Long Island Sound Study

A Partnership to Restore and Protect the Sound

# Comprehensive Conservation and Management Plan Update

## *Investing in a Regional Asset*

## Supplemental Document

## Implementation Actions

**September 2014 Draft**

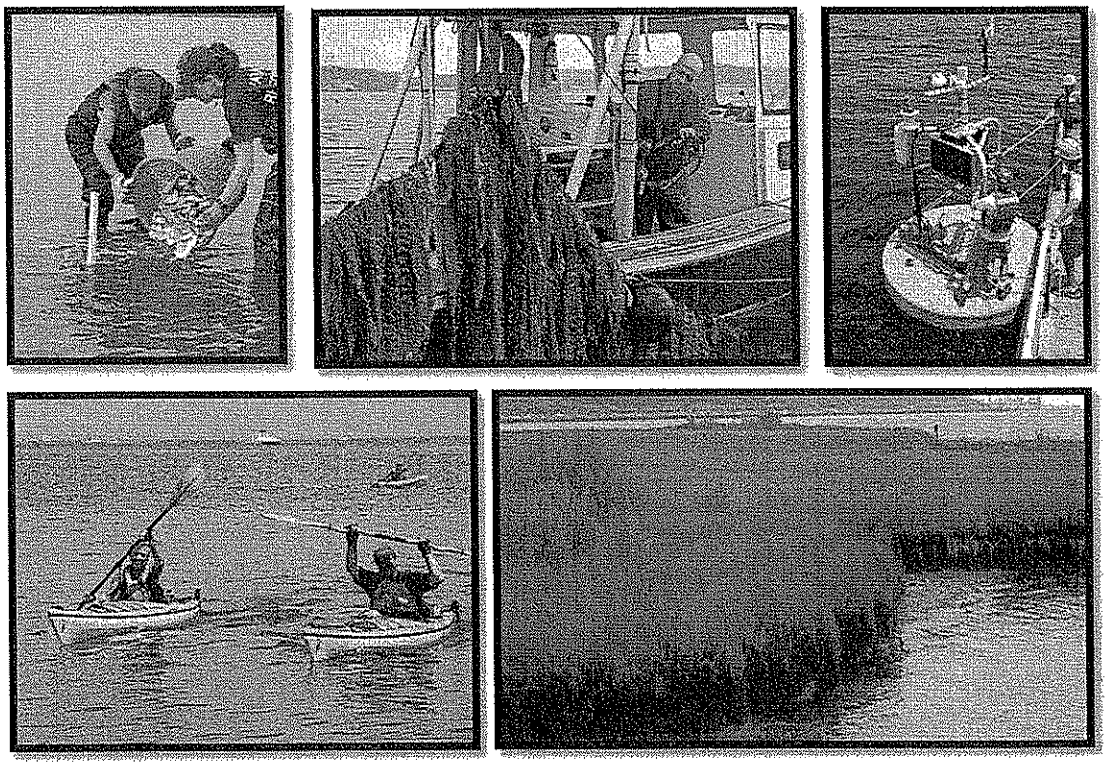

**Table 1. Clean Waters and Healthy Watersheds (WW) Implementation Actions (Priority actions are shaded in bold blue)**

| Implementation Action Number | Implementation Action Title | Major Strategy Addressed |
|---|---|---|
| WW-1 | Evaluate impact of the changing Connecticut and New York Long Island Sound Watershed population on wastewater treatment plant/combined sewer overflow loads. | 1-1a1 |
| WW-2 | Using the results of the population/loading analysis (Action WW-1), strategically plan for, and implement BMPs to mitigate combined sewer overflow loadings. | 1-1a2 |
| WW-3 | Explore expansion of point source and nonpoint source nutrient trading programs for the Long Island Sound watershed. | 1-1a2 |
| **WW-4** | **Encourage wastewater treatment plant upgrades, combined sewer overflow mitigation and elimination (where possible) to support goals and targets of LISS programs.** | **1-1a2** |
| **WW-5** | **Continue enhanced implementation of the Long Island Sound TMDL for dissolved oxygen and evaluate revision of those TMDL targets.** | **1-1a4** |
| **WW-6** | **Modify the reporting requirements of MS4 communities to improve dissolved oxygen TMDL implementation tracking and to better quantify the success of control measure actions.** | **1-1a6** |
| **WW-7** | **Improve and enforce pesticide/herbicide /fertilizer regulations and other Best Management Practices (BMPs) for agriculture and urban turf.** | **1-1a7** |
| WW-8 | Provide technical guidance for incorporating Low Impact Development (LID) / Green Infrastructure into development and redevelopment projects and through zoning and planning changes. | 1-1a8 |
| WW-9 | Conduct a population and land use change study in the Long Island Sound upper and lower watersheds to determine nutrient load stressors as a result of new development and redeveloped areas. | 1-1a8 |
| **WW-10** | **Develop a nonpoint source and stormwater tracking system tool for the Long Island Sound watershed.** | **1-1a8** |
| WW-11 | Reduce the amount of impervious cover that discharges directly into waterbodies. | 1-1a8 |
| WW-12 | Fix leaking sewer pipes and collection infrastructure. | 1-1a8 |
| WW-13 | Remediate abandoned and underutilized sites (brownfields). | 1-1a9 |
| WW-14 | Develop improved policies for packaged/decentralized wastewater treatment facilities and on-site septic systems. | 1-1a10 |
| WW-15 | Improve understanding, management, and design of denitrifying on-site wastewater treatment systems to reduce nitrogen and pathogens. | 1-1a10 |

| Implementation Action Number | Implementation Action Title | Major Strategy Addressed |
|---|---|---|
| **WW-16** | **Modify septic system use and siting policies to accommodate climate change and sea level rise (SLR).** | **1-1a11** |
| **WW-17** | **Improve efficiency and resiliency of existing/new waste treatment systems including septic, WWTF and stormwater infrastructure to accommodate sea level rise (SLR).** | **1-1a11** |
| WW-18 | Track implementation and effectiveness of approved watershed plans by local municipalities. | 1-1b1 |
| WW-19 | Promote establishment and protection of riparian corridors and wetland buffers at the municipal level through development of local ordinances and promoting permanent land protection. | 1-1b2 |
| WW-20 | Increase land protection efforts by municipalities and land protection organizations that permanently protect wetlands and riparian areas and buffers. | 1-1b2 |
| WW-21 | Improve environmental practices (boat wrap, bottom paint, pump out etc.) at marinas. | 1-2a1 |
| WW-22 | Develop water quality monitoring programs associated with coastal habitat restoration projects. | 1-3b6 |
| **WW-23** | **Identify and recommend removal or protection of sensitive infrastructure in the coastal zone (e.g., oil tanks, pump/power stations, etc.) and work to enact legislation to prevent future siting of such infrastructure in vulnerable coastal floodplains.** | **1-1a11** |
| WW-24 | Encourage state, and local health departments to adopt emerging rapid bacterial detection technologies that would allow shorter administrative beach/shellfish closings than those based on rainfall only. | 1-2b2 |
| **WW-25** | **Monitor and track occurrences and contributing factors of biotoxin and HAB outbreaks.** | **1-3b4** |
| WW-26 | Evaluate challenges to implementation of bioextraction in Long Island Sound, including use conflicts, economic viability, permitting and testing requirements and potential environmental impacts, and make recommendations to overcome. | 1-2c2 |
| WW-27 | Improve the permitting and certification process for new aquaculture projects with products intended for human consumption, particularly those with a bioextraction focus. | 1-2c2 |
| WW-28 | Estimate future phosphorus loading to Long Island Sound and its impact on Long Island Sound nutrient dynamics. | 1-3a1 |
| WW-29 | Improve ability of models and/or estimated load studies to evaluate contaminant and nutrient loads in critical areas and the effectiveness of remedial actions. | 1-3a2 |

## Implementation Action: WW-14

*Develop improved policies for packaged/decentralized wastewater treatment plants and on-site septic systems.*

Theme: Clean Waters and Healthy Watersheds
Goal: 1: Attain water quality objectives by reducing contaminant and nutrient loads to the land and the waters impacting Long Island Sound.
Outcome: 1-1: Contaminant and nutrient loads from land based sources in the watershed of Long Island Sound are reduced.
Objective: 1-1a: To reduce contaminant and nutrient loads from point and nonpoint sources
Strategy: 1-1a10: Improve and manage decentralized, package, and on-site wastewater treatment systems (OSWTSs) to reduce contaminant and nutrient loading

**Project Description/Background** Provide training and resources to watershed management, septic system inspectors and planning agencies for developing and implementing best available technology for decentralized treatment plants and on-site sewage systems, including upgrades consistent with SCDHS 2014 Comprehensive Water Resources Management Plan. Utilizing existing EPA guidance documents the two state Health agencies will oversee and implement regulations for decentralized treatment plants and on-site septic systems. LISS urges Connecticut and New York to implement the management components of the EPA's **'Voluntary National Guidelines for Management of Onsite and Clustered (Decentralized) Wastewater Treatment Systems' (2003)** and encourages the two state Health agencies to discuss nutrient removal systems. This action also encourages development, implementation, and/or enforcement of local laws and ordinances that promote and/or govern comprehensive management of onsite and decentralized wastewater treatment systems.

**Cooperators and Partners** The state, county and municipal agencies of Connecticut and New York. A contract/research study may be necessary to facilitate policy development.

**Funding Sources** A combination of state and federal grants and loans primarily funded through each states' respective SRF loan and grant programs and through EPA Grants. Possible Long Island Sound Futures Fund, other local grants or private funds could be used for studies or pilot projects.

**Level of Funds Needed** $$$

**Expected Outputs** Improved efficiency of nutrient and contaminant removal in human sewage from small decentralized treatment and onsite sewage systems. Improve ground water quality and reduced surface water contamination. Reduce water load on WWTFs

**Performance Metric(s)** Recorded number of state municipalities incorporating special sewer districts and number of decentralized treatment systems installed in the Long Island Sound watershed. # of conventional systems replaced with decentralized systems.

**Implementation Status** New

**Expected Timeframe** 2-3 years to solicit and implement study. Broad scale implementation in 2020-2030 time range

**Other CCMP Objectives Supported** 3-6b 4-1a, 3-1c

**NOTE:** Project Description/Background: The New York State Department of Health Design Standards for individual onsite systems (appendix 75A) do not address nutrient removal systems. Of particular relevance the NYSDOH does not consider nitrogen to be a public health issue statewide – as a result nitrogen removal systems are not in their design standards. There is also a split authority between NYSDOH and NYSDEC for decentralized systems – DOH has jurisdiction for systems 1000 gpd or less – DEC greater than 1000 gpd. As a result residential nitrogen removal systems do not get addressed at the state level – falls to Suffolk County (little focus in Nassau County on onsite nitrogen removal systems for residential use. (Per Kristina Heineman, EPA Region 2)

Modify

Theme

## Implementation Action: WW-15

*Improve understanding, management, and design of denitrifying on-site wastewater treatment systems (OSWTSs) to reduce nitrogen and pathogens.*

Theme: Clean Waters and Healthy Watersheds
Goal: 1: Attain water quality objectives by reducing contaminant and nutrient loads to the land and the waters impacting Long Island Sound.
Outcome: 1-1: Contaminant and nutrient loads from land based sources in the watershed of Long Island Sound are reduced.
Objective: 1-1a: To reduce contaminant and nutrient loads from point and nonpoint sources
Strategy: 1-1a10: Improve and manage decentralized, package, and on-site wastewater treatment systems (OSWTSs) to reduce contaminant and nutrient loading

**Project Description/Background** Substantial effort has been invested in increasing wastewater treatment facility infrastructure to remove nitrogen, and we are now approaching if not the limit of technology, certainly the point of diminishing returns, with respect to continued WWTF upgrades as a focus of the Long Island Sound nitrogen management strategy. More attention needs to be paid to other sources of nitrogen, and of these, sewage nitrogen from unsewered areas, particularly those near the coast, is among the largest remaining contributors. Approximately half of the homes and businesses in the watershed have OSWTS (http://longislandsoundstudy.net/wp-content/uploads/2010/03/fact13.pdf). The technology exists to remove nitrogen from these sources, but it is still expensive, rarely required by law, and in some cases, still under development. We must understand how best to utilize these systems, and when to require their implementation, and how much of an impact they can have on the nutrient budget of Long Island Sound.

**Cooperators and Partners** Research would likely be conducted by an academic or consulting agency partner. Implementation would fall on the municipalities. LISS can assist with logistics and possibly some funding

**Funding Sources** Planning grants could target LISFF. Implementation would require extramural funding or have to come out of state/municipal coffers

**Level of Funds Needed** Feasibility study $$$ Implementation $$$$
Upgrading to a nitrogen removing septic system costs $20-50K depending on size, which would require external funding for subsidized loan programs etc...

**Expected Outputs** Planning/research reports on nitrogen removing OSWTS. Eventual N load reductions resulting from implementation

**Performance Metric(s)** # of nitrogen removing septic systems installed or extant (difficult to track)

**Implementation Status** Underway/New
Efforts to understand the impact of OSWTS are underway in New York and Connecticut. A comprehensive study would be a new action that would assist these efforts

**Expected Timeframe** Ongoing. To do this right would probably require a comprehensive study of 2 years on the immediate term, followed by legislation to phase in new technology over the next 20 or so years.

**Other CCMP Objectives Supported** 1-1b, 1-2a, 1-2c, 1-3b, 3-5a, 4-4a

## Implementation Action: WW-16

*Modify septic system use and siting policies to accommodate climate change and sea level rise (SLR).*

| | |
|---|---|
| Theme: | Clean Waters and Healthy Watersheds |
| Goal: | 1: Attain water quality objectives by reducing contaminant and nutrient loads to the land and the waters impacting Long Island Sound. |
| Outcome: | 1-1: Contaminant and nutrient loads from land based sources in the watershed of Long Island Sound are reduced. |
| Objective: | 1-1a: To reduce contaminant and nutrient loads from point and nonpoint sources |
| Strategy: | 1-1a11: Incorporate climate change and sea level rise in planning, regulation and BMPs to control contaminant and nutrient loads |

**Project Description/Background** Provide training and resources to shoreline municipalities and planning agencies for developing and implementing coastal adaptation and resiliency strategies for decentralized treatment plants and on-site sewage systems located within the coastal flood zones of the Long Island Sound municipalities. This also includes implementing strategies to deal with groundwater depth changes as a result of climate change. Utilizing existing EPA guidance documents the two state Health agencies will work with the municipalities to oversee and implement regulations for decentralized treatment plants and on-site septic systems.

**Cooperators and Partners** The state agencies of Connecticut and New York and their respective state municipalities. CTDOH/NYSDEC (for systems over 1000gpd).

**Funding Sources** A combination of state and federal grants and loans primarily funded through each states' respective SRF loan and grant programs and through EPA Grants. Long Island Sound Futures Fund, other local grants and private funds.

**Level of Funds Needed** $$$

**Expected Outputs** Report on changes necessary to incorporate sea level rise into existing policies.

**Performance Metric(s)** N/A

**Implementation Status** New

**Expected Timeframe** Ongoing; Five year action. (January 2015 – December 2020)

**Other CCMP Objectives Supported** 3-5a

## Implementation Action: WW-17

*Improve efficiency and resiliency of existing/new waste treatment systems including septic, WWTF and stormwater infrastructure to accommodate sea level rise.*

| | |
|---|---|
| Theme: | Clean Waters and Healthy Watersheds |
| Goal: | 1: Attain water quality objectives by reducing contaminant and nutrient loads to the land and the waters impacting Long Island Sound. |
| Outcome: | 1-1: Contaminant and nutrient loads from land based sources in the watershed of Long Island Sound are reduced. |
| Objective: | 1-1a: To reduce contaminant and nutrient loads from point and nonpoint sources |
| Strategy: | 1-1a11: Incorporate climate change and sea level rise in planning, regulation and BMPs to control contaminant and nutrient loads |

**Project Description/Background** State agencies will work with municipalities to improve and protect waste water treatment plants and storm sewer infrastructure operations and efficiencies from the impacts of flood waters due to increased precipitation events and rising sea levels as a result of climate change. To minimize and prevent flood induced discharges of untreated or partially treated sewage containing excess nutrients and pollutants.

A comprehensive study needs to be done to identify where improvements are necessary and the costs associated with those improvements. Assist municipalities in applying for funding for projects to upgrade infrastructure for nonpoint source pollution control equipment and facilities.

**Cooperators and Partners** The state agencies of Connecticut and New York and their respective state municipalities.

**Funding Sources** Initial study could be LISFF funded. Implementation would be a combination of state and federal grants and loans primarily funded through each state's respective SRF loan and grant programs, to seek funding for NPS infrastructure upgrades.

**Level of Funds Needed** Initial Study $$ Implementation $$$$

**Expected Outputs** Reduced nutrient and contaminant loads to Long Island Sound (LIS). Report on required upgrades. Long term, monthly discharge reports and reporting of emergency raw sewage discharges. Track grants and loans awarded for WWTF and infrastructure projects protecting facilities from impacts of SLR and climate change resiliency.

**Performance Metric(s)** Amount of funding committed to infrastructure upgrades.

**Implementation Status** New

**Expected Timeframe** Five year action. (January 2015 – December 2020) Report should take one year (outside consultant funding) and should be implemented within 2-3 years. Implementation of report recommendations likely in 2020-2030 timeframe.

**Other CCMP Objectives Supported** 3-5a