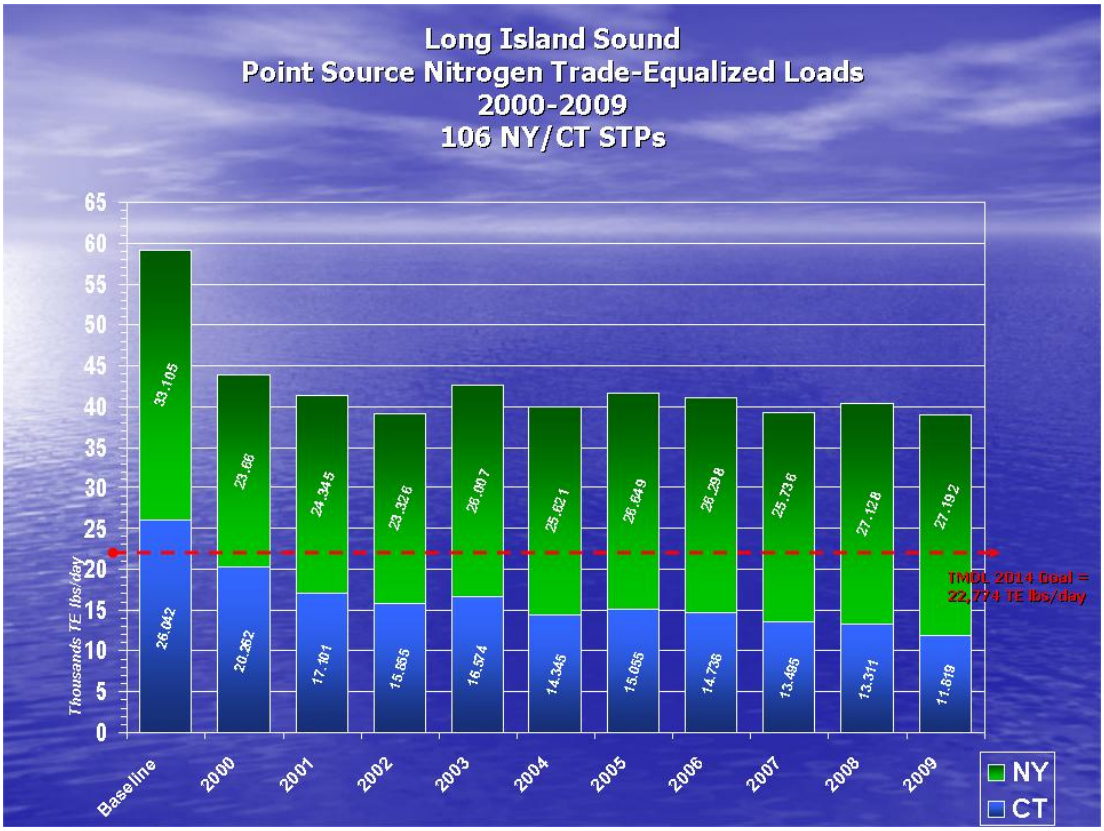

Figure 1

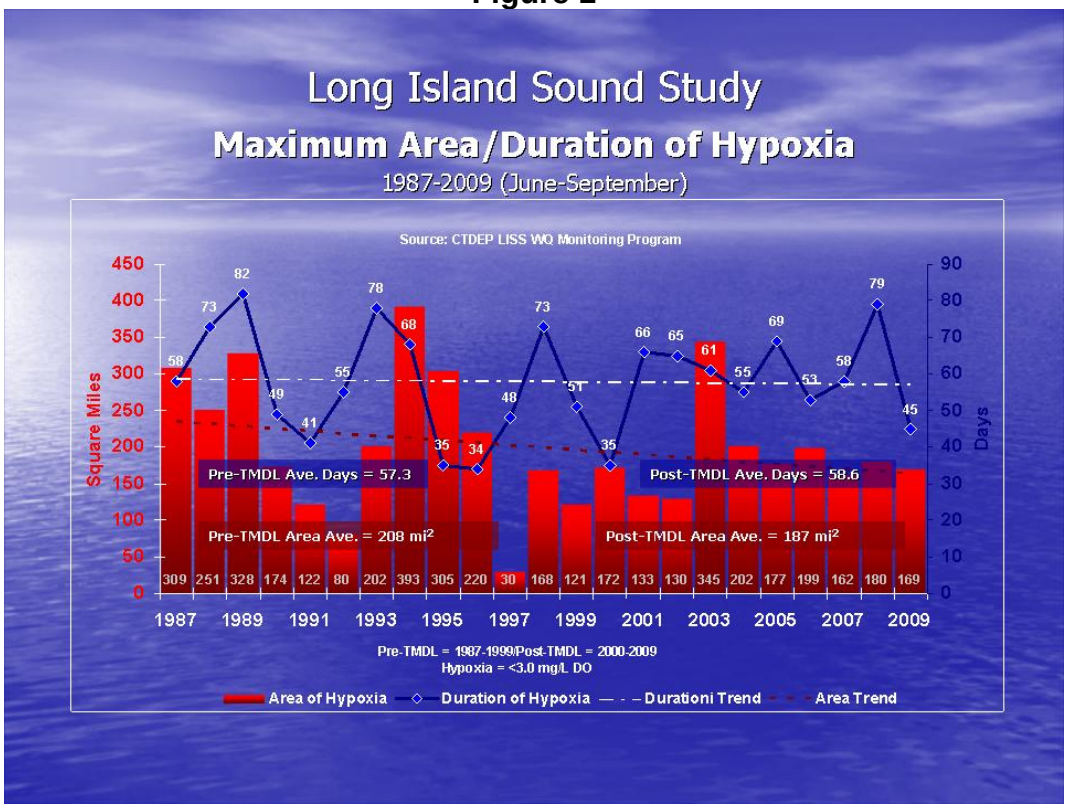

Figure 2

SUMMARY OF CCMP MANAGEMENT ACTIONS: HYPOXIA

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

KEY ELEMENTS: THE STATES OF CONNECTICUT AND NEW YORK COMMITTED TO REDUCE NITROGEN LOADS IN THEIR PORTIONS OF THE LONG ISLAND SOUND BASIN USING A MIXED APPROACH OF STP RETROFITS, PILOT STUDIES AND UPGRADES UNDER EXISTING PERMITTING AUTHORITIES. WITH ADOPTION OF THE TMDL, STATE REQUIREMENTS TO REMOVE NITROGEN LOADS HAVE BEEN FORMALIZED AND EXPANDED BEYOND THE ORIGINAL COMMITMENTS IN THE CCMP.

	2009 Description	2010 Planned Action
1.	The total estimated point source (end of pipe) nitrogen load to LIS in 2009 was 39,011 Trade-Equalized lbs/day, a decrease of more than 20,000 TE lbs/day from the base TMDL level of 59,146 TE lbs/day. Trade-Equalized (TE) pounds consider the transport efficiency factor of each Management Zone established in the TMDL. Factors vary from 1.0 to 0.13 depending on calculated efficiency of nitrogen transport to the Sound. For example, a pound of nitrogen from the Stratford, CT STP would be equivalent to 0.62 pounds of nitrogen from a Glen Cove, NY STP New York loads totaled 27,192 TE lbs/day. Construction work at New York City STPs to upgrade facilities for nitrogen control is underway, with the Wards Island (WI) facility coming on line in fall 2009 with the new SHARON treatment process. The City has taken much holding and processing capacity off-line during construction work, which temporarily increases its nitrogen loads to the Sound. All of the Upper East River WPCPs (Tallman Island, Bowery Bay, Hunts Point, and Wards Island) that represent Management Zone 8 are currently being upgraded for Step Feed BNR in addition to a 1.85 MGD SHARON Process at WI to treat the high strength ammonia stream from the dewatering facility. As a result of the ongoing construction, the nitrogen removal performance is expected to decrease while tanks are out of service but this will ultimately enable the WPCPs to meet the TMDL limits. These upgrades will occur in two phases; the first phase will consist of all the major infrastructure upgrades and is expected to be completed by the end of 2011 at a cost of about $502M strictly for the BNR portion of the ongoing work. The second phase will consist of implementing cost effective supplemental carbon addition in conjunction with minor process enhancements. These facilities are expected to meet the 2014 WLA by 2017. For 2009, Connecticut loads totaled 11,819TE lbs/day compared with 13,314 TE lbs/day in 2008. The decrease in CT loadings is attributed to several plants removing nitrogen beyond waste load allocations. In 2008 three STPs (Hartford, Plainville, and Shelton) completed nitrogen upgrades to participate in the 2009 trading year. In 2009 five CT STPs completed nitrogen upgrades and coming on line to participate in the 2010 Nitrogen Trading year. The five plants are Milford Beaver Brook (Phase 2), Milford Housatonic (Phase 2), Stratford (Phase 2), Danbury and Glastonbury. The total point source reduction as of December 2009 is 55 percent of the total TMDL-required 2014 reduction. There are 106 STPs that collectively discharge more than one billion gallons of treated effluent per day to the Sound. (See Appendices B and C for TMDL targets and 2009 plant-by-plant loadings.)	Continue emphasis on achieving TMDL point source nitrogen reduction targets.
2.	Westchester County had entered into a Consent Order (CO) with NYSDEC that requires the County to address five WPCPs (Blind Brook, Mamaroneck, New Rochelle, Port Chester and North Castle). This CO implemented a SPDES requirement for a 12-month rolling average (12-MRA) for each facility but also included a "4 WWTP Aggregate 12-MRA" for the Blind Brook, Mamaroneck, New Rochelle, and Port Chester WPCPs. This CO requires the County to be in compliance with the 2014 WLA no later than 2017. Demolition has begun on the New Rochelle plant and the County has submitted the Design Report for the Phase I work at the Mamaroneck WWTP.	Ongoing work at the New Rochelle Plant. Waiting for approval of the Deign for the Phase 1 work at the Mamaroneck WWTP.
3.	NYCDEP's Long Term Combined Sewer Overflow (CSO) Control Program "Waterbody/Watershed Plan" for the 11 watersheds was submitted in 2007 and is still under review. This plan has evaluated the impact of CSO discharges throughout all of New York City including the East River tributaries of Alley Creek, the Hutchinson River, Westchester Creek, the Bronx River, Flushing Bay and Creek, and Newtown Creek. A CSO Retention Tank is under construction for Alley Creek. It is likely that CSO controls in the planning stage for the other waterways will also result in a reduction of nitrogen discharges.	The CSO retention tank for Alley Creek is expected to be completed in the summer of 2010.

	2009 Description	2010 Planned Action
4.	The following presents activities and progress by Management Zone in New York (please note that costs presented include disinfection upgrades as needed; all funding for LIS from the NYS Clean Air/Clean Water Bond Act has been committed). Disinfection projects are identified in the "Controlling of Pathogens" section of this report. As of the end of 2009, NY has achieved a 9% reduction in daily nitrogen loading from baseline. Zone 7 –The costs for this Zone are currently estimated at $353 million. • New Rochelle WWTP - Phase 1 is required to be completed by June 30, 2014, and be meeting the 12-MRA for New Rochelle and Mamaroneck WWTP by December 31, 2014. • Mamaroneck WWTP – Phase 1 is required to be completed by December 31, 2012, meeting their individual 12-MRA by June 30, 2013. • Any additional construction identified as being required to meet the Final/4 WWTP 12-MRA must be completed by December 31, 2016. Compliance with the Final/4 WWTP Aggregate 12-MRA must be demonstrated by August 1, 2017. Zone 8 – The costs to upgrade this Zone for BNR portions only are now estimated at $1.3 billion. • Bowery Bay - Phase I Construction of the BNR upgrade began in 2006, with the expected completion by 12/31/12. Phase 2 (carbon addition) of the nitrogen upgrade is expected to be completed by 7/1/16. The estimated cost for this project is $470 million. • Hunts Point – Phase I BNR construction began in April 2003 and is expected to be complete by 6/30/09. Phase 2 (carbon addition) is expected to be compete by 8/1/15. This is a $203 million project. • Tallman Island – Began construction of the nitrogen upgrade May 2006 with an expected completion date of 12/31/11. Phase 2 will be completed by 2017 The estimated cost for this project is $317 million. • Wards Island – Began construction of the nitrogen upgrade April 2006. This is the full build-out for nitrogen treatment which will be used as a pilot for determining what is needed (Phase 2) at the other three plants. This project is due for completion by 12/31/11. The estimated cost for this project is $334 million. The SHARON construction is expected to be completed by 7/31/2010. This is a $142 million project. Zone 9 – Include NYC WPCPs Red Hook and Newtown Creek. In a 2006 Consent Order, NYC negotiated the ability to trade between the two NYC zones. As such, all of the required reductions in nitrogen loading from the NYC zones will come from Zone 8. Zone 10 –The costs to upgrade this Zone are currently estimated at $82.9 million. Two of the six facilities in this Zone are meeting the 2014 WLA. • Great Neck Sewage District and Great Neck Village – These Facilities will be combining to build a single WWTP to handle the flows from the individual plants. This work is expected to be completed by July 2014 . Construction is underway • City of Glen Cove – This Facility has been meeting its 2014 WLA since 2003. • Oyster Bay SD – This Facility has been meeting its 2014 WLA since 2006. • Port Washington – This plant's BNR upgrade is underway with an expected completion date of 11/15/10. The project cost is approximately $11 million. • Belgrave – This Facility was awarded $2.9 million in 2003 to upgrade their biological filters to add methanol feed. The construction schedule has been extended for completion by the end of 2010. The problem that caused the delay has been resolved. Zone 11 –The costs to upgrade this Zone are approximately $53.4 million. Two of the six facilities in this Zone are meeting the 2014 WLA. • Greenport (V) - The Village of Greenport has submitted an engineering design report for BNR and UV upgrades. Funding for this project has been secured and construction is expected to begin in 2010. • Huntington SD – This Facility completed its nitrogen removal upgrade in April 2008 and is meeting the 2014 WLA. • Port Jefferson (Suffolk Co SD#1) – The nitrogen upgrade at this Facility has been completed and the Facility has been meeting the 2014 WLA since September 2008. • Kings Park (Suffolk Co SD#6) – Construction is underway for upgrading this Facility to meet the 2014 WLA. Construction for Phase II had been delayed due to a contract dispute. The construction however is now close to completion with	All facilities that are required to upgrade to met the 2014 WLA are either completed or in various stages of design or construction.

	2009 Description	2010 Planned Action
	denitrification expected to begin by the end of 2010. • SUNY (Suffolk Co SD#21) – This Facility is currently under a Consent Order, effective 9/3/08 requiring The Phase 1 Design Plan and Specifications for an interim recharge facility to meet the 2009 nitrogen limit has been submitted. SUNY is looking into upgrading and other options for meeting the 2014 WLA. • Northport (V) – The BNR upgrade was completed in 2005 and they are currently meeting the 2009 WLA. An Engineering Report has been submitted detailing how they expect to meet the 2010 WLA.	
5.	ARRA (American Recovery and Reinvestment Act) and other short-term financing was awarded for the costs associated with the planning, design, and construction of Phase II WWT Facility Improvements for the Village of Greenport. These include the Full-Scale BNR (Biological Nitrogen Removal), UV (Ultraviolet Light Disinfection) Upgrade, and other improvements to the Water Pollution Control Plant (WPCP). Greenport was given a hardship determination, so their ARRA principle forgiveness is more than 50% ($3,108,573)	
6.	ARRA funds are being used to design the Biological Nutrient Removal (BNR) upgrades at the Mamaroneck Wastewater Treatment Plant (WWTP). An Order on Consent and a re-negotiated Order on Consent were negotiated between NYSDEC and the County of Westchester for the four Long Island Sound WWTPs (New Rochelle, Mamaroneck, Blind Brook, and Port Chester). Numerous violations are cited as well as stringent modifications to the WWTPs' SPDES permits for nitrogen and residual chlorine removals are stipulated. The nitrogen limits are identified in the Long Island Sound Total Maximum Daily Load adopted by New York State, Connecticut, and USEPA in August 1999. Although the work is at Mamaroneck, the Order requires the County to bill user costs across all four sewer districts for the entire project.	
7.	New York City received $35,365,256 from ARRA to repair anaerobic sludge digesters and install new treatment equipment at the Hunts Point WPCP. The new digesters will improve solids handling and generate additional digester gas for on-site power, saving energy costs, and reducing the facilities carbon footprint. To learn more about this project, read the Hunts Point Water Pollution Control Plant Fact Sheet: http://www.nysefc.org/docs/12409132010nycdep_hunts_point_wpcp.pdf	
8.	New York City received $15,704,400 in ARRA funding to rehabilitate the Ward's Island Water Pollution Control Plant, which serves densely populated areas in eastern Manhattan and the western Bronx. The City will install new motors for fifteen of its sludge pumps, replace all of the primary sludge piping inside the main sludge pump stations, and replace other vital equipment at the facility. To learn more about this project, read the Ward's Island Water Pollution Control Plant Fact Sheet: http://www.nysefc.org/docs/12449132010nycdep_wards_island_wpcp_.pdf	
9.	Connecticut's Nitrogen Credit Advisory Board recommended support for training and providing technical assistance of $240,000 assigned in 2007. New England Interstate Water Pollution Control Commission (NEIWPCC) was retained to work with CT DEP and selected municipalities to train operators on the topics of nitrogen removal, the Biological Nitrogen Removal process, and better management of wet weather/cold weather conditions that have an adverse impact on nitrogen removal. This has helped ensure that the maximum benefit from existing upgrades is attained.	The money assigned to this project was not all spent, the balance will be used to continue work in 2009 – 2010.

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

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

	2009 Description	2010 Planned Action
1.	In 2008 CTDEP and USGS completed a LISS-funded project to develop water quality thresholds that are protective and will help restore LIS eelgrass beds. The program's goal is to include eelgrass bed losses on Connecticut's Section 303(d) list once management criteria are available to address the problem. Sources are primarily nonpoint in the eastern LIS embayments where eelgrass is still extant. (also see L-9, page 56)	Steering Committee is set up and a student will be hired to provide technical support to the project
2.	The 2008 Consent Order between the NYSDEC and Westchester County required the County to propose a Scope of Work for a non-point source study. Westchester County has prepared and submitted a scope of work for a non-point source study. NYSDEC has accepted the scope of work.	Westchester will submit the findings of the report per the Consent Order.
3.	NYS has prepared and issued the draft renewal of the SPDES General Permit for Storm Water Discharges from Municipal Separate Storm Sewer Systems (MS4s) Permit No GP-0-08-002, effective May 1, 2010 and expiring April 30, 2012. The DEC is addressing the comments received on the draft renewal. The TMDL reassessment will not be completed before final issuance of the permit. As such, Part IX will not be applicable for this permit term.	The Reassessment of the LIS Nitrogen TMDL is ongoing, albeit slow. Implications for MS4 communities in the absences of a revised TMDL are such that the MS4 permit will not have any significant affect on MS4 communities with respect to controlling nitrogen.
4.	On December 23, 2008, the US Court of Appeals for the DC Circuit granted EPA's petition to remand the CAIR regulations without being vacated. The federal CAIR regulations are still in effect while EPA considers revisions. The court's action solidified implementation of the DEC's CAIR regulations (Parts 243, 244, 245). The DEC regulations are based on the federal regulations. On December 23, 2009 the DEC proposed NOX RACT revisions to Part 212 (for asphalt plants), Part 220 (for cement and glass plants), and Part 227-2 (for combustion sources); the public comment period closed on February 17th 2010. EPA issued the ozone standards on March 12, 2008, and set both standards at a level of 0.075 parts per million (ppm). On September 16, 2009, EPA announced it would reconsider the 2008 ozone standards. The reconsideration affects both the "primary" standard, designed to protect public health, and the "secondary" standard, designed to protect the environment. In the January 19, 2010 federal register EPA proposed revisions to the ozone standards; the proposed primary std is in the 0.060 - 0.070 ppm range. EPA is accepting comments on the proposed rule until March 22nd 2010. The adoption of these standards will have a direct impact on NOx and VOC emitters, with a requirement for greater reductions in emission of these contaminants..	The DEC will address comments received on the proposed rule changes and make adjustments as necessary. Similarly the EPA will address comments on the revised ozone standards and make adjustments as necessary.
5.	Nassau County provided funding through the Nassau County Environmental Bond Act to municipalities to improve storm water quality. A number of municipalities are continuing to install Catch Basin Inserts at the following locations: ▫ Roslyn Pond Park - Town of North Hempstead ▫ North Sheets Creek - Town of North Hempstead ▫ Hempstead Harbor Shoreline - Town of North Hempstead ▫ Roosevelt Marina - Town of Oyster Bay ▫ Lumber Road/Skillman Street - Village of Roslyn- ▫ Leeds Pond - Village of Plandome Manor ▫ Dogwood Lake - Town of Oyster Bay	Complete Catch Basin installation.

	2009 Description	2010 Planned Action
6.	In 2009, the Town of North Hempstead continued work on an extensive NPS remediation project in Mill Pond that drains into Manhasset Bay. Plans call for dredging of sediments, wetland restoration, and swirl separators to treat water before it enters Manhasset Bay. The goal of the project is to increase retention time to allow for sediment deposition, increased nutrient uptake by the wetlands, and to create a juvenile fish nursery; juvenile American eel and pumpkin seeds have already been found in the pond. Funding for the approximately $5.1M project was from multiple sources including different New York State agencies and the USEPA storm water infrastructure improvement fund. In 2008 construction activities commenced. A feasibility study and final construction designs and specifications for constructing storm water treatment systems are underway. The existing storm water drainage infrastructure will be retrofitted and, to the extent possible, ecological function (i.e., watershed function and riparian habitat) will be restored. When implemented, water quality and aquatic habitat in Mill Pond Park will be substantially improved through pollutant loading reductions to the Manhasset Bay Significant Coastal Fish and Wildlife Habitat. Up to three alternative schematic designs will be prepared and evaluated. Each alternative design will include measures and practices selected to function together as a whole to achieve measurable results. In addition to construction designs and specifications, cost estimates, a strategy and schedule, and permit applications will be prepared to implement the preferred alternative. A monitoring and maintenance plan was developed to monitor and maintain the newly constructed storm water treatment systems and the surrounding riparian habitat.	Project was ongoing through 2009 and is currently 95% complete.
7.	<u>Glenwood Road/Powerhouse Drain Stormwater Pollution Abatement Plan and Development of Coordinated Ordinances and Enforcement Measures for Surface Water Uses:</u> Under sponsorship of the Village of Sea Cliff, the Hempstead Harbor Protection Committee will implement strategies identified in the Hempstead Harbor Water Quality Improvement Plan. The project will include a stormwater pollution abatement plan for Glenwood Road/Powerhouse Drain and coordination of local ordinances and enforcement for Hempstead Harbor water uses. The project will build on work completed under previous EPF awards by the nine-member intermunicipal watershed planning coalition. 2009 activities included consultant selection, and the development of a draft abatement plan.	Work in progress
8.	<u>Stormwater Mitigation at Mill Pond Park:</u> The Town of North Hempstead completed a feasibility study and final construction designs and specifications for constructing stormwater treatment systems. The existing stormwater drainage infrastructure will be retrofitted and, to the extent possible, ecological function (I.e., watershed function and riparian habitat) will be restored. When implemented, water quality and aquatic habitat in Mill Pond Park will be substantially improved through pollutant loading reductions to the Manhasset Bay Significant Coastal Fish and Wildlife Habitat. In addition to construction designs and specifications; cost estimates, a strategy and schedule, a monitoring and maintenance plan and permit applications were prepared to implement the preferred alternative.	Completed in 2009
9.	<u>Implementation of Mill Pond Water Quality Improvements:</u> The Town of North Hempstead completed construction projects implementing nonpoint source pollution control improvements for the 6 acre, tidally influenced Mill Pond located in the Village of Port Washington. Project elements included stormwater collection units, sediment retention and spillway modifications. This project advanced work developed under a previous EPF award.	Completed in 2009
10.	<u>Construction of Scudder's Pond Improvements, Phase One:</u> The Village of Sea Cliff proposes to implement elements of the Phase One improvements identified in its Scudder's Pond Subwatershed Plan. The pond is located on property owned by the North Shore Country Club with public access provided through a long-term easement to the Village. Work will include installation of a swirl separator to intercept sediment, redirection of flow to a treatment wetland, and replacement of the discharge wier with a two-stage spillway. In 2009, draft schematic designs were developed. <u>Construction of Scudder's Pond Improvements, Phase Two:</u> The Village of Sea Cliff will implement elements of the Phase Two improvements identified in its Scudder's Pond Subwatershed Plan. Specifically, the Village will install a second swirl separator, remove a portion of the accumulated sediment in the pond, and replace invasive species along the pond's western edge with native species. In 2009, draft schematic designs were developed. <u>Construction of Scudder's Pond Improvements, Phase Three:</u> The Village of Sea Cliff, in partnership with the Hempstead Harbor Protection Committee, will improve water quality and habitat at Scudders Pond by implementing a series of recommendations contained in the Scudders Pond Subatershed Plan. Work will include	Work in progress Work in progress Recently funded-no progress

	2009 Description	2010 Planned Action
	completing the removal and disposal of sediment in Scudders Pond, conversion of two small artificial ponds into a vegetative swale, excavating invasive common reed, eliminating direct stormwater discharge and controlling erosion along the southern bank of the pond, replacing the Shore Road weir with a two-stage spillway, and completing an invasive species management plan. Contract was executed in 2009.	
11.	Planning, Design and Installation of Bronx River Stormwater Demonstration Projects The Department of Parks and Recreation, will implement a series of Green Street projects to advance water quality improvement in the Bronx River. The work will include installation and monitoring to determine maintenance and watering schedules, and to create hydrologic models to predict runoff reduction attributable to green streets. To date, one green street (stormwater capture project) has been constructed.	Work in progress
12.	Planning for Mill Pond, Phase II The City of Glen Cove will conduct Phase Two planning and engineering for storm water quality improvements for Mill Pond, including a retention basin, floatable debris control devices and associated landscaping. Grant funds will support the development of conceptual designs, completion of SEQR and permitting, collection and testing of sediment, completion of design and construction documents, bid assistance, preparation of an operation/maintenance plan, and two years of technical assistance and maintenance oversight. Construction is being funded through the 2006 Nassau County Bond Act.	Recently funded-no progress
13.	Initially IEC conducted MS4 outfall inspections during dry weather conditions on the north shore of Nassau County, New York. During 2009, 26 outfalls were inspected of which 4 were flowing. These observations were reported to NYS DEC, Region 2, for remediation.	Continue and expand dry weather inspections in other New York counties, as well as in Connecticut and New Jersey.
14.	The federal American Recovery and Reinvestment Act of 2009 (ARRA) funded a $694,000 construction project to improve drainage on NY Route 25A, help restore the Stony Brook Mill Pond in the town of Brookhaven, Suffolk County, and clean 28 storm water treatment systems on state roadways throughout Suffolk County, NY. The project, which was developed in cooperation with the local community, will help preserve the Stony Brook Mill Pond as a fragile aquatic resource and better protect motorists from roadway flooding conditions on North Country Road (NY Route 25A). Accumulated sediment near the Mill Pond storm water outfall pipe will be removed from the pond and new vortex filtration basins will be installed to improve the quality of storm water runoff. This project also includes cleaning 28 storm water treatment systems at various locations within the County. A press release can be found at: http://timbishop.house.gov/index.cfm?sectionid=79&parentid=3&sectiontree=&itemid=1605	The project is expected to be completed in winter 2010.
15.	The New York City Department of Parks and Recreation is developing a 360-square foot swale to capture 14,937 gallons of stormwater annually at Shoelace Park along the Bronx River. The project was funded in 2008 as part of the Bronx River Watershed Initiative with $250,000 in funds from a $7 million settlement generated by the New York State Attorney General's Office (OAG) and Department of Environmental Conservation. The project is a visible stormwater retrofit that illustrates the connection between rainwater runoff and water pollution. It is also part of comprehensive effort involving community organizations and federal, state and local government working in close collaboration called the Bronx River Greenway Team. This multi-entity collaboration aims to develop the Bronx River Greenway a linear park and multi-use path.	The project was stalled due to staffing problems in NYC Parks. The problems have been resolved and it will be moving forward as described starting Spring 2010 and will be completed Spring 2011.
16.	The Bronx River Alliance is implementing a rainwater harvesting program at targeted sites capturing roof runoff in tanks and encouraging its reuse to prevent polluted stormwater from entering the combined sewer system which discharges into the waterway. The project was funded in 2008 as part of the Long Island Sound Futures Fund with $117,500 in funds from a $7 million settlement generated by the New York State Attorney General's Office (OAG) and Department of Environmental Conservation. To date, 5 rainbarrels have been installed at a variety of locations including a city park, a public housing complex, and a private residence.	Additional barrels will be installed in 2010, and the amount of water captured and used will be monitored.
17.	In 2009, the Bronx River Alliance received $148,569 from the Bronx River Watershed Initiative Fund (described above) for Pipe Remediation and Streambank Restoration at Muskrat Cove Park. The goals of this project are to remediate the ecological damage caused by excessive flows from a stormwater discharge pipe and to restore the damaged streambanks. Muskrat Cove is located on the border of the Bronx and Yonkers, and this project presents a unique opportunity for intermunicipal collaboration.	Complete project.
18.	**A goal of the Long Island Sound 2003 Agreement is:** *By 2010*, Connecticut and New York will work toward a goal of having 50 percent of their respective areas in the watershed developing or implementing watershed restoration strategies. The Connecticut DEP created the Watershed Management Program to more effectively address water resource issues from an integrated watershed perspective. For purposes of water	CTDEP will continue to assist in the development of comprehensive watershed management plans, to protect and restore water quality and

	2009 Description	2010 Planned Action
	management, the state has been divided into five major watershed basins along natural watershed boundaries. DEP Watershed Managers work within these five major watershed basins to assist communities in forming partnerships, drafting watershed based plans, and implementing environmental projects to restore and protect Connecticut's water quality on a watershed-wide scale. The Connecticut DEP web page provides information on watershed management planning at: http://www.ct.gov/dep/cwp/view.asp?a=2719&q=325628&depNav_GID=1654 Watershed based plans were approved for Steele Brook and Tankerhoosen river watersheds in 2009.	conserve and manage water resources, by guiding local land use decision making, and enhancing pollution prevention programs.
19.	In December 2009, CTDEP issued a Notice of Request for Proposals for development of a study to evaluate Connecticut's stormwater general permits to promote better site design and incorporation of low impact development practices to minimize stormwater runoff volume and pollutant loads for new land use development projects. The goal of this project is to evaluate improved and innovative approaches for more effectively controlling stormwater quantity and quality through the Connecticut Stormwater General Permits (SGP). Objectives of the project are to: 1) Establish performance goals and criteria for management practices common to SGP implementation; 2) Identify how the performance goals and criteria can be most effectively incorporated into the SGP to meet permit limits and conditions; and 3) Identify mechanisms for incorporating Low Impact Development (LID) best management practices (BMP) and pollution prevention practices into the SGP for priority attention. The project will focus on Connecticut's Stormwater Construction General Permit but with applicability to DEPs other storm water permits and programs.	A contract will be awarded by CT DEP to a consultant that will work with CT DEP and external stakeholders to coordinate the project and revise applicable DEP guidance documents. The contractor will provide quarterly progress reports and a draft report by January 30, 2011. It is anticipated a final report and final revisions incorporated into the guidance manuals for stormwater and erosion and sediment control by August 2011.

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.

	2009 Description	2010 Planned Action
1.	The LISS TMDL Writing Team in conjunction with the Connecticut River Work Group identified 11 new nutrient reduction management scenarios and had Hydroqual run these scenarios using the System-Wide Eutrophication Model (SWEM). None of these model runs resulted in full water quality compliance in all places at all times. The 2000 TMDL is expected to reduce hypoxia by 90%, while the most aggressive new management scenario only achieved a 98% reduction. The combined group is continuing to evaluate options for achieving water quality in LIS including the use of bioharvesting.	Continue evaluate options and the timing for completing the TMDL reassessment
2.	To help meet the growing demand for assistance in local and regional watershed planning the NY Department of State, in partnership with the Department of Environmental Conservation, prepared a watershed planning multimedia informational package. The multi-media informational package, entitled Watershed Plans: Protecting and Restoring Water Quality, aims to encourage and assist local governments, communities, and other partners to collaboratively protect and restore vital water resources throughout New York. It includes a motivational video, which showcases communities throughout the State successfully preparing and implementing their watershed plans; an interactive website, which provides technical information and links to additional resources; and a guidebook, which frames a flexible process for preparing and implementing watershed plans. The guidebook builds on a shared approach to watershed management plans as a means to reduce nonpoint source pollution and protect water resources. It highlights local and regional successes in a series of case studies. The materials can be viewed and downloaded at the Department of State's website,	

	2009 Description	2010 Planned Action
	http://www.nyswaterfronts.com/index.asp	
3.	Principal Investigators completed work in 2009 on the following LISS or Dissolved Oxygen Benefit Fund projects to investigate, model or document hypoxia. Final reports are posted on the Long Island Sound Study website. **Development of a Long Island Sound-Specific Water Quality Index Using Cluster Analysis and Discriminant Analysis** (City College of New York; PI: Zhang; LI-97263606; LIS 2006 Research Funding; $119,217; Completed: 8/31/09): The objective of this project was to develop a Long Island Sound-specific water quality index. The water quality index was computed using multivariate cluster analysis and discriminant analysis of a set of individual water quality indicators. A numerical water quality index (around -1 to 1) will result, with a value close to 1 indicating good water quality (oligotrophic), a value close to -1 indicating poor water quality (eutrophic), and a slight negative value representing mesotrophic conditions (intermediate water quality). The new method will be applied to the Long Island Sound water quality data (past 15 years at ~20 stations) collected by CTDEP. Monthly water quality indices will be computed for every station, and seasonal and annual trends in the water quality indices will be examined. The outputs of this project include a new LIS-specific water quality index and an automated procedure for computing the index. The numerical water quality index will give clear indications of the trophic status of LIS waters for routine water quality assessments. **Simulation of Long Island Sound with the System-wide Eutrophication Model (SWEM): Inter-annual Variability and Sensitivity** (UConn/DMS; PI: Dam/O'Donnell; LI-97127101; LIS 2005 Enhancement Fund; $251,164; Completed: 3/30/09): The objectives of this project were to evaluate the effectiveness of SWEM and to identify additional studies that will improve our ability to predict the impact of management strategies on the water quality of Long Island Sound. The researchers established the sensitivity of SWEM to model parameters, model formulation, and inter-annual variations in weather and river discharge and provided an independent, quantitative evaluation of the model and its utility as a management tool. Principal Investigators continued work on the following LISS or DO fund projects in 2009: **Assessing Nitrogen Loading to Western Long Island Sound from Submarine Groundwater Discharge.** (USGS - Woods Hole Science Center, DO Fund 2007, $579,104) The project will quantify the significance of groundwater's contribution to nitrogen into the Long Island Sound. The project results will provide useful technical information to the current public dialogue about nitrogen loading from sewered and unsewered watersheds. It will compare groundwater discharge from those types of watersheds as well as other types of pollution found in groundwater (fertilizer, pesticides, and air). The information generated from the study will help resource managers determine circumstances where sewers and/or other tools (e.g. filtration beds etc.) reduce nitrogen loads into local watersheds. **Numerical Evaluation of Larval Survival in Long Island Sound as Influenced by Exposure to Varying Levels of Dissolved Oxygen.** (Manhattan College, DO Fund 2007, $74,654) This project will develop a tool that will improve the long-term survival of fish, shellfish and crabs by allowing resource managers to better determine and manage the amount of nutrients allowed in the open waters of the Long Island Sound. The project will look at the different amounts of dissolved oxygen required to sustain juvenile and adult fish and shellfish. Among other benefits, the project will improve our ability to pinpoint and protect important spawning habitat and to tailor nutrient reduction goals to improve propagation of fish and shellfish.	LISS will continue to support scientific research as funds are available.

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.

	2009 Description	2010 Planned Action
1.	A Dissolved Oxygen Environmental Benefit Fund (DO Fund) for western Long Island Sound and Jamaica Bay was established in 2006 using fines from the consent judgment settlement with New York City. The DO fund is administered by the National Fish and Wildlife Foundation. In 2008 research and restoration projects selected for funding totaled $833,000, exhausting all of the available remaining funds. Project descriptions are posted on the http://www.NFWF.org website.	All funds were committed for western Long Island Sound projects, making 2008 the last funding year for the DOEBF. Projects will be tracked and reported upon completion.
2.	The Bronx River Watershed Initiative (BRWI) is a source of support for storm water retrofit projects along the Bronx River. The funds come from a $7 million settlement generated by the New York State Attorney General's Office (OAG) and Department of Environmental Conservation (DEC) resulting from violations associated with discharges of raw sewage into the Bronx River from storm sewers. In 2008, the BRWI awarded $1.8 million to six projects for storm water mitigation in NY that are ongoing in 2009: The **Village of Ardsley** will implement several best storm water management practices at Ashford Park as part of a historic building relocation and restoration project. The restoration plan for the half-acre site employs rainwater capture and re-use in a new educational rain garden and provides for porous pavement and an infiltration trench to reduce the present stormwater discharges to the adjacent Sprain Brook tributary of the Bronx River. The **Westchester County Department of Planning** will design and restore approximately 2,330 linear feet of eroded streambank using a combination of structural and bioengineering techniques along the riverbank and restore a 0.3-acre freshwater wetland, presently dominated by invasive plants. The streambank and freshwater wetland restoration will improve the quality of water entering the main stream of the Bronx River and enhance the stream and wetland habitat functions. This project finalizes and makes publicly visible a prior stormwater mitigation project by the County in the parking lot adjacent to the Westchester County Center building. The **Bronx River Alliance** will implement Phase 1 of a two phase plan to remediate the ecological damage caused by erosive flows from a 48 inch pipe that delivers storm water from southeastern Yonkers to the Bronx River, at an outfall slightly north of the Nereid Avenue Bridge. The first phase of the project will address the redesign planning for the pipe, permitting and site preparation work, including invasive plant removal, replanting with native plants and stabilization of the most damaged portions of the streambank. The Phase 1 tasks are important components of the overall restoration project and will lead directly to Phase II work that will implement the reconfiguration of the outfall pipe and full streambank restoration along the approximately 1500 foot reach of the Bronx River adjacent to the bike path. The **New York Botanical Garden** has identified four existing stormwater outflows along the east shoreline of the Bronx River in the vicinity of the Lorillard Snuff Mill and the Snuff Mill Bridge as priorities for stormwater retrofit and upgrades. The Garden intends to treat the stormwater from these outflows by employing accepted Best Management Practices (BMP's) that combine Low Impact Development (LID) and structural retrofits to the existing storm structures. The LID designs and structural retrofits include: pervious paving bands, a percolation trench, replacement of terminal storm structures with proprietary Hydrodynamic Separators and the reconstruction of the one of the primary storm outflows to include ecological step pools. In addition, steep slopes adjacent to approximately 500 feet of the streambank and the canoe landing will undergo geosynthetic stabilization, the removal of non-native and invasive species and replanting with native riparian plants. The **Town of Eastchester** will implement a plan to address stormwater quality at its municipal maintenance yard by a combination of pollution elimination and stormwater retrofits. The plan entails the construction of several structural best management practices (BMP's) to minimize and capture pollutants generated from on site activities and to stem their migration to the Bronx River. Two Stormceptor or similar BMP's with associated stormwater catch basins and underground piping will be installed to capture and eliminate pollutants generated from on site activities. All stormwater flow across the site will be captured in the catch basins and directed through the structural BMP's where floatables,	

	2009 Description	2010 Planned Action
	sediment and hydrocarbons will be captured and retained for removal and proper disposal. The pollution generated from on site activities will be minimized by the construction of a vehicle washing station so that vehicles may be cleaned of sediments, floatables and hydrocarbons and the pollutants collected for proper disposal before the vehicles are parked in the yard at the end of each work day. This will minimize the potential for pollutants being washed off vehicles by rain and snowfall and flowing into the stormwater drainage system. **THE POINT Community Development Corporation** will convert the main roof of its facility to an extensive green roof. A smaller lower portion of its roof will also be converted to a green roof that will function as an easily accessible demonstration area and outdoor classroom. THE POINT's green roof project will help improve and protect the Bronx River Watershed by reducing the volume of polluted water entering the Bronx River through combined sewer overflows. It will make needed green improvements to THE POINT's infrastructures, which align with the agency's programmatic commitment to sustainable development in the South Bronx. It will further help generate awareness of low-impact development strategies among local residents and business owners, and serve to educate, involve and strengthen the Hunts Point community through its example of sustainable development.	
3.	$1 million in ARRA funding is going towards a project to preserve the Stony Brook (NY) Mill Pond as a fragile aquatic resource and better protect motorists from roadway flooding conditions on NY Route 25A (North Country Road) in Stony Brook, Town of Brookhaven, Suffolk County (north shore of Long Island). Accumulated sediment will be removed from the pond and a new drainage basin will be installed in order to improve the quality of storm water runoff. This project also includes cleaning of 30 additional storm water treatment units across Long Island. This project is expected to be completed in winter 2010.	Complete project.
4.	NYS Department of State awarded funds to municipalities through its Local Waterfront Revitalization Program (LWRP). In total, 12 projects were funded in the LIS watershed in 2009 (project activities to begin 2010). The full project listing can be found at: http://www.dos.state.ny.us/pres/pr2009/123009waterfront.html	Continue implementing the program as possible in the face of budget cuts.
5.	In addition to state funding, the State of Connecticut has been awarded approximately $48.5 million in federal economic stimulus funding from the American Recovery and Reinvestment Act of 2009 (ARRA) for wastewater infrastructure. Consistent with the Clean Water Fund Regulations and the ARRA program requirements of EPA, the DEP amended its FY 09 Priority List to reflect the additional funding, make necessary changes to projects that had previously been listed, including costs and schedules, and added potential new projects to the list. This $48.5 million in new federal funding will be deposited into the Clean Water Fund and $24.25 million will be used for grants. CTDEP, through the efforts of the Treasurer's Office, is able to leverage the stimulus funds and create a purchasing power of $85 million in new project value.	With this $85 million, the amended priority list extends funding for the construction of two treatment plant upgrades in New Milford and South Windsor and provides supplementary construction funding to fully fund treatment plant upgrades in Meriden, Southington and Groton.
6.	Connecticut's Nitrogen Credit Advisory Board provided supplemental funding to the USGS for enhanced Connecticut River monitoring. $160,000 had been allocated in November 2007, but the Board requested an addition of $20,000 to continue with monitoring in 2008. Because the Connecticut River is tidal, the loads along the river from Thompsonville to Long Island Sound are poorly understood.	Continue to work with USGS to complete monitoring report and evaluate monitoring results to assist management decisions.
7.	The NCAB is funding enhanced nutrient monitoring statewide by partnering with the USGS. In 2008, $240,000 was provided for supplemental monitoring to be conducted on rivers throughout the state to better determine nitrogen loads from within and outside of Connecticut. Using those data along with their existing database, USGS will comprehensively analyze and report on nitrogen loads and trends to Long Island Sound for 1999 – 2008.	USGS to complete analysis of monitoring results. Complete report.
8.	In 2009 the NCAB also approved a monitoring equipment funding program for dissolved oxygen and nitrogen sampling equipment purchases by municipal treatments plants. The equipment will help optimize the denitrification process. By constantly monitoring dissolved oxygen and nitrate levels facilities will be better able to control the amount of dissolved oxygen entering the anoxic zones and optimize nitrate recycles and supplemental carbon.	It is estimated that an additional 1,374 eq lbs N/day will be removed from the facilities that acquire analyzers to be used for process control.
9.	The Nitrogen Credit Advisory Board continues to explore ideas for the use of surplus funds for training and improvements in treatment plants for the benefit of the NCE program and to ensure that the program achieves the TMDL limit.	
10.	The Long Island Sound Study awarded a grant for stormwater management under the Long Island Sound Futures Fund 2009 to the New York City Department of Parks and Recreation, GreenApple Corps to construct a 5,700 ft^2 greenroof to capture 250,000	Long Island Sound Futures Fund grants will be available in the category of stormwater mitigation

	2009 Description	2010 Planned Action
	gallons of stormwater annually from entering overtaxed Combined Sewer Overflows (CSOs) to reduce non-point source pollution into Long Island Sound and New York Harbor. The Five Borough Parks Facility on Randall's Island is adjacent to the Triborough Bridge and the entrance to two different expressways. The building collects air pollution from passing vehicles and that pollution washes off during rain storms and then flows untreated into CSOs and eventually into Long Island Sound and New York Harbor. A greenroof is being created at Five Borough to address this problem.	in 2010.

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.

	2009 Description	2010 Planned Action
1.	In Summer 2009, hypoxic conditions (<3mg/l DO) in LIS were estimated to have extended for a period of 45 days and covered a maximum area of 169 square miles compared to the pre-TMDL year averages of 57 days and 208 square miles. Hypoxic conditions began in early July and lasted through mid-September. LIS monitoring information is posted at: http://www.ct.gov/dep/cwp/view.asp?a=2719&q=325534&depNav_GID=1654. EPA has included this area as an environmental indicator in its Strategic Plan for 2006-2011 under Goal 4, Healthy Communities and Ecosystems.	The LISS is continuing to fund the CTDEP ambient monitoring of LIS in 2010.
2.	The UConn Department of Marine Sciences at Avery Point, Connecticut, continued to operate and maintain a real-time water quality monitoring network, MYSound, in 2009 under LISICOS, the Long Island Sound Integrated Coastal Observing System, an expanded regional monitoring initiative. MYSound stations monitor surface and bottom waters for dissolved oxygen, temperature, salinity and other selected parameters, such as wind speed, at eight sites. The MYSound website address is: http://www.mysound.uconn.edu.	Continue to operate and maintain the MYSound stations and website as funding allows.
3.	The LISS partners continued ambient monitoring of LIS in 2009: CTDEP continued its ambient monitoring of LIS stations. CTDEP's scope of monitoring parameters supports the changing ecosystem perspective. Currently 17 stations are monitored on a monthly basis, year-round and 25-30 stations are added for bi-weekly hypoxia monitoring from June-September. Maps and summaries are available on the at: http://www.ct.gov/dep/cwp/view.asp?a=2719&q=462454&depNav_GID=1654 NYCDEP performed ambient monitoring of NY waters in Western LIS. Its findings are summarized in the NYCDEP Harbor Water Quality Monitoring Report produced annually. IEC continued summer hypoxia monitoring in LIS by weekly measurements of DO, pH, temperature, salinity and Secchi depth at 21 stations; and bimonthly, samples were collected for chlorophyll a. IEC made weekly data transmissions to LISO, CTDEP, NYCDEP, NYSDEC, CSHH, HydroQual, Nassau County HD, Westchester County HD and Sea Grant.. The IEC Annual Report details all monitoring activities which can be viewed on the new and improved IEC website at: www.iec-nynjct.org. All IEC data are entered into the EPA database, STORET.	Continue the ambient monitoring program.
4.	Westchester County completed the 13th season of water quality sampling in Manursing (aka, Playland) Lake, annual surveys began in 1997. Staff collected data on dissolved oxygen, salinity, temperature, and conductivity from May through September. The data collected from the lake is compared with data collected at the end of Playland Park Pier and is used in county management decisions. Funding for this project is through the Westchester County Parks operating budget for staff time and equipment. The YSI meter used for sampling was donated as a gift from the Friends of Read Sanctuary in 1997. This sampling was used to determine if the manually managed tide gate should be opened. Monitoring is still being performed despite the recent replacement of the tide gate with one that automatically opens. This is to ensure the tide gate is having an influence and to quantify that influence.	Sampling will continue in April 2010.

	2009 Description	2010 Planned Action
5.	Friends of the Bay in Oyster Bay NY completed their 12th ambient water quality season in 2009. Sampling took place once a week from the first Monday in April to the last Monday in October. Reports are available on the FOB website at www.friendsofthebay.org. Funding for the 2009 season was provided by the LIS Futures Fund and Arrow Electronics. In-kind contributions were provided by the Oyster Bay Marine Center, South Mall Analytic Labs and Frank M. Flower and Sons. This program was given a Region 2 Environmental Quality Award by the United States Environmental Protection Agency in April of 2009.	Water quality monitoring activities are planned to continue in 2010.
6.	In 2009, volunteers participated in the Westchester County Citizens Volunteer Monitoring Program (April to October sampling season) comprising a total 20 teams that monitored sites in the four major watersheds in Westchester County, including LIS. Volunteers consisted of residents, students and teachers in Westchester County. There were three sites in tributaries of Long Island Sound and two in the Bronx River (a tributary of Long Island Sound via the East River). Data is entered into a web-based database for viewing and comparison using statistics and computer-aided mapping at http://cvmp.westchestergov.com/cvmp . Annual reports can be found at: http://planning.westchestergov.com/index.php?option=com_content&task=view&id=1010&Itemid=4363	This program will be continued in 2010.
7.	In 2009, the Coalition to Save Hempstead Harbor (CSHH), a nonprofit environmental organization, completed its 18th season of water-quality monitoring in Hempstead Harbor. Sampling took place once a week from May to November. Thirteen stations were been selected for full surveys, weekly to monthly, depending on weather and tidal cycle. Tests were conducted for dissolved oxygen, salinity, water temperature, pH, nitrite, nitrate, and ammonia. Water samples are collected weekly for analysis by the Nassau County Department of Health for bacteria levels. If unusual conditions or discharges are visible, additional samples are collected for bacteria analysis. Field observations for weather and water conditions and wildlife are recorded as well. In 2009,in cooperation with the NYS DEC shellfisheries division of Marine Resources,18 additional sampling stations were set up corresponding to NYSDEC's stations for shellfish growing area (SGA) #50 (mid- and lower portions of Hempstead Harbor) to determine the feasibility of reclassifying these portions of the harbor for shellfish harvesting. Samples were delivered to DEC's lab for analysis. Seasonal and annual data and reports are published at http://www.hempsteadharbor.org/documents.asp, the Web site of the Hempstead Harbor Protection Committee (HHPC), a consortium of municipalities that have jurisdiction over Hempstead Harbor. CSHH and HHPC continue to work in partnership to monitor the harbor's water quality, with the HHPC assuming financial responsibility for the water program.	Monitoring will continue in 2010.
8.	The Manhasset Bay Protection Committee monitored six sites in 2009 in conjunction with the Town of North Hempstead's Bay Constable. Current monitoring entails collecting bacteria samples for analysis by the Nassau County Department of Health. Additional testing is also performed by the three local sewer districts and the DOH also monitors the local beaches. This is a volunteer project with the Town of North Hempstead donating boat and Bay Constable time as a part of the annual budget. Nassau County DOH has also made sample analysis a part of their annual budget. The collected data is used to determine trends in Manhasset Bay water quality and whether conditions are improving or not. In the future, MBPC wants to analyze long term trends in Bay water quality. To do this, MBPC received a NYS EPF grant to have existing data, mostly on paper, put into one software program. MBPC hired LabLite as a consultant who had a proprietary program used mostly by sewer districts until recently. They completed the data sets for DOH and MBPC and the final report from Lablite was submitted in 2008. Not much has yet been learned from this report as there is insufficient data to do a long-term trends analysis. MBPC hired an intern, but due to issues with access to the Town server, the intern has not yet begun to work on the program.	Continue the coordinated monitoring effort. Have the intern add the results of the monitoring, data from the sewer districts and Interstate Environmental Commission, weather events, etc. into the software program in order to start running trends analyses.
9.	Implementation of the Manhasset Bay Water Quality Improvement Plan: The Manhasset Bay Protection Committee, on behalf of the Town of North Hempstead, will implement recommendations of the Manhasset Bay Water Quality Improvement Plan, prepared under previous LWRP grants from the EPF. The project will focus on water quality monitoring and an adopt-a-watershed program.	Completed in 2009
10.	Water Logging, a volunteer group lead by Cornell Cooperative Extension, completed their sixth (total) season of sampling (May 19 through October 27, 2009) after a year hiatus. Sampling took place in Huntington Harbor (4 sites), Centerport Harbor (2 sites), Northport Harbor (4 sites), Lloyd Harbor (3 sites), Duck Island Harbor (1 site) Northport Bay (5 sites), and Huntington Bay (3 sites). Once a week, the group sampled for temperature, salinity, dissolved oxygen, chlorophyll, pH, and Secchi depth. They sampled temperature, salinity,	Finalize the 2009 report and post on: http://ccesuffolk.org/water-logging/ Continue with the seventh year of sampling, funding contingent.

	2009 Description	2010 Planned Action
	DO, and chlorophyll at every half meter depth in the harbors and at every meter in the bays. pH was only sampled from the surface. To test the accuracy of the LaMotte Spectrophotometer and to determine the feasibility of monitoring nutrients at all 22 sites, the group also measured ammonia, nitrate, and nitrite at four stations, four times during the monitoring season. The monitoring program originally began in 2003 and ran every year through 2007 with 15 – 20 different volunteers, approximately seven that sampled continuously. This year's effort saw only two volunteers on a continual basis and four one-time volunteers. This year's funding came from the National Fish and Wildlife Foundation – Long Island Sound Futures Fund. Past funding came from the Fairleigh S. Dickinson Jr. Foundation, Davenport Family Foundation, NYS Office of Parks, Recreation and Historic Preservation, private individuals, and the NYS Fund.	
11.	Manhasset Bay Water Quality Improvement Plan Implementation: The Town of North Hempstead will implement recommendations outlined in the Water Quality Improvement Plan and will result in improved stormwater monitoring and a decrease in pollutant loads into the Bay through stream bank restoration at Stannards Brook and community education via storm drain stenciling. The results of the monitoring will be used to identify which discharges have the greatest need for retrofits. The establishment of indigenous terrestrial plants will stabilize eroding stream banks, resulting in decreased sedimentation thus improving water quality. The surrounding communities will be educated through participating in plantings as well as the storm drain stenciling project. The project addresses pollutants in stormwater runoff including pathogens which contribute to shellfish bed closures, a priority concern for the Long Island Sound Coastal Management Program	Completed in 2009

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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 of pathogens. As the public becomes educated concerning the impact of personal behaviors on the environment, e.g., improper disposal of pet wastes, inappropriate feeding of wildlife, changes in such behaviors may benefit the Sound. There are many ongoing federal, state and local programs to control and prevent pathogen contamination and to educate the public on best practices to avoid infection.

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 No Discharge Zones (NDZs) in New York, decreasing the acreage of shellfish beds closed due to pathogen contamination, and minimizing and eliminating chronic beach closures due to pathogen contamination.

ENVIRONMENTAL INDICATORS/RESULTS/TRENDS:

LISS environmental indicators for pathogens include the number of beach closure days and number of vessel pumpout stations. There were 1,034 LIS beach closure days reported in 2009, with Connecticut reporting 108 and New York reporting 926 closure days at LIS beaches. This represents about four percent of the total beach days from Memorial Day-Labor Day. There are approximately 240 LIS beaches that are monitored for pathogen contamination by local health departments, counties or state agencies. Most closures are due to rainfall levels exceeding a range of ½-1 inch in a 24-hour period, which requires local officials to close beaches as a health precaution.

2009 HIGHLIGHTS:

- Connecticut issued Consent Orders to three MS4s in 2008 and finalized them in 2009. The penalties from these Orders were used to fund a Supplemental Environmental Project (SEP) to create television and radio Public Service Announcements (PSAs) about stormwater

- In an effort to re-open shellfish beds in Hempstead Harbor, the NYSDEC's Bureau of Marine Resources (BMR) Shellfish Growing Area Classification Unit, in conjunction with the State Programs Branch of the U.S. Food & Drug Administration (FDA), conducted a dye study in Glen Cove Creek and Hempstead Harbor on September 28, 2009. Hempstead Harbor and adjacent areas of Long Island Sound, west of Matinecock Point, are currently classified as uncertified for the harvest of shellfish.

- Five of NYS's Waste Water Treatment facilities have completed the required upgrading of their disinfection systems to Ultra Violet (UV). Additionally, the Oyster Bay Sewer District has added a de-chlorination system.

- The Interstate Environmental Commission conducted 57 unannounced effluent surveys at CT and NY Long Island Sound outfalls. Pathogens monitored include fecal and total coliforms. IEC found 100 percent compliance with the existing discharge permits.

SUMMARY OF CCMP MANAGEMENT ACTIONS: PATHOGEN CONTAMINATION

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

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

	2009 Description	2010 Planned Action
1.	The Greater New Haven Water Pollution Control Authority is continuing to implement its approved Combined Sewer Overflow Long Term Control Plan for the containment of a 2-year frequency storm. Recently completed projects include the following: sewer separation projects in the area of Lombard Street and the construction of a 5.5 million gallon CSO storage tank on Ella Grasso Boulevard (Truman School Tank). Future projects include: • treatment plant upgrade to remove nitrogen and to expand the hydraulic capacity for treatment of higher CSO flows	Ongoing projects include: • Reconstruction of the tide gates to prevent LIS from entering the sanitary sewer collection system • sewer separation projects in the area of Yale University • infiltration and inflow removal projects in Hamden and East Haven which will result in lower flows into the combined sewer system in New Haven.
2.	In August 2008 the City of Bridgeport, was Issued an Administrative Order to revise its LTCP with report due by 9/30/2010. An Order requiring development and resubmission of a Long-Term Control Plan (LTCP) was issued 8/18/2008. A Consent Order was issued on March 20, 2009 requiring Bridgeport to submit timely DMRs, MORs and ATMRs, activate full automation of the chlorination/dechlorination systems at both plants, develop SOPs for plant operation, bypasses, maintenance, and conduct audits of existing programs and staffing.	The new LTCP required in the Order is to be submitted in September 2010. The Consent Order requires written reports in July 2010 on all alleged violations listed in the CO. Any remedial actions required under either Order will be completed under a schedule submitted to and approved by the DEP. Contracts G3 (New River Street Pump Station) and G-5 (Interconnect Sewer – Island Brook to New River Street Pump Station) are being combined into one contract and are being held up due to easement issues. They are expected to be completed by the end of 2010. The H area design is expected to be submitted for approval summer 2010 with bidding and construction to start late 2010/early 2011.
3.	The NYCDEP has proposed and the NYSDEC has accepted that the wastewater treatment plants that are undergoing construction to upgrade to BNR will achieve nitrogen reduction levels that include reductions equivalent to the nitrogen load from the CSOs in Zones 8 & 9. These upgrades began in 2003 and continued through 2009.	Construction of these BNR upgrades will continue.
4.	The Flushing CSO Retention Facility was operational in May 2007 at a cost of $330M. The 43 million gallon (MG) Flushing Combined Sewer Overflow (CSO) Retention Facility captures combined sewage which previously contributed 60% of the CSO discharges to Flushing Creek and Bay, and 50% of the pollutant load. The facility was designed to capture 100% of CSO flow for up to a 0.5 inch rainstorm. Pumped combined sewage will flow to the Tallman Island Water Pollution Control Plant where it will be treated. The facility will improve water quality and increase dissolved oxygen in Flushing Creek and Flushing Bay. There were some operational problems since it started operation in 2007. Work to repair these continued in 2009.	Operational issues at the Flushing CSO Retention Facility will be resolved and post-construction monitoring data will be collected.
5.	The Alley Creek drainage area improvements and CSO abatement facilities project is currently under way within the Tallman Island WPCP drainage area. The project includes construction of additional combined and storm sewers to increase the hydraulic capacity of the existing sewer system to eliminate sewer surcharging and street flooding. The project also includes a CSO storage facility within Alley Park to	Construction of Stage 2 will be completed in 2010 and the CSO storage facility will be put in service. Post construction monitoring data will start to be collected.

	2009 Description	2010 Planned Action
	capture 5 million gallons (MG) of combined sewage to improve the water quality of Alley Creek and Little Neck Bay by abating CSO discharges into Alley Creek. Combined sewage stored in the storage facility will be drained to the Old Douglaston Pumping Station and pumped to the existing sewer system. The pumped combined sewage will flow to the Tallman Island WPCP for treatment. The overall volume of CSOs discharged to Alley Creek will be reduced from approximately 246 MG per year to 112 MG per year. Water quality in Alley Creek and Little Neck Bay will be improved by increasing the dissolved oxygen concentrations, decreasing the coliform levels, and decreasing the floatables and settleable solids within the Creek and Bay. The project is currently in Stage 2 (2006-2011), which involves activation of CSO storage facility constructed under Stage 1 and a major upgrade of Old Douglaston Pumping Station. This stage of the upgrade is estimated at $30 million.	
6.	NYSDEC completed review of the NYCDEP's 2007 Waterbody/Watershed Facility Plan (WWFP) for each of the following areas: • The Hutchinson River WWFP is unapprovable as it eliminates the CSO storage facilities, the two (4 MG and 3 MG) storage tanks, that were planned for construction in the previous facility plan with no other remedies selected for implementation. • The Westchester Creek WWFP eliminates the CSO Retention Facility at CSO Outfall HP-25 to Westchester Creek. The WWFP selects implementation of modifications to several regulators to move CSO flows from the head of Westchester Creek to Pugsley Creek. • The Bronx River WWFP was modified in 2008 and 2009. A public meeting was held in August 2009. The final WWFP selects the installation of floatables controls in Regulators 27, 27A, 28, 28A and 13. Construction of these in-line netting and mechanical bar screens began in 2009. • Alley Creek and Little Neck Bay WWFP was modified in 2008 and 2009. The June 2009 WWFP was approved in October 2009. The selected alternative included installation of a 5 MG CSO Retention Tank north of Alley Pond Park and upgrades to the Old Douglaston Pump Station. Construction has been underway since 2004. • In 2009, NYCDEP modified and resubmitted the Flushing Creek and Bay WWFP as two separate WWFPs – one for Flushing Bay and one for Flushing Creek. The Flushing CSO Retention Facility which has operated since May 2007 continued to have operational problems in 2009.	NYCDEP will retract 2007 WWFP, conduct more characterization of the waterbody and resubmit a new WWFP in 2010. NYCDEP to revise 2007 WWFP based on DEC comments and resubmit in 2010. DEC will approve the July 2009 Bronx River WWFP in 2010. Construction of floatables controls will continue. Development of the Long Term Control Plan (LTCP) will commence. Construction will be completed and the CSO retention tank will be put into service in 2010. Development of the LTCP will commence. DEC will complete review of the two WWFPs. NYCDEP will continue to resolve operational issues at the Flushing CSO Retention Tank.
7.	NYCDEP continued to plan for maximizing wet weather flow to its WPCPs through operation optimization. Wet weather operation plans (WWOPs) have been developed for the Hunts Point, Wards Island, Bowery Bay, Newtown Creek, Tallman Island, and Red Hook WPCPs to reduce CSO discharges to the East River. These WWOPs were submitted to the NYSDEC, some have been approved, some are under review. WWOPs have also been developed for the wet-weather facilities now operating (the Corona Avenue Vortex Facility and the Flushing Creek CSO Retention Facility) or under construction (the Alley Creek CSO Retention Facility).	Continue to operate the facilities to increase treated flow volumes to the maximum extent possible. NYCDEP to revise those WWOPs that are not approved by DEC to make them approvable.
8.	NYCDEP continued to review existing and potentially attainable recreational water uses affected by pathogen bacteria from the City's CSOs under the 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 Planning. This effort specifically addresses pathogen controls for the City's current CSO abatement plans and is evaluating opportunities for improvements in the plans.	Continue water body evaluations on the upper East River and its tributaries. Continue review of recreational use attainability and begin development of LTCPs for the tributaries on the East River.
9.	The Hempstead Harbor Protection Committee and the Village of Sea Cliff awarded a contract to an engineering firm to develop a subwatershed plan for the Powerhouse Drain subwatershed in Glenwood Landing and Glen Head. A discharge pipe at the end of the drainage system discharges a million gallons a day in dry weather. The plan also has a component for developing a model water use ordinance, a draft inter-municipal agreement for joint enforcement on the water and a model watershed protection overlay district. The engineering firm began the development of the plan.	Obtain public comments, complete the plan and submit the model local law, draft inter-municipal agreement and model watershed protection overlay district to the nine local governments that share Hempstead Harbor.

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

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

	2009 Description	2010 Planned Action
1.	CTDEP continued to implement its Phase II MS4 Permit program. The general permit expired in January 2009 and was reissued for two more years without modification. MS4s will continue to submit annual reports and conduct sampling. In 2009 CTDEP received MS4 General Permit Annual Reports from 69 municipalities. One hundred thirteen municipalities are registered under this general permit. Consent orders were issued to 3 MS4s in 2008 and finalized in 2009. The penalties from these orders were used to fund a Supplemental Environmental Project (SEP) to create television and radio Public Service Announcements (PSAs) about stormwater pollution. Eight more MS4 consent orders were issued in 2009 and will be finalized in 2010. A portion of these penalties will be paid into the statewide MS4 SEP fund to help fund further stormwater projects for MS4s. Twelve NOVs were also issued to MS4s in 2009. Compliance deadlines are in 2010.	The sixth year annual reports are due to the DEP by January 2010. CTDEP will collect reports and do follow-up for late Annual Reports and sampling. DEP will finalize the 2009 consent orders. The goal is to find funding to pay for a media campaign to air the PSAs developed by the previous consent order. DEP will follow-up on the 2009 MS4 NOVs to ensure compliance.
2.	In December 2009, CTDEP issued a Notice of Request for Proposals for development of a study to evaluate Connecticut's stormwater general permits to promote better site design and incorporation of low impact development practices to minimize stormwater runoff volume and pollutant loads for new land use development projects. The goal of this project is to evaluate improved and innovative approaches for more effectively controlling stormwater quantity and quality through the Connecticut Stormwater General Permits (SGP). Objectives of the project are to: • Establish performance goals and criteria for management practices common to SGP implementation; • Identify how the performance goals and criteria can be most effectively incorporated into the SGP to meet permit limits and conditions; and • Identify mechanisms for incorporating Low Impact Development (LID) best management practices (BMP) and pollution prevention practices into the SGP for priority attention. The project will focus on Connecticut's Stormwater Construction General Permit but with applicability to CTDEP's other storm water permits and programs.	A contract will be awarded by CT DEP to a consultant that will work with CTDEP and external stakeholders to coordinate the project and revise applicable CTDEP guidance documents. The contractor will provide quarterly progress reports and a draft report by January 30, 2011. It is anticipated a final report and final revisions incorporated into the guidance manuals for stormwater and erosion and sediment control by August 2011.
3.	In summer 2008, the U.S. Environmental Protection Agency (EPA) ordered the village of Port Chester, N.Y. to improve the way it handles run-off from rainwater and correct violations of the federal Clean Water Act after EPA sampling revealed high levels of two types of bacteria in village stormwater that exceeded New York's state water quality standards. Port Chester discharges stormwater into the Byram River, which empties into Long Island Sound. The village's failure to control discharges of the polluted stormwater violated requirements of the National Pollution Discharge Elimination System. Port Chester also failed to fully implement its stormwater management plan, which New York State requires of municipalities that discharge stormwater. Under EPA's order, Port Chester must prepare, implement and enforce a stormwater management program to identify and correct improper sources of bacteria discharges. Port Chester must also monitor stormwater discharges for six months after the plan has been established to ensure bacteria discharge problems have corrected, and report its finding to EPA and the New York State Department of Environmental Conservation.	Continue testing to ensure compliance.
4.	In 2007, the following water bodies were included in a 27 water body pathogen TMDL for waters around Long Island. These water bodies are all embayments or tributaries to Long Island Sound: • Hempstead Harbor • Cold Spring Harbor – Inner • Cold Spring Harbor – Eel Creek • Huntington Harbor	The DEC will work with affected municipalities to accommodate work any of these municipalities has already undertaken to achieve reductions in pathogen loading from stormwater.

	2009 Description	2010 Planned Action
	• Centerport Harbor • Northport Harbor • Stony Brook Harbor • Port Jefferson Harbor • Conscience Bay • Setauket Harbor • Mt. Sinai Harbor • Mattituck Creek • Goldsmith Inlet • West Harbor, Fishers Island The NYSDEC has issued the draft renewal of the MS4 Stormwater General Permit (permit term May 1, 2010 – April 30, 2012). The DEC will address comments received during the public notice period. This renewed permit does include the requirements of the 27 Shellfishing pathogen TMDL including provisions for implementing watershed improvement strategies for these water bodies.	
5.	Stormwater Remediation to LIS on County Road 48 at Hashamomuck Beach The Suffolk County project was for the reconstruction and augmentation of the drainage system at the location. The pre-existent system consisted of approximately 1.8 acres of impervious pavement discharging directly into LIS. The project involved roadside gutters and curbing, to send the runoff into leaching basins. The leaching basins will help remove sediment, pathogens, and floatables as well as to recharge the groundwater table. This project was designed in order to address the observations of the Priority Waterbodies List (PWL) which states the need for stormwater remediation at this location. The region that extends from Matticuck Inlet to East Point/Fishers Island is listed in the PWL as containing a stressed condition for fish consumption.	
6.	The MS4 SPDES General Permit issued May 1, 2008 includes the implementation for a watershed improvement strategy for Oyster Bay and Mill Neck Creek, which has a Pathogen TMDL completed in 2003. Actions taken in 2009 by the Town of Oyster Bay to address some of the permit requirements include the adoption of local ordinances which established an Illicit Discharge Detection and Elimination program and a Stormwater Management, Erosion and Sediment Control program. The Town has also enacted local laws prohibiting pet waste on municipal properties, prohibited goose feeding, developed a pet waste bag program and a program to manage geese.	The permittees in these watersheds are required to, by May 1, 2011, develop and implement specified minimum control measures (MCM) as outlines in Part IX.C. Additionally, these communities are required to, by March 9, 2011, develop and submit approvable plans and schedules for completing retrofit projects.
7.	The Hempstead Harbor Protection Committee and the Village of Sea Cliff awarded a contract to an engineering firm to prepare the final designs for improvements to the Scudder's Pond subwatershed which has been identified as the single-most subwatershed contributing pathogens and other contaminants to Hempstead Harbor. Funding has been secured for a number of improvements which include installing a stormwater swirl separator unit, dredging Scudder's Pond, constructing treatment wetlands, removing invasive species and planting native vegetation, replacing two failing weirs, reducing erosion of streambanks and installing goose deterrents.	Obtain public comments, complete final designs, obtain permits, award construction contracts and begin construction of improvements. A public meeting is anticipated in March 2010 with final selection of alternatives and construction bidding occurring shortly thereafter.
8.	Intermunicipal Waterbody Management Planning for the Bronx River Watershed ($200,000) Cooperative effort of Westchester County, NYC and the Bronx River Alliance to develop a watershed management plan.	Draft report currently under review by DOS.

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.

	2009 Description	2010 Planned Action
1.	No Connecticut sewage treatment plants had pathogen control upgrades done in 2009.	One ultraviolet disinfection upgrade is slated for 2010 at the New Hartford STP.

	2009 Description	2010 Planned Action
2.	Of the 12 New York WWTP's discharging into Long Island Sound from Long Island, 9 will be upgrading their disinfection systems to Ultra Violet (UV). The Oyster Bay SD has added a de-chlorination system. It is unclear at this time as to what the Village of Great neck or the Great Neck SD facilities will choose for compliance with the disinfection requirements. Five facilities have completed the required upgrades. The remaining facilities are in various stages of upgrade.	Continue upgrading to UV disinfection.
3.	In 2009 the Interstate Environmental Commission (IEC): • conducted 57 unannounced effluent surveys at CT and NYS WPCPs that discharge into the LIS portion of the IEC. These surveys are conducted to check compliance with SPDES permits and IEC Water Quality Regulations. Pathogens monitored include fecal and total coliforms. IEC found 100 percent compliance with the existing discharge permits.	Continue to conduct effluent surveys at CT and NY WPCPs.

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.

	2009 Description	2010 Planned Action
1.	CTDEP received $977,520 from the USFWS Clean Vessel Act (CVA) Pumpout grants program in 2009 for coastal projects. By the end of the 2009 boating season there were 93 total pumpout facilities (including fifteen boats) and 22 dump stations, (including one floating rest room) at 90 boating locations. The pumpout directory is posted on the CTDEP website: www.ct.gov/dep/cva along with a variety of information about Connecticut's CVA program. Pumpouts are also listed in the annual Connecticut Boater's Guide.	Upgrades and repairs of existing pumpouts are slated for 2010. Grants are available for installation, operation and maintenance (O&M) of Marine Sewage Disposal Facilities (MSDFs). A Request for Proposals is being issued.
2.	**A goal of the Long Island Sound 2003 Agreement is:** *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.* New York state is committed to completing NDZ designation of New York waters of Long Island Sound by the end of 2010. In 2009, NYSDEC, NYS Department of State, and NYS Environmental Facilities Corp began drafting the petition.	Complete and finalize petition and submit to EPA for review. EPA action on NYSDEC application.
3.	Since 1994 New York State Environmental Facilities Corporation (EFC) has administered the NYS Clean Vessel Assistance Program (CVAP). In 2009, EFC awarded over $42,400 for two construction projects, over $42,300 in Operation & Maintenance grants for 15 projects, and $5,000 in Information and Education grants for one project in Long Island Sound. New or replacement pumpout projects in 2009 included: • A pumpout boat in the City of New Rochelle • Harbor Island East basin replacement in the Village of Mamaroneck At the end of 2009, there was a total of 61 CVA funded pumpouts in LIS in NYS. Check with your local directory before traveling to any of the listed pumpouts.	Continue implementation of the CVA program in 2010. Compile a listing of both CVAP funded and other pumpout facilities to support the designation of LIS as a vessel waste NDZ.
4.	The Long Island Sound Futures Fund awarded a $35,500 grant to Going Coastal to provide pumpout services to recreational boaters from May to October five days a week. It will pump 80 boats and remove a projected 1,200 gallons of waste each week with 28,800 gallons removed by the end of the season in Eastchester Bay, East River to Whitestone Bridge to Little Neck Bay, and Bay, Queens, New York.	

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.

	2009 Description	2010 Planned Action
1.	In 2009, the Town of Old Saybrook conducted public education meetings on their proposed decentralized wastewater district. A public hearing was held on June 17, 2009 to elicit formal public comment. On July 29, 2009, a public meeting was held to consider the adoption of ordinances establishing the decentralized wastewater management district and authorizing the expenditure of funds to implement the recommendations. That meeting was followed by a referendum vote on August 11, 2009 that passed. The goal of the decentralized wastewater management district is to reduce the impact of wastewater discharges from existing high density development (typical lot size is 5,000 sf) on the surrounding environment. This proposed district would require roughly 1,900 properties in identified areas of town to upgrade their existing onsite treatment systems to meet specific minimum criteria. Each property will have its current onsite system compared to the standards; if the system does not meet those standards, either a conventional upgrade (septic tank and leaching system) or alternative technology will be installed which meets those standards. The determination of which approach is required will be made during a detailed evaluation of each property, and is based on existing site conditions (soils, depth to groundwater, proximity to sensitive resources, etc.). Alternative technologies will be required to meet a performance goal of 50% reduction of total nitrogen in the effluent (approximately 19 ppm).	On May 17 there was an informational session for the first neighborhood. On June 15, Notice of Entry letters went out to homeowners in that first neighborhood, to begin the process of site inspections on all lots within the neighborhood. Implementation is planned to begin in 2010 covering a period of seven years at an estimated total cost of $45 million.
2.	The hamlet of Locust Valley, located in the Town of Oyster Bay in northeastern Nassau County, is currently unsewered. Residential septic system failures have resulted in contaminated groundwater flowing into Mill Neck Creek, which flows into Oyster Bay and, ultimately, Long Island Sound. With the County's recent acquisition of the City of Glen Cove's WPCP, a plan has been jointly developed between Nassau County and the Town of Oyster Bay to install sanitary sewers and construct a pumping station and force main that will convey the sanitary wastewater to the Glen Cove WPCP for treatment. In addition, the plan calls for the installation of storm water drainage with treatment, and associated road improvements. The Glen Cove WPCP has tertiary treatment installed and operating to remove nitrogen to protect Long Island Sound. ARRA funding will support the planning, design, and construction of the collection system, pump station, and force main for the Locust Valley section of Oyster Bay in Nassau County. This is a joint project with the Town of Oyster Bay known as The Birches.	Complete the work.

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.

	2009 Description	2010 Planned Action
1.	Boater education and the Clean Marina program continued to be a focus of the CTDEP CVA program in 2009. CTDEP staff attended several boat shows and other events to distribute information regarding clean marina and boating practices, marine sanitation devices and pumpouts. Two interactive kiosks were developed for use at boat shows and other various locations throughout the state to educate the public about the Clean Vessel Act, pumpouts, and other clean boating practices. An Action Guide for Boaters was distributed at events such as boat shows and other informational events. CT DEP maintains its "Clean Boater Program" that includes a segment on pathogens.	Continue to promote the clean marina and 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.

	2009 Description	2010 Planned Action
2.	The Town of North Hempstead, the Manhasset Bay Protection Committee and the Hempstead Harbor Protection Committee produced a series of three TV shows to educate the public on watersheds in general, how the protection committees function and steps boaters and those on land can take to reduce contamination of our waterways.	Continue to air the shows on the Town of North Hempstead's cable channel.
3.	NY Environmental Facilities Corporation (EFC) published boating education advertisements in the Long Island Edition of *Boating World*. The half page ads urged boaters to use pumpouts and directed them to the EFC website for more info.	EFC will continue to publish educational materials in *Boating World*.
4..	In 2009, the New York Sea Grant Nonpoint Education for Municipal Officials Program (NYSG NEMO) provided direct stormwater management support to municipalities throughout Long Island. Of note, consultations, presentations, and/or workshops were provided to Long Island Sound communities, including the Nassau County Stormwater Coalition, the Towns of Oyster Bay and Southold, the Suffolk County Highway Superintendents Association, the Hempstead Harbor and Manhasset Bay Protection Committees, and to the Villages of Plandome Heights, Port Jefferson, and Russell Gardens. Further, NYSG NEMO continued to administer the "Phase II LI" listserve. Now reaching nearly 200 L.I. officials, "Phase II LI" has proven to be an effective means of leveraging expertise, technical resources, and information among municipalities.	Continue to deliver outreach and support designed to ensure integration of municipal PH II storm water management with advancement of LIS CCMP objectives.

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.

	2009 Description	2010 Planned Action
1.	During 2009 there were 1,034 beach day closures out of a total of 25,440 beach days (4 percent) at the 240 monitored beaches on Long Island Sound from Memorial Day to Labor Day. Connecticut: 108 beach-day closures at private and municipal beaches. New York: 926 beach-closure days reported in the New York portion of Long Island Sound; Nassau Co., 330 days; Suffolk Co, 246 days; Westchester Co., 230 days; NYC 120 days. Summer 2009 was a particularly wet year and is the most probable cause of the large increase in closure days in 2009 as many closures are preemptive. EPA's Beach Watch website is: http://www.epa.gov/beaches.	Municipalities, regional health districts, and departments will continue to monitor for bacteria. State, city, town and county monitoring for pathogens will continue in 2010.
2.	The CT Dept. of Public Health (CTDPH) received $223,000 from EPA for FY2009 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 $519,000 from EPA for FY2009 Beach Act funding in New York state.	Expect continued EPA funding for Beach Act monitoring in 2010. Beach Act 2010 funding for CT is a projected at $225,000. Expected Beach Act funding for New York in 2010 is $351,000.
3.	The Connecticut Department of Agriculture, Division of Aquaculture (CTDOA/DA) continued its annual monitoring of shellfish beds for pathogens, providing invaluable information to the shellfish industry and the public on the classification and condition of shellfish beds.	
4.	In an effort to re-open shellfish beds in Hempstead Harbor, the NYSDEC's Bureau of Marine Resources (BMR) Shellfish Growing Area Classification Unit, in conjunction with the State Programs Branch of the U.S. Food & Drug Administration (FDA), conducted a dye study in Glen Cove Creek and Hempstead Harbor on September 28, 2009. This was in order to determine the movement of effluent (dilution, dispersion and time of travel) from the Glen Cove sewage treatment plant (STP) and to determine the size of the required closed safety zone around the STP outfall if NYSDEC-BMR determines some portions of outer Hempstead Harbor and western Long Island Sound area can be upgraded to certified or seasonally certified for the harvest of shellfish. Hempstead Harbor and adjacent areas of Long Island Sound,	FDA will produce a final report on the findings of the dye study. Upon analysis of the data and further testing by NYS BMR, portions of outer Hempstead Harbor and the adjacent area of the Sound that are currently classified as uncertified (closed) for the harvest of shellfish may be reclassified to certified (open) during all or part of the year.

	2009 Description	2010 Planned Action
	west of Matinecock Point, are currently classified as uncertified for the harvest of shellfish. More information on the closure can be found at: http://www.dec.ny.gov/regs/4014.html#nhemp Re-opening shellfish areas would be beneficial to commercial and recreational shellfish harvesters and is a priority of the LISS.	
5.	In 2009, the Interstate Environmental Commission: • continued to conduct its tri-state water quality monitoring program and summarized its results in its 2009 Annual and In-Brief report. The Report describes the status of wastewater plant upgrades and construction in the tri-state environmental District. The report can be viewed at www.iec-nynjct.org. ▪ conducted dry weather inspections of MS4s. For the period January 1 through December 31, 2009, 26 inspections were completed and found four flowing MS4s under dry weather conditions; and were reported to NYS DEC, Region 2 for remediation. • continued pathogen monitoring in the NY-NJ Harbor Complex. Completed in August 2008, pathogen sampling was conducted during dry and wet weather conditions at 9 stations on the Hudson River from Yonkers to Bear Mountain to characterize concentrations in regards to bathing beach criteria, as well as to add to the 2001-2005, inclusive, database. • 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 2008. From 2002 to 2008, 22 violations were discovered and as of November 2008, 21 have been remediated. Additional track down was conducted during 2009.	Continue preparation of the Annual Report, which is a statutory requirement due annually on January 24; continue the municipal WPCP monitoring; IEC will continue and expand dry weather MS4 inspections in other New York counties, as well as Connecticut and New Jersey. IEC will continue pathogen monitoring during 2010 in support of TMDL development and beach siting. IEC will continue pathogen monitoring, laboratory analysis and data sharing during 2010, under dry weather conditions only in the Byram River. IEC received funding under the ARRA Section 604(b) to conduct water quality monitoring and modeling of the Byram River; the study started in December 2009. IEC will collaborate with Croton-Kensico Watershed Intermunicipal Coalition to develop a regional map of a municipal storm sewer system. This project began during December 2009 and is funded under ARRA IEC will act as a pass-through entity to provide ARRA funds for Nassau & Suffolk Counties' MS4 management planning assistance.
6.	With support from the LISS through the Long Island Sound Futures Fund, the Hempstead Harbor Protection Committee will expand its current water monitoring program to collect data required to open additional portions of the harbor to shellfish harvesting and to monitor impacts of planned projects. 2009 was a historic year for Hempstead Harbor with the opening of parts of the harbor to shellfish harvesting for the first time in 70 years. This grant will expand this successful water monitoring program to include 18 additional locations in the inner and mid- harbor. The monitoring of key water quality parameters may allow the nine municipalities of the Hempstead Harbor Protection Committee to open more shellfish beds.	

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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 and 2006 the LISS awarded funds to New York State to work with Connecticut in collecting and testing new specimens for toxic contamination. This work was completed in 2009 and lead to revision of state fish consumption advisories in New York and Connecticut for certain species.

ENVIRONMENTAL INDICATORS/RESULTS/TRENDS:

Final data on fish tissues analyzed for toxics show a significant decline in polychlorinated bi-phenyls (PCBs) and mercury in fish species sampled. Toxic emissions in the region and to the Sound have declined due to increased environmental regulation and relocation or closing of manufacturing facilities in the watershed. Historical contaminant levels, as measured in sediments and in living marine resources, continue to show a downward trend, which is particularly evident for banned or controlled chemicals such as DDT and chlordane. Today, the remaining sources of toxic chemicals to the Sound come from sewage treatment plants and industrial discharges, which are regulated; and from urban storm water and atmospheric deposition, which are more difficult to control. Regulatory programs strive to reduce chemical discharges and minimize toxicity of effluents. However, the contaminants released in the past remain in the sediments of Long Island Sound long after the discharges cease. Emerging contaminants such as the unregulated discharge of chemicals from pharmaceuticals and personal care products represent a potential but as yet undefined risk.

2009 HIGHLIGHTS:

- In 2009, 81 of 82 Connecticut STPs (99%) passed toxicity testing, the highest percentage since testing records began in 1989. Facilities are reported as not passing toxicity test when there are two consecutive monthly failures or three failures during a one-year period for the past year. The one facility that did not pass testing was Beacon Falls WPCF on the Naugatuck River.

- In June 2009, fish consumption advisories for LIS were changed in both states partly due to preliminary results from a LISS-funded bi-state study into the concentrations of PCBs and other chemicals in fish and lobster tissues in LIS conducted by the New York State Department of Environmental Conservation and the Connecticut Department of Environmental Protection (completed Fall 2009).

- Suffolk County's Soil and Water Conservation District began a cost-sharing program to help East End farmers construct agricultural pesticide handling facilities.

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.

	2009 Description	2010 Planned Action
1.	In New York, in summary, 8 of the 11 facilities did not test during 2009 including Blind Brook, Bowery Bay, Hunts Point, Mamaroneck, New Rochelle, Port Chester, Tallman Island and Wards Island. The first 6 facilities listed will however be testing in 2010, while the last 2 facilities listed are scheduled to test in 2011. No data has been received yet for 2010. Glen Cove is a continuous semi-annual tester and passed 2 of 2 chronic tests conducted in 2009, and 1 of 1 chronic tests conducted thus far in 2010. To date, no WET limits are required at this facility. Newtown Creek is a continuous quarterly tester and passed 4 of 4 acute tests and 4 of 4 chronic tests in 2009, and also does not require WET limits at this time. Finally, Red Hook a quarterly tester per the 5 year cycle passed 4 of 4 acute tests and 4 of 4 chronic tests in 2009, and also does not require WET limits at this time.	Blind Brook, Bowery Bay, Hunts Point Mamaroneck, New Rochelle and Port Chester will initiate quarterly tier 1 acute and tier 2 chronic toxicity testing by March 2010 with the first report received by 6/10. Tallman Island and Wards Island are scheduled to WET test beginning in 2011
2.	All New York SPDES Permits have chlorine limits to ensure the applicable water quality standard will be met. Most NY facilities that are upgrading to meet the WLA for nitrogen as established in the 2000 LIS Nitrogen TMDL are also upgrading their disinfection systems to ultra violet from chlorination. All changes will be completed by 2014 for facilities on Long Island and by 2017 for NYC and Westchester plants.	
3.	Nassau County Storm water run-off impact analysis is a program whereby storm water pollutant loadings are evaluated on a watershed by watershed basis.	Continue assessing on a watershed-by-watershed basis.
4.	Suffolk County's Soil and Water Conservation District began a cost-sharing program to help East End farmers construct agricultural handling facilities. The containment structures can be permanent or portable and are used for stirring and mixing pesticides and also for cleaning equipment used to apply pesticides. This will keep pesticides from reaching the ground and seeping into groundwater during these operations, which is more troublesome than actual spraying. Ten structures were built across the East End last year. Farmers pay up front to build the facility and are then reimbursed by the County Department of Environmental Conservation at a 75 percent cost share, up to a maximum of $30,000, which is funded with fines collected by the DEC from polluters for spills and noncompliance issues.	
5.	In 2009, 81 of 82 Connecticut STPs (or 99%) passed toxicity 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 one facility that did not pass testing was Beacon Falls WPCF on the Naugatuck River.	CTDEP will continue working with STPs to stay in compliance with toxicity tests.
6.	In Connecticut, facilities registered under the General Permit for Storm Water Associated with Industrial Activities are required to test their storm water discharges annually for oil & grease, pH, chemical oxygen demand, total suspended solids, total phosphorous, Total Kjeldahl Nitrogen, Nitrate as Nitrogen, Copper, Zinc, Lead, hardness, conductivity and aquatic toxicity. Over 1500 facilities are registered under the Industrial Storm Water General Permit. On April 14, 2009 Connecticut reissued its General Permit for the Discharge of Stormwater Associated with Industrial Activity. 86.3 percent of facilities that monitored in 2009 met the target goal for aquatic toxicity (LC50>50%) compared to 83.2 percent of facilities meeting goal in 2008. Facilities that fail to submit monitoring under this permit receive Notices of Violation and facilities that discharge high levels of monitored pollutants in their storm water receive correspondence from CTDEP and are targeted for inspection.	The General Permit will expire on September 30, 2010 and be reissued as is through October 2011 at which time a new modified permit will be issued.
7.	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	CTDEP will continue working to reduce the amount of toxic

	2009 Description	2010 Planned Action
	waste collection program. In 2009 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, 156 had access to at least one household hazardous waste collection. Information on Connecticut household hazardous waste centers and events is posted on the web at: http://www.ct.gov/dep/cwp/view.asp?a=2718&q=325448&depNav_GID=1646 Prescription medicine collection days are held by individual towns.	substances released to the environment. CTDEP will continue to work with regional and national associations to reduce waste toxicity. CTDEP will encourage the development of programs for the separation and recycling or proper disposal of wastes that contribute to toxicity, such as consumer electronics, paint, and, mercury-containing lamps (including fluorescent light bulbs), and thermostats.
8.	New York Sea Grant organized a committee to conduct a pharmaceutical collection event on Long Island. This event is a collaboration of New York Sea Grant and the Long Island Sound Study, Stony Brook University and Stony Brook University Medical Center, Suffolk County Department of Health Services, the Suffolk County Legislature, and Triumvirate Environmental Inc. Pharmaceuticals were collected from Suffolk County residents during a one-time event on April 18, 2009. More than 400 pounds of pharmaceuticals were collected from 150 participants.	

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.

	2009 Description	2010 Planned Action
1.	The National Marine Fisheries Service (NMFS), the New England District Army Corps of Engineers (ACOE) and CTDEP are developing 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 is leading the effort to establish criteria and provide site guidance for the general public, and reduce the uncertainty associated with such proposals. The effort will cover site identification, characterization of sub-bottom geology, resource impacts, and mitigation measures as well as scheduling and operation. In 2010 ACOE will finalize a draft set of guidelines that were reviewed by EPA and CTDEP in 2008-09. The guidelines will be posted on the ACOE regulatory website.	Finalize guidelines.
2.	The U.S. Army Corps of Engineers is developing a Dredged Material Management Plan (DMMP) for Long Island Sound, in cooperation with EPA, NOAA, and the states of Connecticut, Rhode Island and New York. The estimated cost of the DMMP is $12 million. EPA designated the Western and Central Long Island Sound Dredged Material Disposal Sites for long-term use in June 2005, conditioned on the completion of the DMMP by 2013. The New London Disposal Site, which serves the eastern LIS region, is scheduled to close in October 2011 and the Cornfield Shoals site is scheduled to close in 2013. An Environmental Impact Statement to evaluate a potential replacement for this site has not yet begun due to a lack of funding.	The Corps has completed a dredging needs assessment and will be formulating alternatives and developing screening criteria. A working group will be formed to assist in the screening criteria development.

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.

	2009 Description	2010 Planned Action
1.	**A Long Island Sound 2003 Agreement action item for this area is:** *By 2003, New York and Connecticut will meet to jointly review their approaches for Long Island Sound fish consumption advisories and to discuss a process to achieve the goal of consistent fish consumption advisories for Long Island Sound.* The Connecticut Department of Public Health (DPH), in coordination with similar actions in six other East Coast states, updated its fish consumption advisory for striped bass and bluefish, species commonly caught in Long Island Sound. DPH now advises that striped bass and bluefish over 25 inches can safely be consumed once per month by age 6 or over who is not in the high risk group (see below). Previously, the advise for these species was to limit consumption of striped bass and large bluefish to once per two months. Based on fish tissue testing conducted in 2008 this is good news. Connecticut's current LIS fish consumption advisory is for PCBs in striped bass and bluefish, and lead in Blue Crab in Mill River, Fairfield, CT. The CT fish advisory is posted on the CTDOH website: http://www.ct.gov/dph/cwp/view.asp?a=3140&Q=387460 NYS Department of Health published its 2009—2010 *Chemicals in Sportfish and Game Health Advisories*. The report can be found on-line at: http://www.nyhealth.gov/environmental/outdoors/fish/docs/fish.pdf There were major changes to the advisories such as: restrictions for the high risk group (infants, children under the age of 15 and women of childbearing age) have gotten stricter. People in this group are advised to eat only one meal per month of bluefish over 20" and one meal per week for smaller bluefish. Additionally, there is no longer an east—west segregation, fish taken from LIS-waters are considered the same whether taken east or west of Wading River. The reasons for the shift are highlighted below.	Continue project through 2010.
2.	In June 2009, fish consumption advisories for LIS were changed in both states partly due to preliminary results from a LISS-funded bi-state study into the concentrations of PCBs and other chemicals in fish and lobster tissues in LIS conducted by the New York State Department of Environmental Conservation and the Connecticut Department of Environmental Protection. In addition to the LISS study's data, the advisories were also affected by extensive discussions with the other Atlantic coast states from Maine to Maryland and reviews of fish data from as far back as 1984. Fish consumption advisories are released by both states on an annual basis, usually in June.	Continue discussing fish consumption advisories, especially in light of the final report.

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.

	2009 Description	2010 Planned Action
1.	**A Long Island Sound 2003 Agreement goal for this area is:** *By 2003, update the Long Island Sound Contaminants of Concern list after considering National Coastal Assessment monitoring results and other sources of data.* A technical characterization of toxic contaminants in LIS, which was reviewed by the LISS STAC has been updated. The contaminants of concern will be considered in the context of the LIS ecosystem data synthesis project. One chapter of that document will address pollutant sources, magnitudes and trends.	Continue work on the LIS synthesis document through 2010.

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

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

	2009 Description	2010 Planned Action
1.	The report, mentioned previously, "*Chemical Residue Concentrations in Four Species of Fish and the American Lobster from Long Island Sound, Connecticut and New York: 2006 and 2007*, was completed in October 2009. It is available on the NYSDEC website at: http://www.dec.ny.gov/docs/fish_marine_pdf/lis2009rep.pdf	Continue discussions

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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.* The former work to identify impervious surfaces was completed through a LISS-funded project in 2006. The latter work is now being conducted as part of ongoing programs in the states based on that work.

ENVIRONMENTAL INDICATORS/RESULTS/TRENDS:

Ongoing programs to control sources of debris to the Sound include regional/statewide anti-litter campaigns, beach cleanup and adopt-a-spot programs, state and 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.

2009 HIGHLIGHTS:

- As a result of International Beach Clean Up Day in September 2009, volunteers from Connecticut and New York removed thousands of pounds of debris from many LIS beaches and recreational sites. In New York, 2,641 volunteers removed more than 36,000 pounds of debris from 68 sites and more than 83 miles of shoreline. In Connecticut, more than 2,100 volunteers collected 13,500 pounds of debris on 52 miles of shoreline at 51 sites.

- In 2009 twelve more marinas were certified as Connecticut Clean Marinas bringing the total to 27 as of December 2009. As of the close of 2009, another twenty-two marinas were pledged to become a certified “Clean Marina" within one year.

- NY has implemented a SPDES General Permit for Municipal Separate Storm Sewer System (MS4), GP-0-08-002 which requires MS4 communities to implement six minimum control measures designed to reduce the pollutant loading. Floatables is one of the pollutants of concern addressed by the MS4 program by implementation of good housekeeping and maintenance. This program is implemented by more than 30 regulated MS4s that discharge to Long Island Sound. For selected TMDL waters, there are additional provisions that regulated MS4s must comply with to reduce the load of pollutant of concern within their designated watershed improvement strategy areas. New York will issue a new permit in 2010.

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.

	2009 Description	2010 Planned Action
1.	New York City continues to implement actions for reducing floatables in its harbor waters and neighboring water bodies, including Western Long Island Sound. In 2009 New York City:	
	• continued to improve the effectiveness of its catch basins to prevent street litter from entering harbor waters through its ongoing inspection and hooding program;	Continue inspections and hooding as necessary.
	• continued to increase the number of hooded catch basins through re-construction of un-hoodable basins;	Continue reconstruction of basins.
	• continued with construction and operation of CSO retention facilities for the East River and Western Long Island Sound that will include discharge volume reductions and screening to reduce floatable 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;	Completion of waterbody/watershed facility plans during which the need for additional floatable controls will be evaluated.
	• evaluated its *Final Floatables Containment Program* to identify methods of improvement to maximize CSO floatables capture throughout the City including the upper East River and several of its tributaries. Ongoing facility improvements and maintenance activities continued throughout 2009 to improve the efficiency of collection;	Assess the outcomes of the Final Program and evaluate potential changes to the program. Continue to operate containment program.
	• continued to retrieve debris from local waters from CSO and non-CSO sources. The Final 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; and,	
	• Used its skimmer vessels in its skimming operations.	
	See Pathogens and CSO Sections of this report for more information.	
2.	The Comprehensive New York City-Wide CSO Floatables Plan approved by NYSDEC in 2007 in conjunction with the CSO Long Term Control Project continued. An annual report is submitted every April 1st with the Annual CSO BMP Report.	Continue floatables control planning in individual water bodies/ watersheds as determined through LTCP development. Continue floatables monitoring program activities.
3.	NY has implemented a SPDES General Permit for Municipal Separate Storm Sewer System (MS4), GP-0-08-002 which requires MS4 communities to implement six minimum control measures designed to reduce the volume of stormwater from their systems as well as reducing pollutant load for pollutants such as floatables and sediment. For TMDL waters, there are additional provisions MS4s must comply with to reduce the load from the MS4 for the specific pollutant for which the TMDL was developed. NY has also implemented a General Construction Permit for Stormwater Discharges from Construction Activity, GP-0-08-001. One of the requirements of this permit is that the volume of stromwater runoff post construction must be the same as the volume of stormwater runoff pre-constructions. Additionally, the permit requires the implementation of best management practices (BMPS) as defined in the NYS Stormwater Management Design Manual. By implementing the appropriate BMPs, stormwater runoff volume during construction will be reduced thus reducing any potential pollutant load from covered activities.	

	2009 Description	2010 Planned Action
4.	The Greater New Haven Water Pollution Control Authority (WPCA) completed the CSO sewer separation project for the Lombard area. The Greater New Haven Water Pollution Control Authority is continuing to implement its approved Combined Sewer Overflow Long Term Control Plan for the containment of a 2-year frequency storm. Recently completed projects include the following: construction of a 5.5 million gallon CSO storage tank on Ella Grasso Boulevard (Truman School Tank). Future projects include: • treatment plant upgrade to remove nitrogen and to expand the hydraulic capacity for treatment of higher CSO flows	Ongoing projects include: • Reconstruction of the tide gates to prevent LIS from entering the sanitary sewer collection system • sewer separation projects in the area of Yale University • infiltration and inflow removal projects in Hamden and East Haven which will result in lower flows into the combined sewer system in New Haven
5.	Combined sewer overflow (CSO) projects are being undertaken to separate storm and sanitary flows from combined sewers to minimize the number and volume of overflows in Connecticut. The following projects are eligible for maximum grants of 50% with the remainder being covered by 20-year loans at 2% per year: • **Bridgeport** is continuing separation work in the southern part of the city. This work will enable the City to reduce CSOs to the Pequonnock River. Bridgeport CSO $14,000,000 Bridgeport CSO design $5,175,900 ▪ **The Greater New Haven WPCA** is working to separate sewers in the vicinity of Yale University. This project will reduce the frequency and volume of downstream CSOs. GNHWPCA CSO Construction $19,200,000 GNHWPCA CSO Design $3,000,000 ▪ This **Metropolitan District Commission** (MDC) separation effort is in the north end of Hartford. The project will reduce the frequency and volume of CSO discharges to Gully Brook. MDC CSO Construction $60,000,000 MDC CSO Design $6,000,000 ▪ **Middletown** is proposing to separate sewers in the Old Mill Road area. This will reduce excessive flows to the WPCF thereby minimizing bypasses. Middletown CSO Construction $2,000,000 ▪ The City of **Norwalk** is proposing the first in a two phase project to upgrade their existing WPCF to remove more nitrogen and to treat all combined sewage flows at the WPCF. This first phase will enable the WPCF to better handle the debris, grit and high flows coming into the facility. Portions of this proposed project are eligible for maximum grants of 50% with some portions at a maximum 20% grant. The remaining costs are eligible for a twenty year loan at 2% per annum. Norwalk WPCF Denitrification/CSO $40,000,000.	Continue work on projects in out-years.
6.	The Bronx River Watershed Initiative 2009, provided $169,550 to the Town of Eastchester to implement a plan to address stormwater quality at its municipal maintenance yard by a combination of pollution elimination and stormwater retrofits. The plan entails the construction of several structural best management practices to minimize and capture pollutants generated from on site activities and to stem their migration to the Bronx River. All stormwater flow across the site will be captured in the catch basins and directed through the structural BMP's where floatables, sediment and hydrocarbons will be captured and retained for removal and proper disposal.	Project period for this work 2009-2011

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.

	2009 Description	2010 Planned Action
1.	*National Beach Clean Up Day* in September 2009 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.	Save the Sound, Inc., in cooperation with the CT Sea Grant program and the American Littoral Society in New York will promote

	2009 Description	2010 Planned Action
	The LISS provided three $6,000 grants focused on reducing coastal debris including floatables through the Long Island Sound Futures Fund. The New York Chapter of the American Littoral Society received funds to coordinate a massive Coastal Cleanup Day effort. In total for NY LIS locations in 2009, 2,641 volunteers removed over 36,200 pounds of debris from 68 sites which covered 83 miles of shoreline. In Connecticut, Save the Sound was provided support to manage the annual coastal cleanup and other events that engaged 2,100 volunteers and removed more than 13,500 pounds of debris on more than 52 miles of shoreline at 51 sites. See the Atlantic chapter of the ALS website for more information on beach cleanups: http://www.alsnyc.org. See CFE /STS) website for more information about beach cleanups http://ctenvironment.org/beach-cleanups.cfm The Norwalk Seaport Association engaged volunteers to perform beach and garbage clean up at Sheffield Island, Stewart B. McKinney National Wildlife Refuge and on lands owned by the Norwalk Seaport.	National Clean Up Day on September 18, 2010.
2.	The LISS Futures Fund Small Grants program awarded a $5,000 grant to the Northeast Chapter of the American Littoral Society (ALS) in New York to assist in conducting its annual beach cleanup program on Long Island Sound beaches in 2009; and a $5,000 grant to Connecticut Fund for the Environment to assist beach cleanups in Connecticut in 2009. See the Atlantic chapter of the ALS website for more information on beach cleanups: http://www.alsnyc.org. See CFE /STS website for more information about beach cleanups http://ctenvironment.org/beach-cleanups.cfm	The 2010 beach cleanup is scheduled for September 18, 2010.
3.	Proper control of debris and refuse is a component of the Connecticut Clean Marina program. Proper containers and recycling programs are required for corrugated cardboard, glass and metal food and beverage containers, leaves, newspaper, white office paper, scrap metal, waste oil, spent lead acid storage batteries, nickel-cadmium rechargeable batteries. Other refuse must be disposed in covered dumpsters or other suitable containers. In 2009 twelve more marinas were certified as Connecticut Clean Marinas bringing the total to 27 as of December 2009. As of the close of 2009, another twenty-two (22) marinas were pledged to become a certified “Clean Marina" within one year.	Additional marinas will pledge to become certified Clean Marinas and additional certifications will occur.
4.	Connecticut’s Clean Boater Program encourages boaters to learn about and use clean boating techniques. The Clean Boaters pledge is: *I pledge to be a Clean Boater and to make the sound choice to keep Connecticut's waterways clean. I pledge to keep fuel, sewage, plastics, trash, spent fishing line, and invasive species out of the water, to clean my boat responsibly, and to dispose of all wastes properly.“* Seasonal "boating education assistants" visited marinas and boat launches in Summer 2009 to answer questions, distribute Clean Boater Packets and encouraged boaters to sign the Clean Boaters Pledge.	Seasonal "boating education assistants" will visit marinas and boat launches in Summer 2010 to answer questions, distribute Clean Boater Packets, and encourage boaters to sign the Clean Boaters Pledge.
5.	NY has implemented a SPDES General Permit for Municipal Separate Storm Sewer System (MS4), GP-0-08-002 which requires MS4 communities to implement six minimum control measures designed to reduce the pollutant loading. Floatables is one of the pollutants of concern addressed by the MS4 program by implementation of good housekeeping and maintenance. This program is implemented by more than 30 regulated MS4s that discharge to Long Island Sound. For selected TMDL waters, there are additional provisions that regulated MS4s must comply with to reduce the load of pollutant of concern within their designated watershed improvement strategy areas.	NYS will issue a new permit in 2010.
6.	NY has also implemented a General Construction Permit for Stormwater Discharges from Construction Activity, GP-0-08-001. The permit requires the implementation of stormwater management practices (SMPs) as defined in the NYS Stormwater Management Design Manual. An important component of a sound design of SMPs is pretreatment and maintenance. Pretreatment is effective for control of large particles and debris and this function is kept up by routine maintenance.	NYS will issue a new permit in 2010.

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 eleven actions in this section of the Agreement. As of December 2009, four are ongoing, and seven have been completed. A continuing goal is to report progress against the LISS habitat restoration goals (see below).

ENVIRONMENTAL INDICATORS/RESULTS/TRENDS:

The primary environmental indicators for this priority area are the number of acres of coastal habitat restored, protected or enhanced, and the linear miles of river corridor reopened to diadromous fish passage. Of the original goal to restore 2000 acres by 2008, the LISS partners restored 805 acres as of December 2009. Of the original goal to reopen 100 river miles to fish passage by 2008, the LISS partners reopened 146 miles as of September 2008, accomplishing this goal. The Management Conference agreed to restore or protect an additional 300 acres of coastal habitat and reopen an additional 50 river miles to anadromous fish passage from 2006-2011 -- as of March 2009 the LISS has restored or protected 1,376 acres and reopened 153 river miles.

2009 HIGHLIGHTS:

- The Management Committee approved the use of $300,000 in Long Island Sound 2009 funding for land acquisitions in support of the Stewardship Initiative in Connecticut. A total of $1.5 million was approved for stewardship acquisitions with FY2010 LISS funding.

- In 2009, 121.8 acres of coastal habitat were restored and 6.7 river miles were reopened for fish passage.

- The Long Island Sound Futures Fund large grant program selected five habitat restoration projects and one stewardship project in 2009. These projects are part of a total award fund of $943,755 with more than $1.7 million in local match provided by grantees.

- The New York Ocean and Great Lakes Ecosystem Conservation Council launched a new "Data Portal" making information on NYS natural resources publically and easily accessible

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

L-1. RESTORATION AND ENHANCEMENT OF AQUATIC AND TERRESTRIAL HABITATS (CCMP TABLE 40, P.107)

KEY ELEMENTS: CONTINUE AND ENHANCE PROGRAMS TO RESTORE TIDAL WETLANDS AND OTHER HABITATS. DEVELOP A STRATEGY TO INVENTORY AND PRIORITIZE HABITAT RESTORATION AND ENHANCEMENT NEEDS.

	2009 Description	2010 Planned Action
1.	The LISS Habitat Restoration Initiative - made up of representatives from CTDEP, NYSDEC, EPA, NOAA, ACOE, NY Sea Grant, CT Sea Grant, and USFWS - continued working toward the LISS goal of 2000 acres of coastal habitat restored by 2020 and 150 river miles reopened to diadromous fish passage by 2011. In 2009, 121.8 acres of coastal habitat were restored and 6.7 river miles were reopened for fish passage. As of December 2009, the LISS has restored 804.93 acres and reopened 152.75 miles of riverine migratory corridor, accomplishing the above latter restoration target.	Continue habitat restoration work in 2010.
2.	The LISS continued to provide funding to support the New York and Connecticut habitat restoration coordinator positions in 2009. The state coordinators provide technical assistance to municipal and local landowners and other partners in implementing the LISS habitat restoration plan. There are currently 20 active Tidal Wetland (TW) projects and 32 active Riverine Migratory Corridor projects in the workplans.	The Management Committee approved base program funding for the LISS habitat restoration program coordinator positions in 2010.
3.	In Connecticut: • Camp Harkness Tidal Wetland Restoration project – Insufficient tidal flow through a culvert under one of the Camp's roads had led to dense stands of tall Phragmites. The CTDEP Wetlands Habitat and Mosquito Management (WHAMM) program did a creek/ditch cleaning and phragmites control, increasing tidal flow to the wetland assisting in diminishing phragmites growth to restore native vegetation to 4.2 acres of tidal wetland. • The Mill River restoration project in Stamford also included restoration of 0.8 acres of tidal wetlands and removal of abandoned concrete blocks and gate structures beneath the Pulaski Street Bridge (an obstruction to fish passage during low tide). This project also opened up approximately 4.5 miles of the river to fish passage, and CTDEP restocked the river in Spring 2010 with about 400 juvenile blueback herring in an attempt to restore this species (see below)	Ongoing monitoring of the health of the restored wetlands.
4.	Connecticut Sea Grant provided $1,000 for a UConn for a graduate student of Peter Miniutti (CANR, Plant Science) to create a master plan for coastal land use for the Borough of Fenwick.	
5.	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: • Crystal Lake Dam Bypass Channel - A bypass was constructed around Crystal Lake Dam, a 4' tall, low-hazard (class A) dam in Fishing Brook that blocks the passage of fish. The fishpass opens up 1.2 miles of stream to anadromous fish passage. • Mill River Main Street Dam Removal – The Mill River located in Stamford, aka Rippowam River, dredging of the Mill Pond, removal of the Main Street Dam and concrete retaining walls 350 feet upstream of Main Street and restoration of a natural stream channel through a quarter-mile reach of Mill River, thereby opening up 4.5 miles (32 acres) of riverine habitat to anadromous fish. • Vargas Ice Pond Dam Fishway – in Stonington, CT a fishway was built at a small (18" high) barrier dam on Vargus Pond brook opening 1.0 mile to anadromous fish passage. Total RMC restored since 1998 is 152.3 miles.	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 150 RMC miles by 2011.
6.	NYSDEC has a draft shellfish restoration strategy that will serve as a framework for further plan development.	Internal review pending until staffing levels are sufficient.
7.	The New York State Seagrass Task Force, created by the NYS Legislature in 2006 to develop recommendations to restore, research, preserve, and manage underwater seagrass habitats, held three (3) public meetings on Long Island during the open public comment period on their DRAFT Report of the New York State Seagrass Task Force:	Plans for 2010 include reporting out on the research the Task Force funded, meeting with public officials, instituting the

	2009 Description	2010 Planned Action
	Recommendations to the New York State Governor and Legislature. Nearly sixty (60) federal, state, and local government, industry, environmental organization representatives and citizens attended and participated in the public meetings. Comments were incorporated into the Final Report of Seagrass Task Force, presented to Governor Paterson and Legislature on December 30, 2009.	Seagrass Working Group. Additionally, the NYS Legislature came up with a first draft of a seagrass protection act bill, which puts a lot of the responsibility in the hands of the estuary programs, including the LISS.
8.	Cornell Cooperative Extension's Eelgrass Restoration Program is currently involved in two major projects within Long Island Sound. The "Eastern Long Island Sound Eelgrass Restoration Project (Phase III)", funded by the Long Island Sound Futures Fund, entails the establishment of ½ acre of eelgrass at two locations (the north sides of Plum and Great Gull Islands; totaling one acre) as well as three test plantings along the north shore of eastern Long Island. The "Suffolk County Eelgrass Restoration Project", funded through Suffolk County's Water Quality Protection and Restoration Program, includes several locations in Suffolk County, one near Duck Pond Point (Peconic, NY) in Long Island Sound. The goal of this project is to plant 10 acres of eelgrass over three years at several sites in Suffolk County. For more details please visit www.Seagrassli.org.	Both projects were initiated in 2008 and are ongoing; the LISFF project will conclude in 2010.
9.	Planning for West Meadow Beach Restoration and Access: The Town of Brookhaven prepared a restoration plan for West Meadow Beach, located in the hamlet of Stony Brook on Long Island Sound. The West Meadow Beach Restoration Plan investigated post-removal opportunities for ecological restoration, environmental education, museum development, and expansion of recreation. This will further work developed under a previous EPF award.	Completed in 2009
10.	Soundview/Bronx River Estuary Salt Marsh Restoration: The New York City Department of Parks and Recreation Natural Resources Group, in conjunction with work being performed by the United States Army Corps of Engineers, will restore three acres of salt marsh in Soundview Park, on the east bank of the Bronx River. The project will restore tidal flow by excavating 87,120 cubic yards of fill and creating low marsh, high marsh, and maritime upland habitats, and planting native vegetation in place of the invasive vegetative monocultures currently overrunning the site.	Work in progress
11.	Sheldrake River and Lake Habitat Improvement Project: The County of Westchester will conduct six non-point source/aquatic habitat restoration projects along the Sheldrake River corridor within the City of New Rochelle and Town of Mamaroneck. All work undertaken through this project will result in improvements to the water quality and fish and wildlife habitat values of the Sheldrake River. This project is based on recommendations of the inter-municipal Watershed Advisory Committee Four (the committee charged with developing a nonpoint source pollution control strategy for the watersheds of the Mamaroneck and Sheldrake rivers and Mamaroneck Harbor) plan titled "Controlling Polluted Stormwater: A Management Plan for the Sheldrake and Mamaroneck Rivers and Mamaroneck Harbor", dated January 2001. All projects lie along the 8.6-mile Priority Waterbody List segment (#1702-0069) of the Sheldrake River. In 2009, construction was completed for Carpenters Pond to restore ecological and water quality benefits. Additional assessments, analysis, and design development was completed for Gardeners Lake.	Work in progress
12.	Planning and Design for Mill Pond Overlook Habitat Restoration The Town of Oyster Bay will develop a Habitat Management and Restoration Plan for the Mill Pond Overlook Property, a recently acquired property containing fringing freshwater wetlands adjoining the Oyster Bay National Wildlife Refuge. This project will include habitat inventory and surveys; planning for habitat restoration and management; and development of detailed designs and specifications for the selected physical improvements. Consultant selection was made in 2009.	Work in progress
13.	Aquatic Restoration Carpenter's Pond Flood Mitigation, Water Quality Improvement and Ecological Restoration Project, City of New Rochelle Construction on Carpenter's Pond, City of New Rochelle began in February 2009 and was completed in October 2009. Funded by a state Clean Water/Clean Air Bond Act grant and matching funds from Westchester County, New Rochelle and Mamaroneck Town, the project is primarily aimed at restoring the ecological and water quality improvement benefits once provided by the pond. The project also allows additional water storage and drawdown capabilities, thereby providing an ancillary flood control benefit. The project also involved the removal of exotic (non-native) and/or invasive plants. The peninsula was largely covered by knotweed, which was removed and the area re-seeded with native grasses. Additional aquatic and wetland vegetation were planted. Woodland surrounding the pond also was enhanced with native shrubs and trees.	Complete

	2009 Description	2010 Planned Action
14.	Manursing Lake Ecological Restoration Project, Edith G. Read Natural Park and Wildlife Sanctuary, City of Rye Manursing Lake, covering approximately 80 acres with depths of up to about 30 feet, is designated a Significant Coastal Fish and Wildlife Habitat by the New York State Department of State and included in the U.S. EPA's Long Island Sound Study Stewardship Initiative. The project was funded by a grant from the Dissolved Oxygen Environmental Benefit Fund, a $5 million fund established to reduce hypoxic conditions in the western Long Island Sound. The restoration project consisted of two phases. The first phase, completed in October 2009, focused on the replacement of a manually operated tide gate with a new, automatically operated gate. The gate improves tidal flow into and out of the lake, better connecting it to Long Island Sound. This improved connection will enhance the lake's ecological value. The gate also enabled the creation of a wider intertidal zone - shoreline where the lake bottom is exposed at low tide but covered with water at high tide. Design for the second phase was completed in December 2009. The second phase's construction in the spring 2010 will focus on the creation of an intertidal salt marsh, or tidal wetland, dominated by smooth cordgrass. Coastal habitats, including a tidal creek, "high" salt marsh, meadows and woodlands will also be restored or created. Shoreline bank stabilization also will be part of the project's second phase. This habitat restoration will increase biological diversity and productivity in the Manursing Lake ecosystem and improve water quality both in the lake and Long Island Sound.	Completed Phase 1. Continue Phase 2.
15.	Mamaroneck River Water Quality Improvement and Ecological Restoration Project, Maple Moor Golf Course, City of White Plains A new earthen berm now directs the river's main channel to run along the east bank and enabled the creation of freshwater wetland (marsh), floodplain and streamside buffer habitats along the west bank. In-river structures made from boulders further direct channel flows, sending the base flow through the main channel and flood flow through the wetland and floodplain. Excavation and structural work was completed in April 2009 and planting was largely completed in June 2009. The project was then modified to create a two-channel system - one side containing a marsh capable of filtering stormwater runoff coming from the neighboring golf course and accommodating flood waters during storms; the other side containing the river channel and its typical water flows. The two sides are separated by the earthen berm, which consists of excavated sediment taken from the former pond. The marsh and other wetlands at the water's edge consist of aquatic perennials, such as arrowhead, bulrush and iris. The streamside buffer consists of native grasses, shrubs and a few trees. The berm has been planted with wetland perennials and a few trees tolerant of floodplain conditions. All of these habitats will help filter out pollutants and nutrients found in stormwater runoff from the parkway and golf course and provide shelter for fish and wildlife. The project also will help the river to flow more efficiently, thereby lessening impacts from flooding.	Complete
16.	Gardens Lake Flood Mitigation and Water Quality Improvement Project, Town of Mamaroneck Gardens Lake, known as the "duck pond", is formed by a dam across the Sheldrake River. The pond traps sediment from the river, which requires periodic and costly dredging. The accumulation of sediment degrades the ecological and water quality values of the lake and downstream Sheldrake River, Mamaroneck River and Long Island Sound. It also detracts from the lake's recreational and aesthetic values. In the fall of 2004, a sediment trap, consisting of a concrete block and stone veneer weir (underwater wall) was installed across the lake's entrance. The sediment trap collects sediment, leaves and other materials carried by the river into the lake allowing them to settle behind the weir, thereby preventing it from entering the lake. The design of a comprehensive restoration was completed in December and construction is slated for early 2010. Additional efforts will include dredging the lake to increase water storage capacity with drawdown, establishing wetlands along part of the lake edge, adding a vegetated filter strip, and installing an automatic discharge structure to enable drawdown prior to storms. This project is funded by the County and Town with other funds from the state Clean Water/Clean Air Bond Act and USDA-NRCS.	Complete project in 2010.
17.	Planning for Mill Creek Watershed Management: The Village of Port Jefferson will develop a watershed management plan for the Mill Creek drainage basin and a habitat restoration plan for Mill Creek to implement recommendations of the intermunicipal Port Jefferson Harbor Complex Harbor Management Plan. These efforts are intended to enhance the environmental quality and recreational value of Mill Creek. In 2009 the inventory and assessment report was completed.	Work in progress
18.	The Town of North Hempstead is embarking on the third and final phase of the Hempstead	Begin construction in the

	2009 Description	2010 Planned Action
	Harbor Cove Wetland Restoration at North Hempstead Beach Park. The Town was able to secure a grant from the New York State Department of Environmental Conservation for $127,500 with a Town match of $127,500 in 2009. The Town is continuing its restoration efforts because wetland restorations help to: • Increase the overall beauty of the Town by improving the visual quality of our coastline. • Filter out and absorb pollutants from stormwater runoff, thereby improving water quality for recreational uses such as fishing and swimming by decreasing the number of beach closure days. • Habitats provide a unique and highly productive ecosystem that supports a diverse array of living natural resources (Birds, fish, turtles, plants). • In addition, wetlands help prevent sand and debris from entering our Harbors that makes it difficult for boats to travel freely and possibly cause an economic strain on the Town, if dredging the harbors becomes necessary.	spring.
19.	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.	Continue to work with partners to open additional fish passages and provide funding for design and construction of fish bypasses and ladders.
20.	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. 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.	Habitat restoration and invasive species control efforts will continue in 2009.
21.	In 2008 CTDEP was awarded $804,000 from the US Natural Resources Conservation Service (NRCS) Wetland Reserve Program for tidal wetland restoration. The funds were used by CTDEP to restore 726 acres of tidal wetlands degraded by the invasive plant "Phragmites" at three Wildlife Management Areas along the lower Connecticut River (Plum Bank, Back River, and Upper Island WMA) and Sherwood Island and Silver Sands State Parks along Connecticut's coast. CTDEP's Wildlife Division, Wetland Habitat and Mosquito Management program (WHAMM) has been conducting Phragmites control at over sixty-six sites.	On-going.
22.	As of 2009, sixteen habitat restoration projects have been completed that were funded by the LISS under the Long Island Sound Futures Fund. Project types: 4 fish passage, 4 tidal wetland, 1 upland, 2 eelgrass, 2 freshwater wetlands, 2 coastal forest, and 1 dune habitat: Ingham Hill Pond Improvements and Fishway (CT) — Repair the Ingham Hill Pond dam and install a fishway for use by migrating herring, American eels, and other anadromous fish in the Fishing Brook watershed. Project will establish recreational fishing and outdoor education programs for local residents. Moulson Pond Fishway Repairs — Engineer and design a solution to repair water leakage in the Moulson Pond Fishway. Project will install a new butterfly valve and inject resin into unconsolidated soils to restore the movement of migratory fish to the entire Eightmile River Watershed Hempstead Harbor Cove Wetland Restoration — Restore 1 acre of tidal wetland in Hempstead Harbor Cove in Port Washington, New York. Project will provide shoreline stabilization, debris and invasive plant removal, and planting of new wetland species. Branford Fishway (CT) — Restore anadromous fish passage by constructing a fishway over a 16 foot high dam at the Supply Ponds in Branford, Connecticut. Project will restore 5 miles and 86 acres of habitat for spawning anadromous fish including river herring, alewife, and shad. Barn Island Wildlife Management Area Marsh — Design, install, and maintain a one-half acre exhibit of native plants common to Connecticut coastal areas. Project will install educational signage at Barn Island WMA to describe the importance of using native plants and individual markers for plants.	Projects completed.

2009 Description		2010 Planned Action
Long Island Sound Eelgrass Restoration (NY)	Create a 2-acre eelgrass meadow to enhance fisheries habitat on the north shore of Long Island. Project will develop restoration methods uniquely suited for addressing the water quality problems in the Long Island Sound.	
Great Pond Wetland Restoration (NY)	Preserve 12 acres of globally rare coastal freshwater wetlands in the Great Pond. Project will develop a stewardship management plan and a program to control invasive species, protecting rare native plant and animal species.	
Long Island Sound Eelgrass Restoration - II (NY)	Expand an eelgrass restoration project by .75 acres. Project will build on phase one of the restoration plan, which involved establishing a two-acre eelgrass meadow and plantings at two sites to test site selection standards and new planting methods.	
Bronx River Restoration (NY)	Remove invasive plants and debris, restoring three acres of riverine Bronx River Forest habitat. Project will create a stormwater capture system using native plants and demonstrate the effectiveness of stormwater control to 50 community leaders.	
Glastonbury Riverfront Park Restoration (CT)	Restore a 750-foot eroded stream channel in a wooded wetland complex by linking it to the original floodplain, creating a natural stream pattern, planting native vegetation, reducing sediment discharge to the Connecticut River, and improving fish passage.	
Moulson Pond Fishway Improvements - II (CT)	Design, construct, and install a device to grant 20 miles of passage to the Eight Mile River watershed for 800-1,000 trapped anadromous fish annually, including Atlantic salmon, American shad, alewife, blueback herring, sea lamprey and brown trout.	
Hempstead Harbor Cove Wetland Restoration- II (NY)	Improve a stormwater outfall currently discharging into a one acre restored intertidal, emergent marsh and associated upland, and implement a maintenance and monitoring program to ensure success of part one of this project.	
Native Successional Forest Restoration (NY)	Restore a .09-acre parcel and 25-foot buffer zone currently overgrown with invasive species of plants by removing the invasive plants and restoring the site to establish a native meadow and successional forest for resident and migratory birds.	
Milford Point Tidal Wetland Restoration (CT)	Remove exotic plants and restore six acres of tidal wetland located at the confluence of the Housatonic River and Long Island Sound. Project will improve the wetland, enhance the natural community, and promote education and public access.	
Invasive Phragmites Control Poquetanuck Cove (CT)	Develop a water quality management plan for Poquetanuck Cove, a two-mile long tidal embayment of the Long Island Sound with blue-back herring and other fish. Project will complete a botanical survey, control Phragmites, and measure success of control.	
Mitchell Beach Restoration (CT)	Remove invasive plants, reduce erosion from foot traffic, and restore 600 feet of dunes by planting American beachgrass. Project will educate the public about native Long Island Sound habitats.	

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

KEY ELEMENTS: THE LISS STATE PARTNERS MAINTAIN THE EFFECTIVENESS OF PERMIT PROGRAMS (E.G. FOR WETLANDS, STORMWATER, DREDGING) TO REGULATE USE AND DEVELOPMENT AFFECTING AQUATIC RESOURCES AND CRITICAL HABITATS. THE LISS PARTNERS WILL MANAGE 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.

	2009 Description	2010 Planned Action
1.	The LISS provided $0.3 million in 2009 to Connecticut to support acquisition of key habitat areas under the LIS Stewardship Initiative.	Complete acquisitions in New York. In 2009 the LISS provided $300k for an additional CT acquisition.
2.	In December 2009, NYSDEC held a press event celebrating the purchase of a 28.3-acre parcel, adjacent to Route 25A from the Roman Catholic Diocese of Rockville Center for $5.45 million. This is one of the largest remaining open space parcels in Setauket and is in the immediate drainage of Conscience Bay. Preservation of these woodlands will help prevent runoff from roads and related contaminants from entering the estuary. Of the $5,450,000 transaction, $5 million was from Natural Resource Damages (NRD) funding from a settlement with Northville Industries related to a 1987 gasoline spill at the company's East Setauket terminal. The additional $450,000 was secured in a Long Island Sound Study grant to NYSDEC. The property is zoned for single family residences and could have been developed for as many as 25 new homes. It was identified as a priority for preservation in the state's 2009 Open Space Conservation Plan.	Finalize the purchase of the Diocese property. Find additional, novel sources of money to purchase properties for preservation that does not utilize state funds.
3.	In October 2009, the acquisition of the Bird Homestead, one of the last remaining 19th-century farms in the area, was celebrated in front of the historic building along Milton Road in Rye, NY. The LISS Stewardship Initiative was recognized and thanked, among the many partners who helped make the acquisition happen. The property lies within the Long Island Sound Coastal Corridor priority area of the New York State Open Space Conservation Plan and is also a part of the Edith Read-Marshlands LISS Stewardship Area. The property is located near the mouth of Milton Harbor, on the tidal section of Blind Brook. Protecting the land from further development will keep its valuable buffer lands intact and provide flood protection. The river itself provides important salt marsh and mudflat habitat for wading birds and anadromous fish. Protecting the land from further development will limit non-point pollution from reaching Blind Brook, Milton Harbor and Long Island Sound. Part of the Committee to Save the Bird Homestead's preservation plan is to restore the farmhouse and natural meadow as an education center with interpretive exhibits. Westchester County also plans to use the land to provide a canoe and kayak launch with access to Milton Harbor and LIS. The property, which is adjacent to city-owned, waterfront open space at the Rye Meeting House, was acquired by the City of Rye, in partnership with the non-profit Committee to Save the Bird Homestead, Inc. Partners and allies in the project include the City of Rye, the Committee to Save the Bird Homestead, the Westchester Land Trust, the New York Landmarks Conservancy, NYSDEC, New York State Office of Parks, Recreation, and Historic Preservation, Westchester County, Audubon New York, and the LISS Stewardship Group. LISS is contributing $200,000, through a partnership with the NYSDEC, to the $1.25 million acquisition. More information and additional links can be found on the Westchester Land Trust's website at: http://www.westchesterlandtrust.org/save-bird-homestead	NYSDEC was to act as a pass-through for funds from the LISS to the City of Rye for this purchase. NYSDEC will continue working to ensure that the funds get to Rye.
4.	The Town of Southold and the County of Suffolk acquired the Bittner Property, a more than 57 acre Sound front property, located in Peconic, NY in April 2008. In 2008 and 2009, the town removed the house, pool/pool house and bulkhead (the last of the bulkhead was removed February 5, 2010). The property is open to visitors. The Nature Conservancy's (TNC) Long Island Chapter contributed $6,800 to the above mentioned Bittner Property land acquisition project in the Town of Southold that is now in public ownership. This project includes an "undevelopment" component that would eventually	The town is observing how the new dune line establishes itself through natural processes before having the contractor construct the new dune profile and

	2009 Description	2010 Planned Action
	remove a house, bulkhead and pool that have disrupted natural shoreline processes	
5.	In 2008, the US Department of Homeland Security announced plans to close federal facilities on Plum Island (an 840-acre island) in eastern Long Island Sound. Plum Island, a biosafety level 3 facility, has been the only lab in the country able to study foreign animal diseases such as foot and mouth disease. But the Department has said it is too small, too outdated and isn't appropriate for biosafety level 4 research. The Department proposed to build a new facility in Kansas, associated with the University of Kansas, that would replace the function of Plum Island and allow for research on even more deadly diseases than can be studied at Plum Island. This plan would have Plum Island shut-down by 2014.	
6.	Nassau County, NY purchased several properties or otherwise protected them from development: • The Cutting Property in Oyster Bay Cove was purchased by Nassau County. It is 6 acres of land in the Oyster Bay Special Groundwater Protection Area to be used as a preserve and combined with the 15-acre Pulling Family Red Cote Farm, purchased in 2004. • The Hall/Wood/Wentworth estate is 18 acres that will become a part of the 550-acre Muttontown Preserve. The property was bought using Nassau County Environmental Bond Act money. The property is New York State designated Special Groundwater Protection Area and was identified for preservation in the NYS Open Space Conservation Plan. • The Held property is 8 acres of old growth forest and a pristine groundwater-fed pond where ospreys and great blue herons have been seen. The property will become part of the 197-acre Tiffany Creek Preserve in Oyster Bay Cove. The property was purchased with funds from the Nassau County Environmental Bond Act. The 8-acres are a State Designated Special Groundwater Protection area which also contains habitat for several rare species of flora and fauna indigenous to NYS. Tiffany Creek is part of Oyster Bay/Cold Spring Harbor. • The Humes Estate in Locust Valley was purchased by Nassau County, NY. The property is 15 acres of woods to be joined with the Smithers' Upper Francis Pond property. • The Old Mill Horse Farm in Brookville was purchased by Nassau County, NY. The property is a 41-acre horse farm in the Oyster Bay Special Groundwater Protection Area. • The Schwab Property in Oyster Bay Cove was purchased by Nassau County, NY. The property is 6-acres that will be combined with other acquisitions to make a 25-acre preserve in the Oyster Bay Special Groundwater Protection Area.	Continue land acquisition and protection where possible
7.	Suffolk County, NY also purchased several properties or otherwise protected them from development: • Suffolk County bought the farmland development rights to the Delea Sod Farm under the New Suffolk Co. Drinking Water Protection Program Farmland component. The property is 70.0+ acres at $72,000 per acre. • Under the New Suffolk County Drinking Water Protection Program Farmland component, Suffolk County purchased the farmland development rights to 22.26-acres of vegetable farm in East Marion, NY (Ghassemi Property). The cost was $58K per acre. This property is adjacent to 56-acres of already dedicated open space. • Suffolk County purchased the 6.1 acre property at $200K per acre to be preserved as open space. This parcel contains wooded land as is part of a larger 30acres of similar topography that has been identified by the county for open space preservation. • Revenue used to purchase was from Suffolk County's 0.25% Sales and Compensating Use Tax. Property was purchased under the Old Suffolk County Drinking Water Protection Program. The property was transferred to the County Department of Parks, Recreation, and Conservation for passive recreation use. • Two contiguous properties totaling 4.92 acres in Smithtown were bought by Suffolk County and transferred to the Suffolk County Department of Parks, Recreation and Conservation for passive recreational use. The properties are on the Nissequogue River and consist of tidal and freshwater wetlands with upland forest habitat. The Nissequogue River flows directly into LIS. • Suffolk County purchased two parcels in Cold Spring Harbor through the Old Suffolk County Drinking Water Protection Program. The acquisition was a total of 5.11 acres in the Town of Huntington. • The development rights to 16 of the 21-acres of Richter's Orchard was purchased by a 50/50 agreement between Suffolk County and the Town of Huntington, NY. The property	

	2009 Description	2010 Planned Action
	is in Fort Salonga, NY and was purchased from the Amsler family, who owned it for over 60 years and who will maintain the additional 5-acres for non-agricultural purposes. The property will continue as an apple and peach farm. • Property purchased through the Suffolk County Save Open Space (SOS), Farmland Preservation, and Hamlet Parks Fund - Open Space Component. Once purchased, the 1.09+ acre property in Smithtown was transferred to the county Dept. of Parks, Recreation and Conservation for passive recreational use and saved from future development. • Parcel purchased under the New Suffolk County Drinking Water Protection Program, Specific Environmental Protection. Revenue used to purchase was from the County's 13.55% sales and compensating use tax. The property is 0.37 acres and is located in Smithtown. It will be used for open space preservation purposes. • Suffolk County purchased the development rights to the 58-acre Warner nursery land, thus preserving it from future development. This was the 50th farm preserved through the County's Farmland Preservation Program and was jointly paid for by the County (70%) and the Town of Riverhead (30%).	
8.	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 recently completed a draft of its Coastal and Estuarine Land Conservation Plan (CELCP) that identifies key coastal land conservation needs within Connecticut. CTDEP's Land Acquisition and Management unit has compiled a list of coastal properties for potential acquisition based upon the needs identified in the CELCP Plan. CTDEP received $3 million dollars in federal CELCP funds to assist the Town of Guilford in its 2009 acquisition of 624 acres of coastal land near the tidal segment of the East River in Guilford. CTDEP's contribution of $3 million dollars toward the acquisition leveraged an additional $11.4 million dollars in municipal financing needed to complete the acquisition.	Obtain additional funds for the purchase of identified priority properties.
9.	The Town of Southold and the County of Suffolk acquired the Bittner Property, a more than 57 acre Sound front property, located in Peconic, NY in April 2008. The total purchase price was $13,123,110 and was a partnership between the Town of Southold and the County of Suffolk. The County contributed $6,561,555 from the County Environmental Legacy Fund. The Town contributed $5,096,820 from the Community Preservation Fund, in addition to a $1,464,735 federal grant the Town received for the purchase from the US National Oceanic and Atmospheric Administration, Coastal Estuarine Land Conservation Program. The property includes over 1300 feet of road frontage on Soundview Avenue and over 1400 feet of shoreline along Long Island Sound between Goldsmith Inlet and Peconic Dunes County Park. The property also has a great diversity of habitat and wildlife including regionally rare primary and secondary dunes, freshwater wetlands, wooded areas, cranberries, beach plums, and many other environmentally significant features. The Town and County will be developing a Management Plan, designed in accordance with the environmentally significant nature of the property, to allow for passive open space uses of the property.	Through a NYSDOS Local Waterfront Revitalization Grant, the Town of Southold will remove existing structures, mitigate contamination, re-vegetate dunes, and construct a parking area and nature trail. The project will provide new public access to 1,400 linear feet of waterfront, in part, through the bulkhead removal portion of the project.
10.	CTDEP applied to the U.S. Environmental Protection Agency's Long Island Sound Study Program for federal funding assistance to acquire 48 acres adjacent to the Barn Island Wildlife Management Area in Stonington. In September 2008, DEP was awarded $650,000, and the property was acquired by the DEP as an addition to Barn Island Wildlife Management Area in February 2009.	Plans to acquire an additional 16 acres bordering Wequetequock Cove.
11.	In 2008, CTDEP applied to the U.S. Fish and Wildlife Service's Coastal Wetland Conservation Grant Program for financial assistance to add 45 acres to the East River Marsh Wildlife Management Area in Guilford. In December 2008, DEP was notified that it was awarded $261,250 to acquire this extraordinary coastal property that includes tidal wetlands, old field, coastal forest and shrubland habitat.	DEP expects to acquire the property early in 2010, which has been pre-acquired by the Guilford Land Conservation Trust for transfer to Connecticut DEP.
12.	CTDEP's Land Acquisitions and Management Division, in cooperation with CTDEP's Office of Long Island Sound Programs, issued a request for CELCP project nominations in November 2009 from coastal towns and local land conservation organizations to identify coastal area conservation acquisition opportunities.	January 2010, NOAA announced its fiscal year 2011 competitive grant process for this coastal land conservation assistance program available to coastal states. DEP will nominate CELCP project proposals pursuant to responses to this request for

	2009 Description	2010 Planned Action
		project nominations and the availability of non-federal funds needed to meet federal grant match requirements.
13.	Connecticut's *Community Investment Act* (CIA) [2005], creates a mechanism to fund affordable housing, farmland acquisitions, open space purchases, and historic preservation, 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 receives 25 % for municipal open space grants. As of December 2009 the Community Investment Act has funded forty-four (44) acquisitions since its inception, permanently protecting 2,571 acres of open space and seven (7) Community Gardens, at a cost of $10,968,230.	CTDEP will continue to evaluate and acquire land for open space.
14.	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 2009, the state owns 254,052 acres in its system of state park, forest, wildlife, fishery, and natural resource management areas. During this past year, an additional 1,301 acres were acquired through the Recreation and Natural Heritage Trust program. Thus CTDEP currently holds over 79 percent of the 320,576 acres targeted for state open space acquisition. In 2009 more than $10 million was awarded to municipalities and non-profits to purchase 2,440 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. Currently 488,822 acres have been preserved or 15% of Connecticut's land area. This is 72.6% of the goal.	CTDEP's Land Acquisition & Management division will continue to provide grant funding to municipalities and purchase additional lands.
15.	During 2008, CTDEP applied for and received a grant of $1,091,879 for the acquisition of the Sunrise Resort property, a 143 acre parcel in East Haddam. The property was purchased December 22, 2008 and in 2009, CTDEP prepared the documentation for reimbursement of the grant amount.	Continue to address projects identified in the Statewide Comprehensive Outdoor Recreation Plan (SCORP).
16.	The Town of North Hempstead purchased approximately one acre of open space in October 2008. This was the final piece of property necessary to complete the harbor trail from what used to be called "Bar Beach" south to the Roslyn viaduct.	
17.	CTDEP was awarded $650,000 from the Long Island Sound Study program toward the LIS Stewardship initiative. CTDEP is acquiring 48 acres of land in Stonington, CT, known as the Crowley property to expand the Barn Island Wildlife Management Area.	Plans to close on the purchase of property in 2009.
18.	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.	On-going
19.	*The Community Investment Act* (CIA) funds affordable housing, farmland acquisitions, open space purchases, and historic preservation, requiring 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 of December 2008 the CIA has provided to the DEP over $11 million to purchase open space land totaling 2,631 acres.	CTDEP will continue to evaluate and acquire land for open space.
20.	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 2008, the state owns 253,187 acres in its system of state park, forest, wildlife, fishery, and natural resource management areas. During this past year, an additional 1,301 acres were acquired in the through the Recreation and Natural Heritage Trust program. Thus CTDEP currently holds 79 percent of the 320,576 acres targeted for state open space acquisition. In 2008 more than $10 million was awarded to purchase 2,440 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. Currently 486,504 acres have been preserved. This is 72.2% of the goal.	CTDEP's Land Acquisition & Management division will continue to provide grant funding to municipalities and purchase additional lands.

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

KEY ELEMENTS: THE LISS PARTNERS DEVELOP HABITAT MANAGEMENT STRATEGIES FOR SPECIFIC COMPLEXES OR REGIONS USING A WATERSHED PERSPECTIVE. THESE INCLUDE THE NATURAL DIVERSITY DATABASE IN CONNECTICUT AND THE NATURAL HERITAGE PROGRAM IN NEW YORK.

	2009 Description	2010 Planned Action
1.	Connecticut Sea Grant is supporting the development of a benthic index (or set of indices, if necessary) specific to Long Island Sound (LIS), based on a multi-metric approach, and effective in discriminating between degraded and non-degraded sites in LIS (Whitlatch et al, UCONN/UNH; 2008-2010). The methods and metrics used in the index will be validated using comparisons to examine effects of seasonal and inter-annual ecological variation as well as geographic differences in physical/chemical characteristics (e.g., salinity, seafloor types) on the metrics' effectiveness.	Research project is expected to be completed in early 2010
2.	The LISS has completed work to develop a habitat restoration database to track and report progress in achieving restoration and protection goals. The database will be populated and maintained by the LISS habitat restoration coordinators and will support on-line access on the LISS website.	Migrate the database to on-line status in 2009.
3.	The New York Ocean and Great Lakes Ecosystem Conservation Council submitted its New York Ocean and Great Lakes Report to the New York State Governor and legislature on April 8, 2009 after an extensive public review and comment period. This report specifically calls for an "ecosystem-based management" approach to decision-making; shifting to recognize the interconnections among ecosystems and the need to manage human activities to ensure ecosystems deliver what humans need. More information including the full report can be found at: http://www.nyoglecc.org/	
4.	The NYS Seagrass Task Force finalized a report on management recommendations for NYS marine district seagrass (mainly *Zostera Marina*, eelgrass) including those in LIS. The final report was submitted to the Governor and Legislature in December 2009. More information can be found at www.SeagrassLI.org.	Encourage stakeholders and estuary programs to implement the recommendations laid out in the report.
5.	NYSDEC participates in the Atlantic Coastal Fish Habitat Partnership (ACFHP) which was first organized in May 2006. The partnership's mission is to "accelerate the conservation, protection, restoration, and enhancement of habitat for native Atlantic coastal, estuarine-dependent, and diadromous fishes through partnerships between federal, tribal, state, local, and other entities." ACFHP applied for and received full partnership status through the National Fish Habitat Action Plan. ACFHP also received their first Federal grant and have funded two projects that will aid in implementing the goals under their strategic plan.	NYSDEC will continue to be involved in the effort.
6.	Friends of the Bay completed a State of the Watershed Report in November of 2009. This report provides a comprehensive assessment of the existing land use conditions in the watershed. It is a comprehensive document that integrates many environmental indicators to assess the current health of the watershed and potential future threats. The report provides a baseline assessment of watershed conditions, which can be updated periodically to evaluate changes in the watershed and help direct watershed management planning. The State of the Watershed Report is the first step in developing a Watershed Action Plan which will develop prioritized action items to protect and improve the ecological integrity of the estuary and surrounding watershed. The State of the Watershed Report was funded by the Long Island Sound Futures Fund, the Town of Oyster Bay, the Rauch Foundation, and the Long Island Community Foundation.	A contract has been signed with F&O and they are beginning to work on the action plan on behalf of FOB. Establish an Oyster Bay/Cold Spring Harbor protection Committee. FOB is compiling a list of NGOs/private citizens to be on the steering committee and will work with F&O on that as well.
7.	Erosion and Wetland Loss Mitigation at Manorhaven Park and North Sheets Creek The Town of North Hempstead investigated the loss of intertidal marshes and shoreline erosion affecting Manorhaven Park and North Sheets Creek by examining physical and hydrologic parameters including freshwater inputs, sedimentation, and area bathymetry. Plans and designs were developed for impact mitigation including excess sedimentation in the boat channel; stabilization of the shoreline; and restoration of intertidal wetlands. Three design alternatives to accomplish these objectives were developed, each including a schematic plan and profile, cost estimates, and recommendations. Environmental permits were obtained for the selected design alternative, and final plans, specifications, construction documents, and a monitoring plan were prepared.	Completed
8.	CTSG developed a habitat-based management plan outline for use by land stewards. The outline was tested by a Yale University Master's candidate, who used it to write a plan for the Branford Land Trust and the Guilford Land Conservation Trust. Draft management plans for Essex Land Conservation Trust and Westbrook Conservation Commission incorporate	Expand training opportunities on use of habitat-based management plan outline in 2009

	2009 Description	2010 Planned Action
	aspects of the habitat–based management plan outline; the Essex Land Conservation Trust applied for and received NRCS WHIP cost share funds to manage habitat on the Cross Lots Preserve in 2008.	

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

	2009 Description	2010 Planned Action
1.	The NYSDEC's Conservation Focus Maps for Species of Greatest Conservation Need are under development with preliminary natural history habitat suitability index models created for marine fin fish, marine herpetofauna, and marine shellfish. Avian natural history models are being compiled but are not yet completed. Appropriate data for building all the GIS models is still being gathered and gaps in GIS records are being identified. The maps will identify areas for restoration, preservation, acquisition and commercial development.	Ongoing. The revision of the Comprehensive Wildlife Conservation Strategy (CWCS) will begin in 2010 and will include updating the species of greatest conservation (SGCN) list, reporting on progress and emerging issues, and will include recommendations for adapting current management and research opportunities on climate change issues in the State of New York.
2.	The NYSDEC's banded sunfish (*Enneacanthus obesus*) and swamp darter (*Etheostoma fusiforme*) inventories have been completed for Nassau and Suffolk Counties (NYSDEC Region One). Both of these species are threatened species under NYS law.	The writing of the recovery plans for these species will accomplished through a State Assistance Contract which should be announced and open for bid sometime in 2010.
3.	The NYSDEC's conservation guide for the recovery of the black skimmer (*Rhynchops niger*) a migratory shorebird in NYS is underway.	Expected completion date is the end of 2010.
4.	In 2009 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 each successive year through 2007 with an expiration date of March 31, 2008. The action by the CTDEP Commissioner extended the prohibition through March 31, 2010. 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. Monitoring conducted during 2008 indicated that the river herring stocks remain depressed and CTDEP found no signs of an imminent recovery of river herring populations. CTDEP released 400 blueback herring juveniles in May 2010 up the Mill River, Stratford, CT in an attempt to restore this diadromous fish to this river reach.	CTDEP indicates that the prohibition on the taking of river herring could likely extend well into the future. http://www.ct.gov/dep/cwp/view.asp?A=3847&Q=457682 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.

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

	2009 Description	2010 Planned Action
1.	NYSDEC's marine recreational fishing regulations changed a few times over the course of 2009. Required as of October 1, 2009, a marine fishing license for NYS residents and non-residents. Recreational lobster permits for residents and non-residents have been in effect for decades. Below are the regulations that were effective on November 13, 2009: **Summer Flounder (fluke)** - Minimum size limit: 21" Total Length Possession Limit: 2 Open Season: May 15 – June 15, July 3 – Aug 17 Summer flounder may not have heads or tails removed or be otherwise cleaned, cut, filleted, or skinned until brought to shore, with a few exceptions (see website). **Winter Flounder** - Minimum size limit: 12" Total Length Possession limit: 2 Open Season: Apr1 – May 30 **Scup** - Minimum size limit: 10.5" Total Length (New line) Possession Limit: 10 Open Season: May 24 – September 26 Exception: passengers fishing aboard licensed Party/Charter boats may each possess up to 45 scup during the period of September 1 -- October 15 with an original dated receipt from the licensed vessel. **Black Sea Bass** - Minimum size limit: 12" Total Length Possession limit: 25 Open Season: All year **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 with an original dated receipt from a licensed vessel. Open season: April 15 -- December 15 **Bluefish** - Possession Limit: 15 fish, no more than 10 of which may be less than 12 inches in Total Length. Open season: All year **American Lobster (LIS)**– Minimum size limit: 3 5/16" Carapace Length Possession limit:: 6 Open Season: All year Lobsters in spawn (eggs visible thereon) may not be taken or possessed. **Tautog** - Minimum size limit: 14" Total Length Possession limit:: 4 Open Season: October 1 – December 20, January 17 – April 30 **Horseshoe Crabs** – No size limit. Possession limit:: 5 Open Season: All year Information on current regulations can be found at: http://www.dec.ny.gov/outdoor/7894.html	Recreational fishing regulations change frequently.
2.	In May 2009, to protect public health, NYSDEC designated approximately 2,200 acres of shellfish harvesting areas in the Town of Huntington as temporarily closed on an emergency basis after its biotoxin monitoring program detected elevated levels of saxitoxin. The closure affected all the area of Northport Bay, Centerport Harbor and Duck Island Harbor and their tributaries lying easterly of a line extending southerly from the southernmost point of land at West Beach (also known as Sand City Beach) to the northeastern corner of the beach pavilion at the Town of Huntington's Crescent Beach, located on the southern shore of Huntington Bay. The area and duration of this closure was less than that in 2008. *Alexandrium fundyense (Af)* is a naturally occurring marine dinoflagellate (phytoplankton) that produces the biotoxin responsible for paralytic shellfish poisoning (PSP), a saxitoxin which can be potentially fatal to humans.	NYSDEC will continue its monitoring of shellfish in these and other waters for PSP toxins.

	2009 Description	2010 Planned Action
3.	After the 2009 Paralytic Shellfish Poison-producing *Alexandrium fundyense (AF)* bloom in the Huntington Harbor complex on Long Island, NYSDEC food inspectors collected shellfish specimens from local wholesalers for testing to ensure the safe consumption of shellfish that may have been exposed to the toxin. Products that had been taken from the affected area had to be pulled from the market.	NYSDEC food inspectors will respond in a similar matter in the case of another bloom of *Af*.
4.	Suffolk County Executive passed legislation that allows for the purchase of two telemetered buoys with associated analytical equipment, including probes and sondes, for automated monitoring at sites in the Peconic, South Shore and Long Island Sound estuaries. This is response to the harmful red and brown tides that have been occurring in these estuaries. It is unclear what harmful algal blooms; their occurrence in some locations appears to be entirely natural, while in others they appear to be a result of human activities. The county will spend $100,000 on this monitoring program, providing $65,000 to a contractor, who will plan and conduct the studies, and spending $35,000 on the actual buoys. As part of the program, the county is also investigating blue-green algae at freshwater bathing beaches.	
5.	The NYC Parks Department continued to monitor its eastern oyster pilot reef located at the confluence of the Bronx and East Rivers. The 2008 report is available on-line at: http://bronxriverdata.org/puma/images/usersubmitted/repository/Bronx_River_Pilot_Oyster_Reef_2008_Report.pdf	Continuation of the monitoring of the reef. Post the 2009 report.
6.	A second shellfish seeding of Hempstead Harbor--with 1.1 million seed clams and oysters--took place on October 15 as a shared initiative between Nassau County, NYS DEC, the Towns of Oyster Bay and North Hempstead, the Hempstead Harbor Protection Committee, the Coalition to Save Hempstead Harbor, Cornell Cooperative Extension, and others to reopen Hempstead Harbor to shellfishing. Funding for the 2009 shellfish seeding operation was provided by the Long Island Sound Study, through the Long Island Sound Futures Fund. The seeding program continued the work of the 2007 cooperative shellfish-seeding operation, which included 2 million seed clams and oysters. The seed clams and oysters will help cleanse the harbor and provide additional breeding stock if and when the harbor is opened to shellfish harvesting.	Continue efforts to open portions of the harbor to Shellfishing.
7.	*An Act Implementing a Lobster Restoration Program* [2005] required CTDEP to establish a lobster restoration program by V-notching tails of mature female lobsters caught by commercial fishermen and releasing them in order to increase lobster egg production. It required, if funds became available, CTDEP 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 as determined by the Commissioner. In early 2010 the Connecticut legislature passed Public Act 10-179, An Act Making Adjustments to State Expenditures For The Fiscal Year Ending June 30, 2011. This act provided an additional $200k in funding to continue the lobster restoration program which began in 2007. The second appropriation will not allow for the program to continue in its original form due to the expense of the required insurance to put high school students on commercial lobster boats. CTDEP is currently working with the staff at the Bridgeport Regional Vocational Aquaculture School and The Sound School to develop the framework for the purchase, v-notching and release of lobsters. The 2010 – 2011 restoration program will involve purchasing harvested legal female lobsters caught in Long Island Sound and having students V-Notch them at a holding facility. These marked females will then be returned to the waters from which they were harvested.	

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.

	2009 Description	2010 Planned Action
1.	Within the Greater Pipe's Cove Study Area within the Town of Southold (roughly 615 acres of protected land in total), straddling the Long Island Sound and Peconic Estuary watersheds, a team of TNC biologists mapped invasive, non native plant infestations including autumn olive, oriental bittersweet, garlic mustard, multiflora rose, Norway maple, and wineberry.	Future operations not certain at this time.
2.	TNC (CT Chapter) completed its eighth season of herbicide application to Phragmites in	Herbicide application will

	2009 Description	2010 Planned Action
	tidally influenced marshes of the lower Connecticut River. TNC and the CT DEP manage Phragmites on marshes on the lower CT River. TNC manages phragmites on 189 acres on the Lieutenant River and 138 acres at Lord Cove, with CT DEP managing 136 acres at Lord Cove. TNC Phragmites management in 2009 covered 327 acres.	continue in 2009 based on 2008 success and funding availability.
3.	Connecticut Sea Grant, in collaboration with the other Northeast Sea Grant programs, continued distribution of multi-lingual signs throughout the Northeast (bait dealers, boat ramps) to alert anglers of the potential for introducing new species through the disposal of the seaweed used to pack live marine baitworms in the water. "Don't Dump Bait" stickers to be applied to baitworm boxes at point-of-sale were provided to bait shops in Connecticut. The outreach program was initiated as a regional SG program.	Outreach program will be continued.
4.	Connecticut Sea Grant initiated a project to manage invasive plant species along the Avery Point campus shoreline. Starting with the area near the Avery Point Light House, the majority of invasive plants were cleared from the area near the lighthouse, and planted with native Virginia rose (*Rosa virginianum*), little bluestem (*Schizachyrium scoparium*), butterfly weed (*Asclepias tuberosa*), and prickly pear cactus (*Opuntia humifusa*). Two high school interns helped to remove invasive plants. Advanced Master Gardeners received training on Coastal Habitats and Invasive Plants, and Aquatic Invasive Species of Long Island Sound. UConn CES geospatial faculty taught the use of Geographical Positioning Systems (GPS) to an undergraduate Geography class, which then mapped locations of invasive plants along the campus shoreline. These data formed the pre-removal base map.	Invasive plant removal will continue, Geography classes will continue mapping the invasive plant locations, to illustrate changes over time.

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

KEY ELEMENTS: EDUCATE THE PUBLIC ABOUT THE PLANTS AND ANIMALS OF LONG ISLAND SOUND AND ELICIT VOLUNTEERS TO ASSIST WITH PLANTS AND ANIMALS MONITORING PROGRAMS.

	2009 Description	2010 Planned Action
1.	Connecticut Sea Grant produced the book, *Seaweeds of Long Island Sound*, with support from EPA LISS and Connecticut College in 2006; 3,000 copies were printed. Nearly 3,000 copies were distributed to educators in Connecticut and New York free of charge, through CTSG, NYSG, and EPA LISS; copies are also available through several nature center book stores and the Connecticut College Arboretum. This publication raises awareness and better understanding of the seaweeds of the Sound and their ecological importance.	Reprint book in 2009
2.	Connecticut Sea Grant produced the laminated card, "Guide to Common Seaweeds of Long Island Sound's Rocky Shore," which complements the book, and helps educators and their students identify some of the more common species of seaweeds found in the rocky intertidal zone. 3,000 were printed and all have been distributed.	Seek ways to reprint.
3.	Connecticut Sea Grant produced a PowerPoint© presentation, *Living Treasures: The Plants and Animals of Long Island Sound* in 2006. The presentation, geared to middle and high school, focused on key habitats of the Sound and the plants and animals found within them, and contains 120 slides and 166 images, resources and key contacts. The PowerPoint© is packaged on a CD along with a stand-alone image library and the PDF of *SoundFacts: Fun Facts about Long Island Sound.* More than 2,500 copies have been distributed in CT and NY.	Include material on combined CD with other LIS educational resources in 2010.
4.	Funded through a U.S. Department of the Interior, National Park Service grant for $1,975,499 a visitor center at Hammonassett State Park in Madison is in its final stages of completion and DEP will soon be compiling documentation required for reimbursement on the project.	New visitor center opening in 2010.
5.	The LISS has completed work to develop a habitat restoration database to track and report progress in achieving restoration and protection goals. The database is currently available on the LISS website and is available to the public.	Continue to update project data as it becomes available and make improvements.
6.	The Riverhead Foundation annually conducts public lectures throughout Long Island, NY about different marine mammals and sea turtles. Starting in the fall, lectures focus on training beach-walker volunteers about cold-stunned sea turtles and stranded seals, their identification, and appropriate protocols for reporting sightings. These lectures have been held within the LIS watershed at libraries in Riverhead, Southold, and Huntington, among other locations. Through the volunteer monitoring of the winter beach, the Foundation has seen increases in the number of strandings and reportings in LIS which may be due to	Continue the program

	increases in animal populations and numbers of volunteers. The foundation uses reports of strandings to refine their monitoring locations and to target specific areas. The Foundation has a 24 hour hot-line and e-mail, (631) 369-9829, sightings@riverheadfoundation.org	
7.	The Long Island Sound Foundation, in partnership with Dominion, Inc., annually sponsors a Long Island Sound calendar contest for K-8 school children. The LIS calendar is made up of drawings by the children representing some aspect of Long Island Sound. The calendar may be accessed at: http://www.lisfoundation.org/calcontest.php	Conduct the program in 2010.
8.	The 2010 Long Island Sound Educators biennial conference took place at the Maritime Aquarium at Norwalk on April 30, 2010. Connecticut and New York Sea Grant staff participate in planning and attending this conference.	
9.	Connecticut Sea Grant: • collected and edited content and resources for a comprehensive LIS Resource Guide (150 pp) in collaboration with LIS mentor teachers, which includes classroom and field activities utilized by the LIS mentor teachers in their classrooms, and taught during LISMT workshops from 2002-2008. • provided hands-on training for 75 teachers and students from 31 CT schools on marine invasive species in Long Island Sound as part of the DEP-sponsored aquatic workshops for the 2008 Envirothon. • facilitated the translation and production of the EPA LISS "Step by Step" NPS brochure into Spanish ("Paso a Paso"), and began distribution to Hispanic and Latino audiences. • continued distribution of many LIS-related publications to formal and informal educators, including the LIS Educational Resources CD, *Living Treasures* (English and Spanish versions), LIS Invasive Species posters, *Sound Health*, *Seaweeds of Long Island Sound*, and LISS fact sheets. • began production on new LISS-supported publication, a salt marsh guide.	Published in print and on CD and distributed in CT and NY Distribution in CT and NY will continue. Distribution in CT and NY will continue. Complete publication

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

	2009 Description	2010 Planned Action
1.	On Earth Day 2009, the NEW YORK OCEAN AND GREAT LAKES ECOSYSTEM CONSERVATION COUNCIL opened the door to data for New Yorkers. Access to information about New York State is made easier with the launch of a new "Data Portal" feature added to the New York Ocean and Great Lakes Atlas. Citizens can now easily search for information by simply typing key words into the Data Portal search box. For public users, the Data Portal can open selected information right into Google Earth (a free data viewer) in addition to other formats used by geographic information technology professionals. The Portal is a valuable tool that helps all New Yorkers to be better informed and better understand our environment, and the world around us. The Portal can be accessed at www.portalnyoglecc.nyoglatlas.org or through the Atlas Data Viewer at: www.nyoglatlas.org The next planned phase of the Atlas will fully integrate the Data Portal with the Atlas Data Viewer application and add an additional 500 data sets. For more information about the Ocean and Great Lakes Council: http://www.nyoglecc.org/. Contact Council staff at OGLECC@dos.state.ny.us	The Council will continue its mandate to make information on New York ecosystems and places freely available to the public and decision makers.

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.

	2009 Description	2010 Planned Action
1.	The LISS provided $87,394 in 2008 to the USFWS to conduct triennial eelgrass surveys. The	Additional aerial surveys will be

	2009 Description	2010 Planned Action
	survey results were ground-truthed and the final report is posted on the LISS website. http://longislandsoundstudy.net/2010/07/2009-eelgrass-survey/	conducted in 2010.
2.	In 2009, NYSDEC Crustacean Unit staff, with the aid of a contracted commercial fisherman, deployed and sampled NYSDEC lobster traps at 16 sites per week in WLIS from June through November. Survey protocols were changed in this final year of the project to match the standardized lobster trap survey funded by the Atlantic States Marine Fisheries Commission. The sites were located in WLIS from the NY side to the CT side and from Stony Brook to the Throgs Neck Bridge. Trap sampling was also in concert with environmental variable recording. In approximately 2000 trap hauls, staff sampled 3,767 lobsters. Catch decreased noticeably during periods of low DO and/or high bottom water temperature. The purpose of this survey is to monitor lobster populations and determine how populations respond to environmental variables. Funding for this work was provided by Federal Disaster Relief funding through NOAA for the lobster die-off in the late 1990s. Reports are prepared twice a year and submitted to NOAA for this project. In the spring report, NYSDEC staff describe the upcoming sampling, any changes to past sampling techniques, and results for any additional sampling conducted during the off-season from December to May. The December report is larger and contains the year's results. A copy of either report is available upon request.	2009 was the final year of this grant work and a completion report is being prepared. NYSDEC crustaceans staff prepare two reports per year to NOAA. The spring report covers the upcoming sampling plans and the December report provides the year-end results. Reports are available from NYSDEC.
3.	NYSDEC completed its 26th season of the striped bass young-of-the-year survey in western Long Island Bays which include Little Neck Bay, Manhasset Bay, Oyster Bay and Hempstead Harbor from the north shore. A total of 373 bass were tagged in LIS and a full report will be completed late in 2010. This survey is used by ASMFC (Atlantic States Marine Fishery Council) as part of a collective data set of population and recruitment status info that is used in stock management decisions.	Continue survey, as state budget allows.
4.	The U.S. Geological Survey--New York Water Science Center operates a monitoring station that collects data on tidal water elevation, water temperature and specific conductance (which is used to compute salinity) at each of three wetland embayments along the north shore of Long Island; East Creek, Frost Creek and Flax Pond. A fourth station was installed and began monitoring in West Pond (Glen Cove, NY) in May 2009. This is part of a larger effort to identify the potential causes of tidal marsh loss. Details on this monitoring station can be found at: http://waterdata.usgs.gov/ny/nwis/uv/?site_no=01302600	Continue operating monitoring stations.
5.	The Long Island Sound Tautog Trap Survey did not run in 2009, because the NYSDEC vessel was in need of new engines. The vessel did get new engines in September 2009, too late to start the survey for that year.	NYSDEC marine fisheries staff plan to continue the project in mid to late May 2010 with 40 traps at stations located between Mattituck Inlet to Rocky Point East in Southold. The traps will be checked weekly until the end of October.
6.	NYSDEC conducted the annual Long Island Colonial Waterbird and Piping Plover Survey (LICWA) in 2009, counting terns, skimmers, and plovers at 290 sites, about 40 of which are in the LIS watershed. The information is used in multiple ways. On a regional basis, data collected is used in regulatory and permit issuing. On the national level, the information is used to protect the nesting and foraging habitats of these species which are listed as either threatened, endangered or special concern. These counts are also used in LISS environmental indicators, information can be found at http://www.longislandsoundstudy.net/monitoring/indicators/2008/section3.4_2008.pdf	Continue monitoring these species. LISS is also in the process of updating their environmental indicators.
7.	In 2009, NYSDEC and Cornell Cooperative Extension (CCE) staff with the aid of contracted fishermen sampled NYSDEC ventless lobster traps at 24 sites throughout the entire LIS twice a month from July through September. This was part of a greater fisheries-independent, standardized survey, funded by the Atlantic States Marine Fisheries Commission, which occurs along the coast from Maine to New York. This project began in NY in 2006 and is strictly a population monitoring and assessment survey which does not take into account environmental factors. In 1,005 trap hauls, 2,382 lobsters were sampled. This is up 412 lobsters from 2008.	There is currently no funding to continue this work in 2010.
8.	In 2009, NYSDEC and CCE staff coordinated a largely volunteer based horseshoe crab (HSC) spawning survey at several north and south shore beaches. The survey is modeled after the Delaware Bay HSC spawning survey. Approximately five hundred meters of each beach were surveyed during the night-time high tide 2 days before, 2 days after, and on the date of each new and full moon from May 7th through July 10th. Over the course of the survey, 11,835 crabs were counted and 810 were tagged with USFWS button tags.	Funding for this work is through a NY State Wildlife Grant and should continue in 2010. Shorebird interaction with horseshoe crab eggs will also be studied to determine the ecological importance of this resource for migrating birds.

	2009 Description	2010 Planned Action
9.	The New York Natural Heritage Program completed a year-long survey of the Shoreham-Wading River Marsh in early 2009. This project identified rare species and ecological communities around the Shoreham Power Plant and adjacent Wading River Marsh on the North Shore of Long Island. The area was found to be botanically rich as the Program discovered six new rare plant species in the upland forest, and four new rare plant species in the marsh. Information was updated on two rare plant species that were already known from the marsh. Three ecological communities were documented and found to be significant, including the coastal oak heath forest, high salt marsh, and maritime dune. The Program also surveyed for rare dragonflies but no state rarities were seen.	
10.	The TNC LIS Program secured an additional $200K in federal funding for the Southern New England / New York Seagrass Research and Restoration Initiative. In 2009 the Initiative received $500K for Research, for a total of $700K to date. The third phase of the research for eventual seagrass restoration efforts is a request for the final $500K for on-the-ground implementation of research findings at select locations within the Southern New England / NY region (Cape Cod to the NY Bight).	
11.	In 2009 the CTSG and NYSG continued to administer the 2008 LIS Research funds and five projects were funded for two years (2009-2011). PI: Mark Altabet; Department of Estuarine and Ocean Science, School of Marine and Technology, University of Massachusetts, Dartmouth; geochemistry of dissolved gases in the Sound to gain insight into oxygen exchange between surface and bottom waters. PI: Robert Wilson and Brian Colle; School of Marine and Atmospheric Sciences (SoMAS), Stony Brook University will partner with Daniel Codiga, University of Rhode Island to evaluate the relationship between summertime storms and hypoxia. PI: Darcy Lonsdale and Christopher Gobler (SoMAS, Stony Brook) will look at seasonal temperature differences and the effects on the Sound's food web. PI: Christopher Gobler (SoMAS, Stony Brook) will study the causes and impacts of recent red tide blooms in the Sound. PI: Kamazima Lwiza and Gordon Taylor, SoMAS; will investigate phytoplankton and microbial production and mortality and their effects on the Sound's bottom water oxygen.	Project progress reports will be submitted.
12.	The CTDEP marine fisheries program continued its fish trawl survey of Long Island Sound in 2009, funded with a 'Federal Aid in Sport Fish Restoration" grant from the USFWS. Trawl survey maps and finfish survey results are posted on the CTDEP web at: http://www.ct.gov/dep/lib/dep/fishing/general_information/f54r2008report.pdf	Continue to conduct trawl and estuarine seine surveys

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.

	2009 Description	2010 Planned Action
1.	Through the LISS Research Grant Program, the following LIS research projects were completed in 2009: • *Simulation of Long Island Sound with the System-wide Eutrophication Model (SWEM): Inter-annual Variability and Sensitivity* (UConn/DMS; PI: Dam/O'Donnell; LI-97127101; LIS 2005 Enhancement Fund; $251,164) • *Multi-component Evaluation to Minimize the Spread of Aquatic Invasive Seaweeds and Harmful Algal Bloom Microalgae via Live Bait Vectors in Long Island Sound* (UConn and State University of New York, Purchase; PI: Yarish; LIS 2006 Research Fund; LI-97149601; $101,756)	Final reports submitted to EPA.
2.	A 2010 biennial Long Island Sound Research Conference is planned for the University of Connecticut Stamford campus from October 29-30, 2010. The conference, *Long Island Sound: A Regional Perspective,* is co-sponsored by the Long Island Sound Foundation and the New England Estuarine	Publish proceedings volume for 2010 conference. Plan for

	2009 Description	2010 Planned Action
	Research Society. Information on the conference is posted at: *http://longislandsoundstudy.net/2010/06/call-for-abstracts/*	the 2012 research conference.
3.	Principal Investigators are continuing work in 2009 on the following LISS Research projects related to Long Island Sound ecology and living resources: *Impacts of Climate Change on the Export of the Spring Bloom in Long Island Sound* (Stony Brook University; PI: Lonsdale; 2008; LISS 2008 Research Fund; $161,999 subaward under LI-97241708-0 to NY Sea Grant; 8/1/2009-7/31/2011)	LISS will continue to support research related to management decisions.
4.	The New York State Seagrass Task Force submitted their Report of the New York State Seagrass Task Force*: Recommendations to the New York State Governor and Legislature.* The report encompasses research gaps identified by the Task Force and is posted on the web at: http://www.dec.ny.gov/docs/fish_marine_pdf/finalseagrassreport.pdf	Report out on the research the Task Force had already funded.
5.	The Connecticut and New York Sea Grant programs continued to jointly administer the 2008 LIS research fund, awarding $820,000 in Long Island Sound Study research grants to five projects that will look into some of the most serious threats to the ecological health of the Sound (see Section L-9 above). This research will address the historical problem of the Sound's low oxygen conditions as well as emerging issues of red tide and the effects of climate change on the Sound's ecosystem. Research results from the two-year projects are expected to provide valuable information to resource managers throughout the Long Island Sound watershed.	Obtain progress reports from research projects
6.	Connecticut Sea Grant is supporting research to survey tidal wetlands along Connecticut's Long Island Sound and along Cape Cod, Massachusetts for Sudden Wetland Dieback (SWD) (Elmer/LaMondia, CT AG Station; 2008-2010). The project is sampling and mapping (GPS) sites with symptomatic and asymptomatic plants; isolating from affected and nonaffected tissues for *Fusarium* species, other phytopathogenic fungi, and root rot nematodes; identifying organisms via morphology and molecular genotyping; and confirming pathogenicity on healthy *Spartina alterniflora*. Experimental tests will assess how abiotic stressors, such as drought, flooding, and salinity, affect the susceptibility of *Spartina* to known pathogens.	Project is expected to be completed in early 2010
7.	Connecticut Sea Grant is supporting research using otolith microchemistry from returning anadromous river herring to determine the ratio of homing to natal streams (Vokoun et al, UCONN; 2008-2010). Juvenile habitats in Connecticut watersheds are being tested to determine if they have different minor and trace element concentrations, then it will be determined if emigrating juvenile river herring captured in their natal streams have minor and trace elemental signatures recorded in their otoliths which correspond to source waters. Returning adults will be captured, their otoliths analyzed, and the stream-of-origin determined statistically. The same otolith microchemistry is being used to determine when an individual emigrated to the ocean. Tank experiment s will document that movement from fresh to salt water generates a distinct chemical signal in the otolith; then the age and timing of emigration to the ocean for the returning herring analyzed will be determined.	Project is expected to be completed in early 2010
8.	Connecticut Sea Grant is supporting a research project that is quantifying, comparing, and contrasting the effects of the newly established no-harvest zones with respect to horseshoe crab reproductive ecology (i.e. number of spawning adults, nest density, egg density, and hatching success) (Mattei et al, Sacred Heart; 2008-2010). These spawning beaches at Milford Point and Sandy Point in CT are also "Important Bird Areas" as acknowledged by CTDEP. The researchers are determining horseshoe crab population dynamics (i.e. adult movement patterns, site fidelity, sex ratio, spawning behavior) employing conventional tagging methods, and if ecological links exist between spawning horseshoe crabs, shorebirds (migratory and resident species), and aquatic predators (native and invasive) at Milford Point and Sandy Point.	Project is expected to be completed in early 2010

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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 for public involvement and education activities.

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 of the *LIS 2003 Agreement*, 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. In 2008, *Sound Health 2008* was released, with more than 450,000 copies distributed in the watershed. 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.

ENVIRONMENTAL INDICATORS/RESULTS/TRENDS:

In 2009, LISS staff continued to distribute copies of Sound Health 2008 (LISS's environmental indicators report) upon request to schools, municipalities, libraries, and community groups. The next issue of Sound Health will be developed and published in 2010. The LISS, in 2009, published 4,000 copies of *Protection and Progress*, Long Island Sound Study's 2007-2008 biennial report. The report summarizes the actions undertaken to improve environmental conditions and implement the Comprehensive Conservation and Management Plan and Long Island Sound Agreements. It also highlights the environmental projects developed by organizations that received grants from the Long Island Sound Futures Fund.

2009 HIGHLIGHTS

- LISS produced and distributed its *UPDATE* newsletter to over 5,000 watershed residents, six issues of the online newsletter *Sound Bytes*, and three issues of the online newsletter Sound Outlook in 2009.
- LISS staff continued *Sound Stewards* program, which has engaged over 760 students to date in research projects in LISS stewardship sites.
- LISS staff coordinated five events for World Water Monitoring Day, engaging 85 students in the effort to monitor water quality in our coastal watershed.
- CT Sea Grant collaborated with the Connecticut College Arboretum to produce a booklet called *Salt Marsh Plants of Long Island Sound*.
- Over 900 families registered to participate in 2009 under the CTDEP No Child Left Inside program, with 170 families completing the visit to all 7 parks from Hammonasset Beach State Park on Long Island Sound to Peoples State Park in Barkhamsted.

SUMMARY OF MANAGEMENT ACTIONS:
PUBLIC INVOLVEMENT AND EDUCATION

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

KEY ELEMENTS: THE CCMP EMPHASIZES EXISTING AND ENHANCED PUBLIC INVOLVEMENT AND EDUCATION PROGRAMS AT THE STATE LEVEL TO BUILD COMMUNITY AWARENESS AND STEWARDSHIP OF LIS. SUPPORT FOR CONFERENCES, INCLUDING RESEARCH AND THE LONG ISLAND SOUND WATERSHED ALLIANCE, IS AN IMPORTANT ELEMENT OF THE PROGRAM. THE DEVELOPMENT AND DISTRIBUTION OF INFORMATIONAL MATERIALS FOR SPECIFIC AUDIENCES, INCLUDING PRINTED MATERIALS, PUBLIC EXHIBITS, EDUCATIONAL CURRICULA, AND RESEARCH PROGRAMS WAS IDENTIFIED AS A PRIMARY OUTREACH AND EDUCATION MECHANISM.

	2009 Description	2010 Planned Action
1.	The LISS Outreach Program: • produced the LISS *UPDATE* newsletter; the three issues covered Clean Water Infrastructure, Fishing in Long Island Sound, and Wildlife in Long Island Sound. These issues were distributed more than 5,000 watershed residents via the mailing list and outreach events. Throughout 2009, staff continued to update the *UPDATE* mailing list. The newsletter was also posted on the LISS website. • assisted in producing and distributing three issues of the CTDEP LIS newsletter *Sound Outlook to* a List Serve in addition to making it available on the CTDEP website. The *Sound Outlook* webpage averages 1000 hits per month. • produced six issues of the online newsletter *Sound Bytes* in 2009. Approximately 235 subscribers have signed up to receive this newsletter. • responded to more than 150 requests for information through the outreach offices and through the feedback form at www.longislandsoundstudy.net • continued to distribute LISS publications such as Sound Health and Step by Step brochures and LIS-related publications, such as Living Treasures of LIS.	*Sound Update, Sound Outlook, and Sound Bytes* will continue to be produced and distributed. LISS staff will continue to respond to requests for information, provide presentations, staff displays at events, and publish newsletters and other pertinent materials and will release the next issue of Sound Health in 2010.
2.	NYSG LISS staff attended six public events (April 17, Earth Stock, Stony Brook; April 19, Indian Island State Park, Riverhead, April 22, Brookhaven National Lab; April 26, Spring Fest, Heckscher State Park; May 23, Go Green, Port Jefferson; June 13, Sweetbriar Farm Festival). At these events, Long Island Sound Study promotional and educational materials were distributed to the attending public. CTSG LISS staff provided outreach materials to variety of audiences: general public, including EPA BOLD research vessel celebration, Stamford Sustainable Gardening Expo (100+/-) and National Estuaries Day booth at Mystic Aquarium (2,350 attendees), master gardeners, garden clubs, Land Trusts and students totaling 500 (+/-) NEIWPCC staff attended Alley Pond's National Estuary Day celebration (10/26/09), distributing LISS outreach materials to approximately 200 people.	Continue coordinated outreach efforts to attend events to educate the public about Long Island Sound, specifically targeting events in LIS watershed.
3.	LISS staff participated in World Water Monitoring Day, as part of a larger effort to monitor water quality worldwide (http://www.worldwatermonitoringday.org/). Programs were held for three groups in NY (8 students from a 4-H Group from Stony Brook, 7 students from Kings Park HS environmental club, 20 students from Rocking the Boat in the Bronx) and two groups in CT (20 students from Stamford Middle School and 30 students/parents from Sherwood School in Old Saybrook). Most of the group's data were entered into the online database. Staff also distributed a Press Release which resulted in articles in two local newspapers.	LISS staff will continue this effort in 2010.
4.	LISS staff partnered with two researchers, Jennifer Mattei and Mark Beekey, at Sacred Heart University to help monitor horseshoe crab populations in NY. The main objective of this program was to distribute USFWS tags on the north shore of Long Island. Although NYSDEC does tag horseshoe crabs at NY beaches, their resources only allow them to cover a limited number of beaches. NYSG held a training session that was attended by 48 groups (~75 people) and distributed a tagging set to each volunteer so that each of these volunteers could tag and collect data on a beach of their choice. Through these efforts, over 820 tags were released on 21 different beaches around NY. [See L-9, #8, page 57]	LISS staff will continue to help recruit volunteers to assist with monitoring efforts.
5.	LISS staff initiated a program, in collaboration with Brookhaven National Laboratory's Open Space Stewardship Program, to actively engage students in watershed-related research projects. To date, more than 763 students (320 students in 2009) from 6 schools have collected data on the effects of invasive invertebrate and plant species, polluted runoff, and habitat disturbance in Long Island Sound.	Continue this program in 2010, creating an effective evaluation method and expanding into NYC if possible.

	2009 Description	2010 Planned Action
6.	NY Sea Grant co-sponsored an event to collect unwanted medicines from Suffolk County community members. During the April 2009, almost 500 pounds of unwanted medicines were collected from 140 participants. [See Toxics section of this report, T-1, #8, page 32] NYSDEC launched a new webpage titled *Don't Flush Your Drugs* to inform the public about proper disposal of unwanted medicines. (www.dontflushyourdrugs.net)	NYSG and NYSDEC will continue to educate the public about proper disposal of unwanted medicines.
7.	NYS Environmental Facilities Corporation (EFC) published boating education advertisements in the Long Island Edition of Boating World. The half page ads urged boaters to use pumpouts and directed them to the EFC website for more information: www.nysefc.org/CVAP The funding level for pumpout boats has increased to a maximum of $60,000.00 per boat. [See P-6, #3, page 28]	EFC will continue to publish educational materials in *Boating World*.
8.	Connecticut Sea Grant produced a CD-ROM for teachers, including a PowerPoint presentation on the geology and tidal marshes of the Lower CT River. The CDs were distributed to teachers through workshops, conferences, and mail order. International Wetlands Day was publicized through a poster conference incorporating the lower Connecticut River marshes and the winning student design was made into a poster. Copies of the posters were sent to all middle and high school science departments in the lower Connecticut River valley in 2009, and to all middle and high schools in Connecticut in January 2010.	Continued distribution of the CD; presentation at the 2010 LIS Educators conference on tidal wetlands
9.	Connecticut Sea Grant collaborated with the Connecticut College Arboretum to produce a 38-page booklet called *Salt Marsh Plants of Long Island Sound*, printed on water resistant paper to facilitate use in the field. The guide includes an extensive introduction, which includes sections on Tidal Marsh Plants of LIS (low marsh, high marsh and upper border), Development and Future of LIS Tidal Marshes, Ecological Functions and Values of Tidal Marshes, Invertebrates and Detritus: Critical but Seldom Seen Parts of Tidal Marsh-Estuarine Ecosystems, Tidal Marsh Restoration, and How to Use This Guide. Twenty-five plants are described, with photographs. *Salt Marsh Plants of Long Island Sound* was publicly unveiled at the SENEME conference to rave reviews from formal and informal educators.	Continue distribution
10.	Connecticut Sea Grant continued its long-term co-sponsorship of the University of Connecticut's Coastal Perspectives lecture series for the public in 2009. Six evening lectures and symposia were conducted: Five sessions were dual "short" lectures presented by two campus faculty members and focused on broad topical areas (i.e., marine biological invasions, historical marine ecology and human history along the coast, ocean observatories and society, the oceans and human health, and climate change along the Southern New England coast), and one was a symposium on the legacy of Charles Darwin. Four speakers focused on the legacy of Darwin's many contributions to science and society. Six University-named marine scholars from five local high schools attended every lecture as part of their year-long program, to interact with the speakers and increase their awareness of key coastal issues.	Continue co-sponsorship of the series
11.	Two Connecticut Sea Grant staff serve on the Eastern Long Island Sound Advisory Council. One participated in writing, researching and editing the LIS Assembly Report to the Connecticut General Assembly (pursuant to Section 25-155 of CT Gen Stat) completed in December 2009.	Continued active participation on the Council.
12.	Connecticut Sea Grant gave several workshops as part of UCONN-AP Marine Sciences Day, including Nab the Aquatic Invader workshops for 41 middle school students and 4 teachers, and another on stormwater runoff called Roads, Roofs and Runoff.	
13.	The CTDEP Clean Vessel Act (CVA) program administers the Clean Boater and Clean Marina programs. CTDEP staff attended one boat show and other events to distribute information regarding clean boating practices, marine sanitation devices and pumpouts. CTDEP staff displayed outreach materials at the Connecticut Marine Trades Association Hartford Boating & Fishing Show reaching over 2,500 people with information about protecting and restoring LIS. Two interactive kiosks have been developed for use at boat shows and other various locations throughout the state to educate the public about the CVA, pumpouts and other clean boating practices. An *Action Guide for Boaters* has been published and will continue to be distributed at events such as boat shows and other informational events. [See P-6, #1, page 27]	Continue to promote the clean boating initiative by increasing media usage via radio. Incorporate clean boating practices into the DEP-Boating AquaSmart program, which teaches children about water and boat safety. Clean boating materials will also be distributed to boaters and marinas throughout the state.
14.	CTDEP provided technical assistance in the form of coastal management and coastal nonpoint source program workshops to coastal nonpoint source management area municipalities. The *Connecticut Coastal Management Manual* is available on the CTDEP website http://www.ct.gov/dep/cwp/view.asp?a=2705&q=323814&depNav_GID=1622 and fact sheets from the manual are made available upon request. In addition, a Coastal Nonpoint Source Program website was developed by CTDEP: http://www.ct.gov/dep/cwp/view.asp?a=2705&q=323554&depNav_GID=1709 In 2009, CTDEP distributed a brochure to the public: "Connecticut's Section 6217 Coastal	CTDEP will continue to provide coastal management and coastal nonpoint source workshops to municipalities as necessary. Website updates will also be conducted as necessary.

	2009 Description	2010 Planned Action
	Nonpoint Source Pollution Control Program."	
15.	CTDEP continued its public involvement initiative "No Child Left Inside," to encourage the public – especially families and children from urban areas – to enjoy the outdoors by taking advantage of the recreational opportunities state parks have to offer. With several State Parks and Wildlife Management Areas along the coast of CT, this initiative supports 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 an annual series of events called "The Great Park Pursuit," initiated in May 2006 where families visit CTs state park and compete in outdoor activities. Over 900 families registered to participate in 2009 with 170 families completing the visit to all 7 parks from Hamonasset State park on Long Island Sound to Peoples State Park in Barkhamsted. Participants, primarily families, have the opportunity to visit a number of state parks and forests over a seven-week period and compete in various challenges at those parks. The challenges will be linked to the general theme of each of the state parks and forests hosting events (e.g., historic sites, shoreline parks, forests, etc.). CT DEP has a web page dedicated to the NCLI initiative.	The Great Park Pursuit adventure challenge will again be launched in 2010 with a goal of registering 1500 families. Celebrating its 5th anniversary, the kick-off event will be held at Rocky Neck State Park (on Long Island Sound) on May 8th.
16.	In 2009, 31 NYS communities, including six communities in the LIS watershed, signed the Climate-Smart Communities Pledge. Climate Smart Communities is a New York State program to reduce the statewide carbon footprint by encouraging local governments to help fight global warming. The LIS communities are: Town of North Hempstead, Town of Brookhaven, Town of Smithtown, Village of Port Jefferson, City of New Rochelle, and the Village of Larchmont. For more information including a summary of the pledge, visit: http://www.dec.ny.gov/energy/50845.html	
17.	The LIS Foundation, with co-sponsors and a planning committee, in 2009 released its Proceedings Volume of its 2008 Long Island Sound (biennial) Research Conference. The conference was held at Connecticut College on October 30-31, 2008. Nearly 150 people attended the Thursday portion of the conference and 122 attended on Friday. There were 36 oral presentations and 15 posters presented. Of those presenting 26 were undergraduate students. The impact and outcome of this event was gathering together scientists from throughout New England to discuss and present their research on Long Island Sound, from which a "Proceedings" volume will be published, made up of manuscripts and abstracts from the conference.	The next LIS research Conference will be held in 2010.
18.	The Waterfront Center in Oyster Bay, NY builds community awareness and stewardship of the environment through a variety of programs for the public and various organizations. Its Public Marine Education Sails attracted 19 children and 28 adults. Bay Day and Oyster Festival (a rain event for 2009) are community days that had a combined attendance of over 1500 people, mostly families, who were introduced to the estuary by experiencing a touch tank, seining or getting on the water by sailing, kayaking or going aboard the Christeen.	The Waterfront Center will continue programs to increase community awareness and stewardship.
19.	LISS, through the New England Interstate Water Pollution Control Commission (NEIWPCC), purchased promotional items such as pens, pencils, rulers and key chains, that raise awareness of LISS, and encourages people to use the LISS website. These give-away items carry the LISS logo and LISS website address to promote the program and encourage website access.	The LISS will continue to produce promotional items for public distribution in 2010.
20.	Cornell Cooperative Extension (CCE) of Suffolk County's Water Logging program was run from May 2009 thru October 2009. The Water Logging program actively engages Suffolk County residents in water quality monitoring. After the monitoring season, presentations are given to schools and civic groups to provide education on local water quality and ways to protect and improve water quality. In 2009, CCE's educators in Western Suffolk brought programs in Marine Science and Environmental Education to 5,500 students. These programs focused on education and conservation awareness particularly pertaining to Long Island's coastal habitats.	CCE will continue these programs in 2010, pending funding.
21.	The LISS awarded nine large grants through the Long Island Sound Futures Fund for projects with significant public outreach and education elements that build community awareness and engage stewardships. Going Coastal will improve water quality in the Western Long Island Sound by providing pumpout services and education materials to recreational boaters. The Northeast Organic Farming Association of Connecticut will present organic land care training workshops to 150 homeowners and landscaping professionals and businesses to help transition from chemical to organic landscaping in order to reduce pesticide and nitrogen pollution from lawns and gardens into Long Island Sound. The Friends of Outer Island will build a revitalized educational center on Outer Island including a to provide hands-on learning and research opportunities about Long Island Sound. In the first year of this revitalized educational center ten teachers will be trained and 100 stewards will be engaged in a range of programs and activities. See the website www.NFWF.org for details.	LISS will be providing funding in 2010 to build community awareness and engage stewardship through the Long Island Sound Futures Fund.

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.

	2009 Description	2010 Planned Action
1.	In 2009, LISS and its partners distributed the following press releases concerning LISS-related projects: • March 6, 2009--Save the Sound and Long Island Sound Study Host Long Island Sound Citizens Summit Clean Water Investment, Infrastructure, Economy on the Agenda • March 9, 2009--Sea Grant Awards $820,000 for Research Under EPA's Long Island Sound Study Hypoxia, Red Tide Blooms, Climate Change among Areas of Study • October 29, 2009--More than $1 Million for Projects to Improve the Health of Long Island Sound Funding for Water Quality, Education and Stewardship, and Rivers and Beaches • December 1, 2009--Long Island Sound Study Hosts International Workshop on Ways Shellfish and Algae Harvesting Can Improve Water Quality	Continue to issue press releases as needed.
2.	CT Sea Grant gave educational talks and/or walks to coastal garden clubs, Land Trusts; co-taught Barn Island Coastal Wetlands workshop in partnership with Connecticut College; Participated in public forum on environmental issues affecting CT River estuary/LIS; gave educational tour to incoming masters class of Conway School of Landscape Design. In total, these talks reached 220 people. NY Sea Grant outreach staff gave presentations to students at Hempstead HS (1/13/09), members of the environmental club at the Unitarian Universalist Congregation at Shelter Rock (1/31/09), students at Adelphi University (4/21/09), participants at an I FISH NY event (6/13/09), members of the LI Paddlers Association (9/17/09), and students from Brentwood HS (12/15/09), reaching 420 people. Workshops to extend LISS and LIS educational materials were given at Science Council Of New York City (4/25/09), New York State Marine Education Association (6/6/09), Brookhaven National Lab Open Space Stewardship Program training (7/21/09), ScCIence Materials Exhibit (10/21/09) Conferences, reaching 80 educators. CTDEP LISS staff displayed and provided LISS information at nine events to over 3,000 people in 2009; the CMTA Hartford Boating & Fishing Show, the Connecticut Conference of Natural Resources at UConn Storrs campus, the Long Island Sound Citizens Summit in Bridgeport, the National Estuaries Day event at the Mystic Aquarium, two environment days at public schools, and at one Earth Day event at private industries.	Continued coordinated outreach that promotes understanding of LIS and its environs
3.	CTDEP staff distributed over 1,000 copies of the Sound Health 2008 environmental indicators report to three CT coastal State Parks in summer 2009. Copies of the report were also distributed to several schools and civic groups during LIS presentations and at environmental fairs and events. NYSG staff distributed 1,770 copies of Sound Health to local, county, and state parks, museums, and educators.	Sound Health 2010 will be released and distributed. Sound Health 2008 will continue to be distributed until supply runs out.
4.	LISS communications staff sent out a request for proposals to Web developers for a redesign of the Long Island Sound Study Web site. A new developer was selected, and charged with developing the first major redesign of the Web site since 2003.	The new Web site is anticipated to be up by the spring 2010.
5.	In 2009, the Communications Work Group published 4,000 copies of *Protection and Progress*, Long Island Sound Study's 2007-2008 biennial report. The report summarizes the actions undertaken to improve environmental conditions and implement the Comprehensive Conservation and Management Plan and Long Island Sound Agreements. It also highlights the environmental projects developed by organizations that received grants from the Long Island Sound Futures Fund.	LISS staff will continue to distribute this publication. Next issue is proposed for 2011.
6.	LISS staff continued to release electronic and printed newsletters related to LIS: • CTDEP LISS Outreach staff is contributing editor of *Sound Outlook*, the CTDEP Long Island Sound newsletter is funded through a LISS grant. This newsletter is a cooperative effort between the Coastal Zone Management and National Estuary Programs at the state level. *Sound Outlook* is available on the CTDEP web site: http://dep.state.ct.us/olisp/soundout/soundout.htm. The *Sound Outlook* web page received over 1200 hits in 2009. Staff contributed six articles and assisted in editing other articles. • NY Sea Grant edited and produced LISS *UPDATE* newsletter; the three issues covered Clean Water Infrastructure, Fishing in Long Island Sound, and Wildlife in Long Island Sound. These issues were distributed more than 5,000 watershed residents via the mailing list and	*Sound Update, Sound Outlook, and Sound Bytes* will continue to be produced and distributed in cooperation with one another.

	2009 Description	2010 Planned Action
	outreach events. • NEIWPCC staff produced six issues of the online newsletter *Sound Bytes* in 2009. Approximately 235 subscribers have signed up to receive this newsletter.	
7.	Connecticut Sea Grant displayed LISS-related information and materials at 5 events in 2009: Southeastern New England Marine Educators conference, Connecticut Science Teachers Association conference, National Estuaries Day (at Mystic Aquarium), Sustainable Gardening Expo, and in conjunction with the EPA / DEP at Fort Trumbull. More than 600 people attended these events.	Expect to set up display at minimum of 4 events
8.	Connecticut Sea Grant continued its longtime co-sponsorship with the UCONN Department of Marine Science for the graduate student-led Taste, Touch and Smell of Science (TTSS) program for middle school age students. The program is designed to convey the graduate students' enthusiasm for science while introducing middle school students to the exciting world of marine science. TTSS gives children an affordable opportunity to explore and learn about the coastal processes that contribute to coastal ecosystems. At the same time, it has always been a goal of TTSS to expose graduate students to methods of educating the general public. Sixteen students participated in 2009.	Continued program support in 2010
9.	Connecticut Sea Grant facilitated the filming of four episodes of the award-winning television show, *AquaKids*, at the Avery Point campus. The shows, which target a teenage audience, covered horseshoe crabs, light in the ocean, and plankton in Long Island Sound. The show is syndicated across the US as well as in several countries, and has the potential to be viewed in millions of households.	The producers of the show are currently working with CTSG to schedule more dates for filming in 2010.
10.	Connecticut Sea Grant and Project Oceanology served as co-regional coordinators for the Quahog Bowl, the southern New England regional bowl of the National Ocean Sciences Bowl. Teams of high school students from Connecticut and Rhode Island competed for the honor of representing their region at the national finals by answering questions related to a broad diversity of ocean and marine science related topics over the course of a day. The Quahog Bowl is held in February. In 2009, the winning team from Cranston-West (RI) High School took third in the overall national competition. In 2010, the team from Cranston-West again won top honors in the regional bowl.	The next Bowl is scheduled for Feb 2011.
11.	The New York State Department of Environmental Conservation (DEC) and New York State Office of Parks, Recreation, and Historic Preservation (OPRHP), held public hearings to take comment on the updated *Draft 2009 New York State Open Space Conservation Plan*. Hearings were held in January, including one on Long Island on January 22. Hearings also included a workshop where staff were available to answer any questions related to the Draft Plan.	
12.	CTDEP issued the following press releases concerning Long Island Sound projects: • January 5, 2009 – DEP Announces It's Farmington River Enhancement Grant RFP available for river restoration, dam removal, and fish habitat enhancement projects • January 18, 2009 - Governor Rell and Congresswoman DeLauro Announce a $261,250 federal grant to expand a state-managed and environmentally sensitive wildlife habitat area along Long Island Sound in Guilford. • January 22, 2009 - Governor Rell Announces $135 Million Expected for Sewer Project Improvements to Protect Water Quality and jobs. • February 19, 2009 – Governor Rell Announces the State's Plan to Purchase an Protect 48 acres to Expand Barn Island Wildlife Management Area, a Rare Coastal Land area. • April 1, 2009 - Governor Rell announces Grants for the Farmington River Watershed funds will improve water quality, restore aquatic life, improve public access to the river, and strengthen local land use planning. • April 8, 2009 - DEP announces prohibition on the taking of Alewife and Blueback Herring from CT waters is extended another year in an effort to restore stocks. • April 27, 2009 – Governor Rel announces $48 Million in Stimulus Funds to Improve water and sewer systems statewide. • June 5, 2009 – Connecticut DEP chooses artwork for the 2010 Boaters Guide cover. • June 10, 2009 – DEP Seeks Proposals for the Clean Vessel Act Funding for Marine Sewage Disposal Facilities for the 2010 boating season. • July 1, 2009 – Nesting shorebirds need special protection over the Fourth of July weekend and throughout the summer beach season. • July 7, 2009 – Governor Rell announces $4 Million in Stimulus Grants to help build fish passage and preserve coastal habitat • August 12, 2009 – The CTDEP and Friends of Sherwood Island State Park celebrate opening of a new Nature Center, funded impart by the Long Island Sound Futures Fund. • August 19, 2009 – Beacon Point Marina, in Greenwich, Receives Recognition as a "Connecticut Clean Marina" • August 24, 2009 – EPA's Ocean Survey Vessel, Bold, visits New London, open to the public. • October 29 2009 – More than $1 Million for projects to Improve the Health of Long Island Sound	CTDEP will continue to issue press releases on its work in preserving and protecting Long Island Sound and posted on the DEP web site.

	2009 Description	2010 Planned Action
13.	In 2009, I FISH NY conducted six programs on the north shore of Long Island, reaching over 375 students. These programs included: Cold Spring Harbor Fish Hatchery "Day of Fishing Fun" (3/28/2009), in-class with Sousa Elementary School in Port Washington (5/5/2009), in-class with Guggenheim Elementary School in Port Washington (6/8/2009), North Shore Family Fishing Clinic: Cedar Beach Pier, Mt Sinai (6/13/2009), in-class with Terryville Elementary School in Port Jefferson (6/15/2009), and Fishing with Kids Port Program in Port Washington (7/6/2009). I FISH NY also conducted 29 programs in the Bronx and Queens, reaching out to over 770 residents. This included three programs at the Bronx YMCA (7/22/2009, 7/29/2009, 8/5/2009) teaching 156 students, one program for Quality Services for the Autistic Community (7/10/2009) teaching 10 students, and teaching 25 classes (607 students) throughout the Bronx and Queens (various dates).	I FISH NY will continue to reach out to LIS-watershed residents about fishing.
14.	In 2009 Suffolk County Cornell Cooperative Extension (CCE) stormwater educators conducted stormwater pollution presentations in schools, for civic groups, and fairs/festivals in various communities in the Long Island Sound watershed. The focus of the programs are to increase awareness about the issues related to stormwater pollution and the Best Management Practices (BMP's) to reduce stormwater pollution of daily practices at home, school or at work. During 2009 programs reached around 650 school students and 450 adults who live in the Long Island Sound Watershed. CCE's Water Logging Program volunteers monitored local water quality and provided presentations to the community after the monitoring season. When volunteers learn about water quality their able to understand why their actions and the actions of others degrade water quality. The presentations highlight the Water Logging program, discuss what water quality is, why good water quality is important, and ways residents can have an impact. [See H-5, #10, page 18] In 2009, CCE's educators in Western Suffolk brought programs in Marine Science and Environmental Education to 5,500 students. These programs focused on education and conservation awareness particularly pertaining to Long Island's coastal habitats through hands-on learning and interactive activities.	CCE will continue to promote understanding of these topics.
15.	Westchester County SWCD staff held two Technical Workshops. 1) Sustainable Strategies for Stormwater Planning and Design: The District co-sponsored a sustainable development (a.k.a., low impact development) workshop with the New York City Soil and Water Conservation District on December 2, 2009 at the Westchester County Center in White Plains. Some 140 people attended the workshop, including government- and private-sector planners, engineers, landscape architects, environmental scientists, municipal officials and other professional staff. 2) Erosion and Sediment Control Workshop for Contractors and Developers: The District hosted an erosion and sediment control training workshop for construction contractors, developers, highway professionals, stormwater professionals and others involved in the implementation of a Stormwater Pollution Prevention Plan (SWPPP) on January 29, 2009 at the Westchester County Center in White Plains. This four-hour workshop provided the necessary training for compliance with New York SPDES General Permit for Stormwater Discharges from Construction Activity (GP-0-08-001), which requires that contractors receive four hours of training in erosion and sediment control every three years.	The District is planning another Erosion and Sediment Control Workshop for Contractors and Developers training event on March 9, 2010 at the Westchester County Center, White Plains.
16.	NYSDEC Bureau of Marine Resources staff that are most heavily involved in LISS activities and coordination, distributed copies of the 2009 'Protection + Progress' issue to other NYSDEC staff including the commissioner and assistant commissioners with a memo describing LISS activities and NYSDEC's involvement. Additionally, NYSDEC mailed copies of the publication with a memo from the Commissioner to legislatures in the LIS watershed. In total, 100 copies were distributed in this manner. Additionally, copies were also made available to NYSDEC staff on Long Island.	Distribute the 2010 'Sound Health,' this time focusing only on the NYSDEC staff.
17.	In 2009, the WaterFront Center in Oyster Bay, NY introduced groups to the animals of Oyster Bay, exploring the various habitats available at its facility or bringing programs to the organizations that help children and adults to understand the relationships between people and the natural environment and why we need to help preserve and protect the estuary systems. Programs such as "Water Everywhere", "Estuarine Exploration", "Harbor Habitats", "Horseshoe Crabs…", "Stars of the Sound" and our "Shipboard Marine Science" and "Marine Education Sails" were presented to over 4,500 children and 824 adults. The groups represented were schools, Boy & Girl Scouts, churches, libraries and other organizations. Approximately 430 children and 80 adults were introduced to the natural power of sailing or kayaking on the Oyster Bay National Wildlife Refuge through educational programs.	The Waterfront Center will continue programs to promote understanding.
18.	In 2009 the New York Sea Grant Nonpoint Education for Municipal Officials Program (NYSG NEMO) provided direct stormwater management support to municipalities throughout Long Island. Of note, consultations, presentations, and/or workshops were provided to Long Island Sound communities, including the Nassau County Stormwater Coalition, the Towns of Oyster Bay and Southold, the Suffolk County Highway Superintendents Association, the Hempstead Harbor and Manhasset Bay Protection Committees, and to the Villages of Plandome Heights, Port	Continue to deliver outreach and support designed to ensure integration of municipal PH II storm water management with advancement of LIS CMP

	2009 Description	2010 Planned Action
	Jefferson, and Russell Gardens. Further, NYSG NEMO continued to administer the "Phase II LI" listserve. Now reaching nearly 200 L.I. officials, "Phase II LI" has proven to be an effective means of leveraging expertise, technical resources, and information among municipalities.	objectives.
19.	The LISS awarded two grants through the Long Island Sound Futures Fund to projects that keep municipal partners informed and engaged in local protection and restoration of the health and natural resources of the LIS. With this funding, the Regional Plan Association continued to foster partnerships with state and municipal government developed through the creation of the *2008 Nissequogue River Stewardship Action Plan* (the Plan). Partners included: New York Sea Grant, New York State Parks and Recreation, New York State Department of Environmental Conservation, Suffolk County and Town of Smithtown, and the variety of civic groups, businesses and individual citizens that each contributed to developing the plan. The Plan introduced over 100 actions for Habitat, Water Quality, Land Use and Open Space and Education and Outreach to preserve and enhance ecological function and provide access opportunities within the Nissequogue River watershed, a Long Island Sound Study-designated Stewardship Area. With this funding, The Nature Conservancy (TNC) aims to foster adoption of recommendations working with nine towns' policies and practices associated with stormwater management to protect the Salmon River Watershed. The Watershed covers towns in Middlesex/New London/Hartford/Tolland Counties, Connecticut. The work emphasizes tools known to best leverage river protection (e.g., stormwater management/low-impact development (LID) riparian zone protection, municipal good housekeeping) and will address regulatory barriers. Under this the second phase of the project, TNC seeks to remove institutional and information barriers. TNC and SRWP will partner with towns, NEMO, and consulting engineers to hold a series of workshops with target stakeholder groups critical to reviewing and implementing stormwater management/LID and municipal good housekeeping and work in depth with two pilot towns to guide implementation of recommendations.	

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.

	2009 Description	2010 Planned Action
1.	The LISS funded 12 small grants projects totaling $68,123 for educational activities to increase understanding and appreciation of Long Island Sound through community events and activities in 2009 through the LIS Futures Fund program. The American Littoral Society, Save the Sound, Greenburgh Nature Center, and Save the River-Save the Hills, and others received small grants Some highlights of the 2009 projects funded included support for three National Estuary Day events, and 10,000 community members and students engaged in hands-on projects to restore and protect the health and living resources of the Long Island Sound. See LISS website for details.	The LISS Small Grants program will continue in 2010, increasing funding to $10,000.
2.	LISS staff participated in World Water Monitoring Day, as part of a larger effort to monitor water quality worldwide (http://www.worldwatermonitoringday.org/). Programs were held for three groups in NY (8 students from a 4-H Group from Stony Brook, 7 students from Kings Park HS environmental club, 20 students from Rocking the Boat in the Bronx) and two groups in CT (20 students from Stamford Middle School and 30 students/parents from Sherwood School in Old Saybrook). Most of the group's data were entered into the online database. Staff also distributed a Press Release which resulted in articles in two local newspapers. CT Sea Grant worked with 38 students, faculty (University of Hartford) and volunteers to collect trash and debris for CT River Coastal Source to Sea Cleanup.	LISS staff will continue this effort in 2010. Continue to engage public through hands on activities
3.	The LIS Citizens Advisory Committee (CAC) met in, March, June, September and December 2009 to identify and address issues concerning LIS and CCMP implementation. The CAC welcomed one new member and as of December 2009 consisted of 36 members organizations. In 2009: • In light of Federal Stimulus legislation, the CAC compiled a Long Island Sound Economic Recovery Package outlining the funding needs for LIS including a NY Bond Act, increased loans and funding and the creation of jobs. The package was distributed to	Quarterly meetings are planned for 2010.

	2009 Description	2010 Planned Action
	Representatives of the LIS Congressional Caucus, CT Governor Rell, and NY Governor Paterson. • CAC member outreach efforts and the letter detailing the needs for the requested increase in funds along with others' efforts resulted in an increase in funding for LIS to $7.8 million in FY 2010. • The Sound Vision project funded by the LISS in 2008 started. Sound Vision is a CAC-driven project to examine where LISS funds have been spend over the last 15 years, and where funds should be spent going forward • The CAC drafted a letter which identified its priorities for implementing the LISS CCMP. The Committee reached out to staff of CT DEP and NY DEC for input. The seven priority areas included: Water Quality, Stewardship and Habitat, Wildlife and Marine Resources, Closing the Gaps: Mapping, Monitoring, and Research, Dredging, Climate Change, and Public Education and Outreach. This letter was presented to the Management Committee for LISS 2010 funding. • The CAC identified the 400th anniversary of Adrian Block's exploration of LIS coming in 2014 as a special opportunity to celebrate LIS. The CAC participated in initial meetings of the 400th Anniversary workgroup.	
4.	LISS staff updated its "Get Involved" webpage http://www.longislandsoundstudy.net/volunteer.htm that lists the contact information for and links to the websites of 32 NY-based and 19 CT-based organizations that are in need of volunteers.	
5.	Cornell Cooperative Extension (CCE) of Suffolk County's pilot Storm Drain Marking Program was conducted for school students using plastic markers on school storm drain parking lots. Three schools participated in this pilot program and marked over 50 school parking lot storm drains. CCE's Water Logging programs strives to engage volunteers from the Huntington-Northport Bay watershed and throughout Suffolk County. To engage volunteers, flyers were posted at local libraries, yacht clubs, and chamber of commerce offices. Letters were sent to high school science teachers and emails were sent to yacht clubs. All of CCE's programs in Western Suffolk are advertised to the general public, and are hosted in various locations around Long Island to encourage island-wide participation and education. In 2009 staff visited over 30 schools, offered 4 pre-school programs, visited over 10 libraries and hosted our annual summer camp available to all residents of Long Island aged 6-11 years.	CCE will continue these programs to promote public participation.
6.	The WaterFront Center (in Oyster Bay, NY) program's reached an additional 3,725 children and 2,450 adults through participation in community events sponsored by organizations such as Theodore Roosevelt Sanctuary, Sagamore Hill National Historic Site, Cold Spring Harbor Fish Hatchery, Boy Scouts of America – Nassau County and the Girl Scouts of Nassau County & Suffolk County.	The Waterfront Center will continue programs to promote public participation.

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

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

	2009 Description	2010 Planned Action
1.	Through collaboration with Brookhaven National Laboratory's Open Space Stewardship Program, LISS established strong partnerships with NYSDEC, New York State Parks, Brookhaven National Laboratory, Cornell Cooperative Extension, and various schools throughout Suffolk County. In 2009, three of the six programs that were started in 2008 were continued, educating high and middle school students from Mt. Sinai, Middle Country, and Hauppauge, NY and providing data for NYSDEC, New York State Office of Parks, Recreation and Historic Preservation, Stony Brook University, and the Town of Brookhaven. Workshops were given at three conferences (Science Council of NYC, NYS Marine Education Association, and Long Island Science Education Leadership Association) to create new partnerships.	This program will continue in 2010, specifically three new programs will begin which will educate high school students from Glen Cove, Kings Park, and Longwood, NY and potentially provide data for NYSDEC, the Nature Conservancy, Cornell Cooperative Extension, and the Town of Smithtown.

	2009 Description	2010 Planned Action
2.	LISS outreach staff continued to provide technical information and resources (about LIS and LISS CCMP actions) to state and local agency staff and to other state and federal agency partners to facilitate cooperation and outreach with each other and the public at large. For example: CTDEP/LISS staff participated in and staffed a Long Island Sound display at the third annual Connecticut Conference of Natural Resources and to CTDEP Water Bureau staff in Hartford.	Staff will continue to make LIS information available to all state, local and federal partners and work with CT Sea Grant LISS Outreach staff.
3.	In 2009, The Nature Conservancy (TNC) on Long Island finalized its Coastal Resiliency Tool for localities. In 2009, TNC also received a LISFF grant to expand the project into the LIS watershed . TNC is working with Pace University personnel in its Land Use Center to perform legal analyses of the ramifications of climate change and sea level rise on LIS coastal communities. The final goal is to provide guidance to coastal localities on implementation of adaptation strategies. Additionally, the Conservancy has funded work with UCONN's Center for Land Use Education and Research program for modeling sea level rise impacts to all the salt marshes in the Sound. This will include projections for impacts to salt marshes as well as opportunities for landward migration of marshes where appropriate.	The tool is scheduled to be complete for the Sound and Peconic estuary in November 2010. This effort is slated for completion in early fall of 2010.
4.	Cornell Cooperative Extension (CCE) is participating in the Boundless Environments Collaborative (BE-Collaborative) Program sponsored by the Long Island Science Center (LISC) in Riverhead. Schools in Suffolk County work on environmental stewardship projects that emphasis science, technology, engineering and math. In addition are working with a garden club and nature center to construct a rain garden by nature center building for public education and reduce basement flooding.	CCE will continue its involvement in these programs.
5.	In 2009, The Waterfront Center in Oyster Bay, NY exchanged programs with Theodore Roosevelt Sanctuary and the Cold Spring Harbor Fish Hatchery, presented grade-level programs for both Nassau BOCES and The Town of Oyster Bay, had educational staff was trained in GLOBE protocol with plans to incorporate GLOBE sampling into the 2010 season.	The Waterfront Center will continue its involvement in these programs.

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.

	2009 Description	**2010 Planned Action**
1.	Connecticut Sea Grant continued the LIS Mentor Teacher Program with LISS funding. Three LIS Mentor Teacher workshops were conducted in the fall of 2009, reaching 33 formal and informal educators from at least 15 schools, and through them, more than 1,270 students. Long Island Sound Mentor Teacher (LISMT) workshops: *Teach at the Beach!* Led by LISMT Donna Rand and Donna DuBaldo. Hammonassett Beach State Park, Madison, CT. October 2, 2009. *Island Cruise: Have A Blast with the Science Standards*. Led by LISMT Beth Taylor and Ellen Dworkin. Outer Island, Stony Creek, CT and Walsh Intermediate School, Branford, CT. September 25, 2009. *Past, Present and Future Waters: An interdisciplinary Approach to Long Island Sound.* Led by LISMT Karen Beitler and Marjorie Drucker. Schooner, Inc. and Barnard Magnet School, New Haven CT. September 25, 2009.	Conduct additional LISMT workshops in Connecticut. Assist NYSG in bringing this program into New York.
2.	NY Sea Grant, as a member of the Executive board of the NYS Marine Education Association (NYSMEA), distributed new LISS materials to members and kept them informed of LISS activities. Staff attended numerous meetings and secured funding from NY Sea Grant (NYSG) to redesign and update the NYSMEA Web site. NYSG staff will be updating this content and also responsible for compiling a newsletter which will be distributed to NYSMEA members.	Staff will continue on the Board and distribute information. New Web site will be launched Spring of 2010.
3.	The Waterfront Center in Oyster Bay, NY is constantly striving to make the Oyster Bay Estuary system accessible to more people. In 2009 its demographics encompassed grades Pre-K to adults, multiple cultures and special needs groups ranging from inclusion classes to group home	The Waterfront Center will continue these programs

	2009 Description	2010 Planned Action
	and facility residents.	
4.	In 2009, IEC conducted *in situ* testing of water quality parameters in the upper East River and western Long Island Sound as part of the seventh annual World Water Monitoring Day to promote water quality awareness internationally. While comprehensive monitoring goes on throughout the year, IEC conducted in situ testing of water quality parameters at nine sites in the upper East River and western Long Island Sound, covering a distance of about 29 nautical miles, aboard the *R/V Natale Colosi.* These are the same sites monitored by IEC since 2002. The ambient water quality stations represent a subset of the LISS sampling network. In addition to meteorological and tidal conditions, parameters collected include dissolved oxygen, salinity, temperature, and water clarity. IEC in conjunction with LISO and Rocking the Boat, conducted a second WWMD event on the Bronx River. As an after-school event, students experienced hands-on water quality monitoring and data recording aboard the IEC research vessel, R/V Natale Colosi.The data IEC collected was submitted to the World Water Monitoring Day website, www.worldwatermonitoringday.org.	IEC will continue participation in this annual event as resources allow.
5.	In 2009, NY Sea Grant and the Department of Environmental Conservation's program I FISH NY developed four new lesson plans related to Food Web and Bio-Accumulation (grades 6-8), Form and Function (grades 6-8), Invasive Investigators (grades 9-12), Velcro Fishing Regulations (various).	I FISH NY will continue to develop curriculum to increase education related to fish and fishing.
6.	Implementation of Coastal Resources Interpretive Program for Huntington's Waterfront: The Town of Huntington is implementing the New York State Coastal Resources Interpretive Program by designing and installing 4 kiosks and 6 wayside panels interpreting the Town of Huntington's historic maritime and natural resources. Kiosks will be located in the Cold Spring Harbor waterfront park; in Huntington Harbor at Halesite Marina Park and Gold Star Battalion Beach; and in Northport Harbor at Cow Harbor Park. Wayside panels will be located in Cold Spring Harbor at Crossman's Brickyard/Fusaro's Beach; in Huntington Harbor at Heckscher Museum; in Huntington Bay at Eaton's Neck Lighthouse and Sand City; in Centerport Harbor at the Grist Mill; and at Crab Meadow Beach. In 2008, the Town Historian completed researching archives and other reference sources for historical photographs and text.	Work in progress
7.	Installation of Hempstead Harbor NYSCRIP Signage: The Hempstead Harbor Protection Committee, in partnership with the Town of North Hempstead, is fabricating and instaling five coastal interpretive signs designed according to New York State Coastal Resources Interpretive Program (NYSCRIP) standards. In addition, the Committee will design, fabricate and install five additional "low profile" signs and a kiosk to be located at strategic Hempstead Harbor public facilities.	Work in progress
8.	Cornell Cooperative Extension (CCE) of Suffolk County's stormwater presentations are available to all types of audiences. CCE has presented programs for schools from pre-K to college students. Adult audiences have included fishing clubs, garden clubs, civic groups, seniors at senior centers, festivals, and even church groups. In 2009, CCE's Western Suffolk educators taught programs in environmental education and marine science to not only students in grades K-12 but also to adult and senior citizen groups. Participants in programs ranged from age 2 years to 99 years in 2009. Student workshops included children in all grades K-12.	CCE will continue to give these types of programs.

E-6. SECURE FUNDING FOR PUBLIC INVOLVEMENT AND EDUCATION ACTIVITIES (CCMP TABLE 56, P.152)

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

	2009 Description	2010 Planned Action
1.	Since the inception of the LISS Small Grants Program under the umbrella of the Long Island Sound Futures Fund (starting in 2006), the LISS has provided funds for 43 projects totaling $227,741 (median grant award $6,000). These projects assisted hundreds of teachers and thousands of school children, and produced over 20,000 pieces of literature. In 2009 the LISS Futures Fund Small Grants program provided funds totaling $68,124 for 12 projects that provided $243,221 in match, almost $4 for every grant dollar allocated. See the LISS website for the 2009	Continue the program in 2010.

	2009 Description	2010 Planned Action
	Small Grants projects funded under the LIS Futures Fund.	
2.	The National Fish and Wildlife Foundation (NFWF) conducted one online grant workshop to assist potential applicants develop grant applications in response to the Long Island Sound Futures Fund Request for Proposals (RFP). The online workshop was held March 4, 2010 for interested applicants attracting 150 participants. The RFP was posted on the NFWF website: www.nfwf.org/lisff. In prior years CCMP management reports, we were able to provide a slate of proposals received as a result of the RFP. This year's RFP came out four months later than the standard calendar and as a result proposals are still in development by RFPs. NFWF has conducted extensive technical assistance outreach to individual applicants resulting from the online workshops. To date, we have fielded 50 calls from potential applicants about the priorities of the LISFF RFP which are based in the CCMP and developing their projects to address the CCMP. NFWF has uploaded multiple final reports from prior years of the LISFF funded projects on the website at www.nfwf.org\lisff.	NFWF will work with the LISS to select projects for funding in 2010. NFWF will award funds and track progress in implementing projects.
3.	The LISS posts announcements on its *Grants at a Glance*, page on its website, which provides information on funding opportunities within the larger Long Island Sound community. Links to Requests for Proposals are provided at http://www.longislandsoundstudy.net.	Continue to post notices of funding opportunities as appropriate.
4.	Due to budget constraints, a 2009 RFP for the Long Island Sound Fund (License Plate Grants) program was not issued.	CTDEP will issue a RFP for 2010
5.	NYS Environmental Facilities Corporation posts information about grants they administer, in particular the Clean Vessel Assistance Program, on its website: http://www.nysefc.org/home/index.asp	Continue posting CVAP opportunities.
6.	NYSDEC posts grant opportunities through the department on a public website: http://www.dec.ny.gov/pubs/grants.html This site lists the various grants and gives application instructions.	Redesign website to be more user friendly through a grants outreach project (currently underway).
7.	Cornell Cooperative Extension (CCE) of Suffolk County's stormwater program currently is funded by Suffolk County under their requirement to provide education and public participation for the stormwater management program. In 2009, CCE received a grant from the Long Island Sound Futures Fund to extend its Sound Experiences: From Ship to Shore Project. This will allow students from 12 districts to participate in a fully funded field trip in conjunction with the Oyster Bay Waterfront Center.	Suffolk County will continue to support the stormwater program.
8.	In 2009, a number of The Waterfront Center's programs (in Oyster Bay, NY) such as hands-on marine education and the "Ship to Shore" program were privately sponsored.	Find funds to continue current programs.

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.

HYPOXIA

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

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

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

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

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

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

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

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

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

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

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

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

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

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

H2-8. In cooperation with the state of New York, Westchester County is developing a non-point source management plan that will include implementing best management practices for non-point source nitrogen control, monitoring their effectiveness and establishing a Westchester County management zone (or bubble) for assessing compliance with the nitrogen load freeze. The LISS will explore extending the bubble concept to other management zones throughout Connecticut and New York state portions of the Long Island Sound drainage.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

PATHOGEN CONTAMINATION

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

TOXICS CONTAMINATION

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

FLOATABLE DEBRIS

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

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

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

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

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

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

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

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

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

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

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

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

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

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

LIVING RESOURCES AND THEIR HABITATS

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

L2-3. Connecticut and New York have programs to acquire by easement, fee simple acquisition, or other means habitats important for populations of plants and animals. These programs include the development of priority listings for acquisition and protection. Connecticut and New York have land acquisition and management programs that use state funds and federal fund programs such as the Land and Water Conservation Fund, the National Coastal Wetland Conservation Program, and the North American Waterfowl Management Plan to protect and acquire coastal lands and wetlands.

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

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

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

L2-7. Create a Long Island Sound Reserve System consisting of areas of land and water of outstanding or exemplary scientific, educational, or biological value to reflect regional differentiation and variety of ecosystems and to include representatives of all of the significant natural habitats found in the Sound. Where appropriate, sites will be selected from existing lands and wetlands held for conservation purposes so that acquisition funds will be directed towards those lands in private ownership that are needed to complete the reserve system. The primary activities in the recommendation include site identification (2 years) and site protection through the development of management plans, acquisition where necessary, and site management.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

L5-9. Enhance municipal shellfish restoration programs.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

PUBLIC INFORMATION & EDUCATION

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

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

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

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

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

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

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

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

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

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

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

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

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

-Providing technical assistance to citizen monitoring groups;

-Developing a reward system for citizens participating in Long Island Sound protection and restoration programs;

-Developing environmental habitat kits and guide maps;

-Production and distribution of videos of Long Island Sound research cruises.

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

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

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

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

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

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

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

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

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

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

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Appendix B

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

Total Nitrogen Wasteload Allocation for New York Point Source Discharges.							
Facility (Capacity, MGD)	**Baseline End-of-Pipe (lbs/day)**	**TMDL WLA End-of-Pipe (lbs/day) 2014**	**2009 Nitrogen Discharge (lbs/day)**	**BNR Upgrade Planned (Yes/No)**	**Year Upgrade To Be/or Completed**	**Cost Estimate $$ (M)***	**2014 Design Capability (Mg/l)**
Zone 7							
Mamaroneck (20.6)	2,135	829	1,373	yes	2017	$55.0	4.83
Port Chester (6.0)	563	219	633	yes	Unknown	$77.0	4.38
Blind Brook (5.0)	338	131	301	yes	Unknown	$43.0	3.15
New Rochelle (19.2)	1,516	589	1,772	yes	2017	173.0	3.68
North Castle (0.38)	33	13	56		2010	$4.5	
Subtotal	4,585	1,781	4,135			$352.5	
Zone 8							
Wards Island (275) -BNR Upgrade -SHARON Demo - Battery E Demo - Supplemental Carbon	43,140	17,903	34,150	yes	2011	$344.0	7.82
Hunts Point (200) - BNR upgrades - Supplemental Carbon	28,630	11,881	20,883	yes	 2009 2017	$251.0	7.13
Bowery Bay (150) - BNR Upgrades - Supplemental Carbon	17,270	7,167	17,708	yes	 2006-2012 2014-2017	$470.0	5.74
Tallman Island (80) - BNR Upgrade - Supplemental Carbon	6,860	2,847	9,058	yes	 2006-2011 2017	$317.0	4.27
CSOs	3,170	1,316					
Subtotal	99,070	41,114	83,700			$1.382.	
Zone 9							
Newtown Creek (310)	45,270	18,787	38,633	no			7.28
Red Hook (60)	4,610	1,913	3,133	no			3.83

Total Nitrogen Wasteload Allocation for New York Point Source Discharges.							
Facility (Capacity, MGD)	**Baseline End-of-Pipe (lbs/day)**	**TMDL WLA End-of-Pipe (lbs/day) 2014**	**2009 Nitrogen Discharge (lbs/day)**	**BNR Upgrade Planned (Yes/No)**	**Year Upgrade To Be/or Completed**	**Cost Estimate $$ (M)***	**2014 Design Capability (Mg/l)**
CSOs	1,721	714					
Subtotal	51,601	21,414	41,766				
Zone 10							
Belgrave (2.0)	213	77	272	yes	2009	$3.3	4.62
Glen Cove (5.5)	893	323	156	yes	C2006	$5.3	7.05
Great Neck SD (3.8)	457	165	437	yes	2012	$36.0	5.22
Great Neck (Village) (1.5)	212	77	261	yes (MBBR)	2012	$17.0	6.17
Oyster Bay (1.8)	220	80	59	yes	C2006	$8.6	5.34
Port Washington (4.0)	655	237	486	yes	2010	$12.7	7.12
Subtotal	2650	959	1,671			$82.9	
Zone 11							
SUNY (SCSD #21) (2.5)	208	40	93		Unknown	$5.3	1.92
Port Jefferson (SCSD1) (0.85)	202	39	27	yes	C2008	$20.8	5.51
Huntington (2.5)	448	87	95	yes	C2009	$10.7	4.18
Kings Park (SCSD #6) (0.60)	134	26	57	yes	2010	$9.1	5.20
Northport (Village) (0.45)	52	10	20	yes	C2005	$1.3	2.67
Subtotal	1044	202	292			$47.2	
Zone 11 East							
Greenport (Village) (0.65)	76	11	77	yes	2011	$6.2	2.03
Total Zones 7-11	159026	65481	129450			$53.4	

C= Completed Construction
B=Beginning Construction
*Cost estimates include disinfection upgrades as needed.

Appendix C

Wasteload Allocation and Upgrade Progress by Management Zone -- Connecticut

Total Nitrogen Wasteload Allocation for Connecticut Point Source Discharges.							
Facility	**Baseline End-of-Pipe (lbs/day)**	**TMDLWLA End-of-Pipe (lbs/day) 2014**	**2009 Nitrogen Discharge (lbs/day)**	**BNR Upgrade Planned (Yes/No) ***	**Year Upgrade To Be/or Completed**	**Cost Estimate/ Actual $$ (M) ****	**Design Capability (Mg/l) ********
ZONE 1							
Groton City	272	99	114	*	-	-	Phase II
Groton Town	420	153	353	Yes	**B** -2010	4.842	Phase II
Jewett City	42	15	8	Yes	**C** - 2005	1.5	Phase III
Killingly	359	131	126	*	-	-	Monitoring
Ledyard	20	7	5	Yes	**C** - 1997	0.04	Phase III
Montville	323	118	91	*	-	-	Phase II
New London	1057	386	391	Yes	**C** - 2002	.37	Phase II
Norwich	550	201	612	Yes	-	-	Phase II
Plainfield North	94	34	88	*	-	-	Monitoring
Plainfield Village	65	24	43	*	-	-	Monitoring
Putnam	145	53	157	*	-	-	Monitoring
Sprague	20	7	21	*	-	-	Monitoring
Stafford Springs	164	60	162	*	**B** - 2010	1.58	Monitoring
Stonington Borough	37	14	13	*	-	-	Monitoring
Stonington Mystic	74	27	25	*	-	-	Monitoring
Stonington Pawcatuck	66	24	25	*	-	-	Monitoring
Thompson	28	10	18	*	-	-	Monitoring
UConn	120	44	83	Yes	**C** - 1996	1.058	Phase II
Windham	344	125	364	Yes	**B** -2010	1.64	Phase II
Pfizer (Industrial)	2900	1059	0	N/A	-	-	-
Subtotal	7100	2591	2699				

Total Nitrogen Wasteload Allocation for Connecticut Point Source Discharges.							
Facility	**Baseline End-of-Pipe (lbs/day)**	**TMDL WLA End-of-Pipe (lbs/day) 2014**	**2009 Nitrogen Discharge (lbs/day)**	**BNR Upgrade Planned (Yes/No)**	**Year Upgrade To Be/or Completed**	**Cost Estimate /Actual $$ (M)****	**Design Capability (Mg/l)**
Zone 2							
Bristol	1091	398	452	Yes	**C** - 2004	0..584	Phase II
Canton	66	24	100	*	-	-	Monitoring
Mattabassett	2285	834	1123	Yes	**B** - 2014	50	Phase III
East Hampton	148	54	121	Yes	**C** - 2001	0.69	Phase II
East Hartford	801	292	418	Yes	**B** - 2010	1.96	Phase II
East Windsor	163	59	26	Yes	**C** - 1996	1.0	Phase III
Enfield	763	278	282	Yes	**C** - 2004	2.39	Phase III
Farmington	486	178	269	*	-	-	Monitoring
Glastonbury	268	98	223	Yes	**C** - 2009	6.67	Phase III
Hartford (phase 1)	6512	2377	4217	Yes	**C** - 2008	6.9	Monitoring
Manchester	855	312	851	*	-	-	Monitoring
Middletown	569	208	490	*	-	-	Monitoring
Plainville	277	101	135	Yes	**C** - 2009	6.217	Phase III
Plymouth	114	42	85	*	-	-	Phase II
Portland	86	31	33	Yes	**C** - 2002	1.05	Phase III
Rocky Hill	789	288	526	*	-	-	Monitoring
Simsbury	293	107	84	Yes	**C** - 2007	4.044	Phase III
South Windsor	289	106	326	Yes	**B** - 2011	7.3	Phase II
Suffield	122	45	47	Yes	**C** - 2007	3.37	Phase III
Vernon	504	184	361	Yes	-	2.5	Monitoring
Windsor Locks	180	66	113	Yes	**C** – 2003	1.84	Phase II
Windsor Poquonock	268	98	450	*	-	-	Monitoring
Winsted	175	64	66	Yes	**C** - 2007	1.1	Phase III
Subtotal	17104	6244	10798				

Total Nitrogen Wasteload Allocation for Connecticut Point Source Discharges.							
Facility	**Baseline End-of-Pipe (lbs/day)**	**TMDL WLA End-of-Pipe (lbs/day) 2014**	**2009 Nitrogen Discharge (lbs/day)**	**BNR Upgrade Planned (Yes/No)**	**Year Upgrade To Be/or Completed**	**Cost Estimate/ Actual $$ (M)**	**Design Capability (Mg/l)**
Zone 3							
Branford	526	192	94	Yes	**C** - 2003	3.158	Phase III
Cheshire	281	103	63	Yes	**C** - 2007	5.78	Phase III
Meriden	1230	449	1051	Yes	**B** - 2011	32.52	Phase II
New Haven East	4294	1568	1592	Yes	**C** - 1997	8.2	Phase II
North Haven	433	158	191	Yes	**C** - 2006	1.0	Phase II
Southington	557	204	725	Yes	**B** - 2010	13.0	Phase II
Wallingford	737	269	429	Yes	**C** - 2006	2.28	Phase II
West Haven	967	353	549	Yes	**B** - 2011	13.2	Phase II
Cytec (Industrial)	2543	928	596	**N/A**	**-**	**-**	
Upjohn (Industrial)	309	113	0	**N/A**	**-**	**-**	
Subtotal	11877	4337	5290				

Total Nitrogen Wasteload Allocation for Connecticut Point Source Discharges.							
Facility	**Baseline End-of-Pipe (lbs/day)**	**TMDL WLA End-of-Pipe (lbs/day) 2014**	**2009 Nitrogen Discharge (lbs/day)**	**BNR Upgrade Planned (Yes/No)**	**Year Upgrade To Be/or Completed**	**Cost Estimate/ Actual $$ (M)**	**Design Capability (Mg/l)**
Zone 4							
Ansonia	314	115	270	Yes	**B** - 2012	10.015	Phase III
Beacon Falls	33	12	58	*	-	-	Monitoring
Danbury WPC	1211	442	1974	Yes	**C** - 2009	5.0	Monitoring
Derby	195	71	64	Yes	**C** - 2000	2.76	Phase II
Heritage Village	54	20	**This is a**	**private**	**Plant.**	**No data**	**Available.**
Litchfield	64	24	43	Yes	**C** - 2004	1.0	Phase III
Milford Beaver Brook (phase 1)	258	94	137	Yes	**C** - 2009	1.613	Phase III
Milford Housatonic	844	307	324	Yes	**C**- 2009	10.04	Phase III
Naugatuck Treatment Co.	675	246	345	*	-	-	Phase III

Total Nitrogen Wasteload Allocation for Connecticut Point Source Discharges.							
Facility	**Baseline End-of-Pipe (lbs/day)**	**TMDL WLA End-of-Pipe (lbs/day) 2014**	**2009 Nitrogen Discharge (lbs/day)**	**BNR Upgrade Planned (Yes/No)**	**Year Upgrade To Be/or Completed**	**Cost Estimate/ Actual $$ (M)**	**Design Capability (Mg/l)**
Zone 4							
New Milford	66	24	109	Yes	**B** - 2012	6.0	Phase II
Newtown	115	42	18	Yes	**C** - 1997	1.06	Phase II
Norfolk	30	11	26	*	-	-	Monitoring
North Canaan	36	13	25	*	-	-	Monitoring
Salisbury	58	21	32	*	-	-	Monitoring
Seymour	167	61	69	Yes	**C** - 1993	0.25	Phase II
Shelton	290	106	219	Yes	**C** - 2008	4.29	Monitoring
Southbury T.S.	41	15	4	*	**B**- 2009 discontinue	-	Monitoring
Stratford (phase 1)	974	356	605	Yes	**C** - 1996	0.8	Phase II
(phase 2)				Yes	**C**-2009	10.116	Phase III
Thomaston	114	42	40	Yes	**C** - 2001	1.16	Phase III
Torrington	680	248	226	*	-	-	Phase II
Waterbury	2766	1010	857	Yes	**C** - 2000	17.36	Phase III
Watertown ***	106	39		**This Plant is Closed.**			
Unknown Industrial	1152	420		**N/A**			
Subtotal	10243	3739	5445				

Total Nitrogen Wasteload Allocation for Connecticut Point Source Discharges.							
Facility	**Baseline End-of-Pipe (lbs/day)**	**TMDL WLA End-of-Pipe (lbs/day) 2014**	**2009 Nitrogen Discharge (lbs/day)**	**BNR Upgrade Planned (Yes/No)**	**Year Upgrade To Be/or Completed**	**Cost Estimate/ Actual $$ (M)**	**Design Capability (Mg/l)**
Zone 5							
Bridgeport East	991	362	301	Yes	**C** - 2004	2.09	Phase II
Bridgeport West	2852	1041	1019	Yes	**C** - 2004	2.37	Phase II
Fairfield	1113	406	431	Yes	**C** - 2003	15.96	Phase III
Westport	238	87	38	Yes	**C** - 2008	8.25	Phase III
Subtotal	5194	1896	1789				
Zone 6							
Greenwich	1313	479	461	Yes	**C** - 2008	0.5	Phase III
New Canaan	175	64	30	Yes	**C** - 2000	1.235	Phase III
Norwalk	1967	718	881	Yes	**C** - 2000	6.64	Phase II
Ridgefield South St.	80	29	38	Yes	**C** - 1996	0.2	Phase III
Stamford	2536	926	510	Yes	**C** - 2006	59.5	Phase III
Subtotal	6071	2216	1920				
Total Zones 1-6	57589	21023	27941				

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