Long Island Sound Study's Year In Review: 2017

I admit to having felt some ecosystem envy in the past, a longing look at the progress made in restoring the Tampa Bay estuary. After 60 Minutes profiled the Bay's slimy and smelly beaches in a 1974 investigative report, the surrounding communities woke up and said enough. Infrastructure investments upgraded sewage treatment. County government initiated comprehensive water quality monitoring to document problems and diagnose solutions. Aggressive reductions in nutrient pollution improved water quality, resulting in lush seagrass meadows returning to levels not seen since the 1950s. Restoring the Balance is what the Tampa Bay Estuary Program calls it. Now Tampa Bay, whether featured in tourist magazine cover shots or detailed in scientific articles, is at the head of the class of estuaries aspiring to return to health and vitality.

But Long Island Sound is right behind its estuarine cousin in accomplishment and discipline. After monitoring in the late 1980s revealed suffocatingly low levels of dissolved oxygen in the bottom waters of the Sound, federal and state efforts through the Long Island Sound Study got Long Island Sound on a pollution diet—a calorie count for nitrogen. In 2000, Connecticut and New York set aggressive targets to reduce nitrogen pollution. Now, after more than a billion dollars in investments in wastewater treatment upgrades, there are 45 million fewer pounds of nitrogen discharged annually to the Sound from human sewage, a 59 percent reduction. In 2017, progress continued, with 3,600 fewer pounds of nitrogen discharged every day compared to just 2016!

We are now seeing the improvements in water quality. Over the past five years, the average peak area of waters with unhealthy levels of dissolved oxygen in Long Island Sound was 95 square miles, less than half the pre-2000 average of 205 square miles. Talk about getting into shape. The area of waters with less than 3 milligrams/liter (mg/l) of dissolved oxygen in 2017 was 70 square miles. The area of waters below this water quality standard in 2015 and 2017 were the second and third smallest recorded in the past 31 years of monitoring. The severity of the problem has also declined, with no open waters below 1 mg/l dissolved oxygen in seven of the past eight years.

The year also brought a big increase in EPA funding for Long Island Sound. After averaging around $4.5 million annually the prior five years, Long Island Sound funding jumped up in the federal fiscal year 2017 to $8.6 million. This enabled a doubling of the number of restoration projects initiated through the Long Island Sound Futures Fund. In total, the Futures Fund awarded $2.04 million to local government and community groups for 30 projects that will improve the water and habitat quality of Long Island Sound. It also resulted in increased monitoring and assessment of water quality that will pave the way for future action. Many of these projects will be undertaken in 2018. And more initiatives and expanded partnerships are coming to a bay or harbor near you—Congress just approved another increase in EPA’s Long Island Sound funding to $12.6 million for 2018.

—Mark Tedesco, Director, Environmental Protection Agency, Long Island Sound Office

THE LONG ISLAND SOUND STUDY Comprehensive Conservation and Management Plan is organized around four themes.

Clean Waters and Healthy Watersheds
Improve water quality by reducing contaminant and nutrient loads from the land and the waters impacting Long Island Sound.

Thriving Habitats and Abundant Wildlife
Restore and protect the Sound’s ecological balance in a healthy, productive, and resilient state to benefit both people and the natural environment.

Sustainable and Resilient Communities
Support vibrant, informed, and engaged communities that use, appreciate, and help protect Long Island Sound.

Sound Science and Inclusive Management
Manage Long Island Sound using sound science and cross jurisdictional governance that is inclusive, adaptive, innovative, and accountable.

Sound Update provides readers with news about the Sound and the Long Island Sound Study.

Find the Long Island Sound Study on Facebook
Long Island Sound Futures Fund Grant Program: 2017

In 2017, the Long Island Sound Futures Fund awarded $2.04 million in grants to groups that matched these funds with an additional $3.3 million to conduct 30 stewardship, restoration, watershed management, and education projects. During this period, EPA and the National Fish and Wildlife Foundation (NFWF) provided funds to support the program. Since 2005, the Futures Fund has invested $17 million in 379 projects. With recipient match of $33 million, the program has generated $50 million for locally based conservation. The projects have opened up 157 river miles for fish passage, restored 1,090 acres of critical fish and wildlife habitat and open space, treated 202 million gallons of pollution from ground and surface sources, and educated and engaged three million people from communities surrounding the Sound. See www.longislandsoundstudy.net/grants for descriptions of all projects.

Clean Water + Healthy Watersheds
1. Rain Gardens and Rain Barrels for Eastern Connecticut (CT)
2. Using Flow Meters to Remove Nitrogen at the Amherst Wastewater Treatment Plant (MA)
3. A Watershed Monitoring Strategy to Support the Long Island Sound Nitrogen Strategy (MA, NH, VT)
4. Promoting Green Infrastructure through Monitoring & Evaluation of Bioswales (CT)
5. Rapid Action Plans to Deliver Green Infrastructure in Coastal Connecticut Communities (CT)
6. The Unified Water Study Equipment Loan Program: Collaboration in Embayment Monitoring (NY, CT)
7. Partnering for Pollution Prevention: Water quality monitoring of Impaired Waterways (CT)
8. Collaborative Watershed Planning for the Ten Mile River (CT, NY)
9. Project WASTE (Waterway and Street Trash Elimination) (NY)
10. Unified Water Study: Long Island Sound Embayment Monitoring (CT, NY)
11. Hempstead Harbor 2018 Water Quality Monitoring Program (NY)
12. Planting for Clean Water Communities (NY)

Educating + Engaging Sustainable and Resilient Communities
1. Sound Spirit Week (CT)
2. Connections to Long Island Sound (CT)
3. From the Schoolyard to the Sound: Engaging Communities through Schoolyard Habitats (CT)
4. Long Island Sound Summit and Video Project (CT)
5. Audubon Wildlife Guards: A Coastal Youth Conservation Program (CT)
6. Stormwater Management Education for Residents (CT)
7. Identifying Ecologically Significant Areas for the Blue Plan (CT, NY)
8. Healthy Connecticut Towns for a Healthy Long Island Sound (CT)
9. SOUNDoff Event! Creating Long Island Sound Stewards—III (NY)
10. Be a Good Egg—II (NY)
11. Septic Change-Out Education Program (NY)
12. Sound Gardening: Why Your Grass Choice Matters (NY)

Thriving Habitats + Abundant Wildlife
1. Resilience Management Planning and Restoration at Dodge Paddock/Beal Preserve (CT)
2. Planning for Fish Passage at the Starr Mill Pond Dam (CT)
3. H. Smith Richardson Wildlife Preserve Restoration Project (CT)
4. Coastal Wetland and Forest Restoration Planning Project (NY)
5. Phillips Mill Fish Passage Project (NY)

CREDITS:
1. Boy Scouts: iStock
4. Bioswale garden: New Haven Urban Resources Institute
10. Plover: iStock
10. Monitoring: CT Fund for the Environment
5. Phillips Mill Dam: Vicky O’Neil/NYSDEC
Map by Lucy Reading-Ikkanda; National Fish and Wildlife Foundation
Spotlight on Rain Gardens/Bioswales

Green Infrastructure Bioswales

Urban Resources Initiative (URI) is helping to bring green infrastructure to New Haven, and make Long Island Sound cleaner, with the support of Long Island Sound Futures Fund grants. Last year, the New Haven group received a $43,000 grant to monitor bioswales that the city of New Haven will install in downtown locations with the help of a GIS-siting tool developed by URI with a prior Futures Fund grant. As part of the 2017 grant, URI will also raise awareness to residents and businesses about bioswales in New Haven and engage municipal leaders in Bridgeport and Hartford about installing bioswales in their cities.

Bioswales are curb-side gardens planted in the strip between the street and the sidewalk that help to filter urban runoff. With prior Futures Fund grants, URI built 15 bioswales in the Newhallville and West Park Avenue neighborhoods. Monitoring has revealed that the bioswales are capturing and filtering a significant portion of nitrogen and heavy metals carried by rain on these streets instead of draining directly into storm drains, streams, and eventually Long Island Sound.

Centerport Beach Rain Gardens

In 2015, EPA and National Fish and Wildlife Foundation, through the Long Island Sound Futures Fund, awarded a grant to the Town of Huntington to complete construction of rain garden bioswales at Centerport Beach. The garden will treat 314,697 gallons of polluted stormwater annually, flowing from the Centerport Beach Recreation Facility into Northport Bay. This project transformed 6,700 square feet of parking lot into a rain garden with 75 trees and eight types of native plant species.

The rain garden captures and absorbs the water that would otherwise flow straight into the harbor, and helps to filter out any excess nutrients, pollutants and/or contaminants. The benefits of this installation include the reduction of harmful algal blooms, by reducing nutrient levels, and cleaner water entering the harbor.

**BY THE NUMBERS**

Total annual nitrogen discharges to Long Island Sound from wastewater treatment plants have been reduced by more than 45 million pounds since the early 1990s. Nitrogen is a plant nutrient that, in excess, can lead to poor water quality.

In 2016 and 2017, the states of New York and Connecticut met and exceeded a 2017 goal to reduce nitrogen discharges by 58.5% from the early 1990s.

New York City’s upgrades of four wastewater treatment plants at a cost of $1 billion reduced nitrogen discharges by 60% into the Upper East River (which flows into Long Island Sound), according to a 2017 news release from the NYC Department of Environmental Protection.

In 2017, the Connecticut Nitrogen Trading program helped the state’s 79 wastewater treatment plants reduce their nitrogen discharges to Long Island Sound down to 7,620 equalized pounds of nitrogen per day. This far exceeded their 2014 TMDL goal of 9,148 pounds of nitrogen per day. Under the program, municipalities who find it financially prohibitive to upgrade their wastewater treatment plants can still be in compliance with the general permit for nitrogen (NGP) discharges by purchasing credits from municipalities who have already upgraded their facilities. In 2017, 32 wastewater treatment facilities purchased credits totaling $2.36 million, which were shared among 47 municipalities that fully upgraded their plants for nitrogen removal.

In 2017, EPA released its most recent Toxics Release Inventory of contaminants discharged in the United States from industrial sources. According to the database, contaminants discharged into the Long Island Sound watershed were reduced by 84% from 2003 to 2016.

**IN 2017, LISS partners exceeded the goal to reduce nitrogen discharges by 58.5% from the early 1990s.**
Thriving Habitats and Abundant Wildlife

THE GOAL OF THIS THEME is to restore and protect the Sound’s ecological balance in a healthy, productive and resilient state to benefit both people and the natural environment.

BY THE NUMBERS
LISS’s partners completed 12 restoration projects for a total of 137 acres, including adding new plantings and removing invasive species, in coastal grasslands and wetlands. By the end of 2017, the Habitat Restoration Initiative achieved 91% of the goal of restoring 350 acres of habitat by 2020 from the 2014 baseline.

LISS’s partners connected fish habitat along nearly 12 miles of streams and rivers at four sites, including removing dams and building fishways. LISS is nearly 39% towards completing a goal of opening 200 river miles by 2035.

LISS’s partners protected 621.18 acres of open space through acquisitions or granting easements at 23 sites. LISS is 36% toward a goal of protecting 7,000 acres by 2035 from a 2014 baseline.

Spotlight on Restoration and Protection

Acquiring Open Space
In June 2017, the Connecticut Department of Energy and Environmental Protection (CTDEEP) acquired a six-acre parcel on the Menunketesuck River in Westbrook and Clinton, Connecticut through the support of the George Dudley Seymour Trust and CT Recreation and Natural Heritage Trust Program. The acquisition helps connect two large open space parcels, CTDEEP’s 144-acre Menunketesuck Wildlife Management Area property on the west side of the river, which was previously acquired funding from the Long Island Sound Study, and conservation lands owned the Town of Westbrook on the east side of the river.

Restoring Fish Passage
In 2015, The Nature Conservancy was awarded a Long Island Sound Futures Fund grant to build a fishway at Beaver Lake in Mill Neck, New York. Beaver Lake was once an estuary open to Long Island Sound. As the area developed, a dam was constructed to hold back water in the estuary. The dam was enough of a barrier that during most flows, migratory fish were unable to get over the dam to their freshwater spawning habitat. In August 2017, a 30-foot-long metal fishway, resembling that of a ladder, was installed opening up 1.5 miles of stream corridor and 110 acres of associated wetlands for migratory fish. Cornell Cooperative Extension and Hofstra University are also partnering with the New York State Department of Environmental Conservation (NYSDEC) to stock and monitor alewives at the creek each spring.

FISHWAY IN THE Village of Mill Neck, which helps migratory fish connect to Beaver Lake from Oyster Bay and the Long Island Sound.
Sustainable and Resilient Communities

THE GOAL OF THIS THEME is to support vibrant, informed, and engaged communities that use, appreciate and help protect the Long Island Sound.

BY THE NUMBERS
By the end of 2017 all 36 coastal communities in Connecticut met the 2025 LISS Ecosystem Target to adopt coastal resiliency plans. A survey to assess performance of New York’s 96 coastal communities is planned for 2018.

In 2017, 3,118 people volunteered to pickup trash on Long Island Sound beaches and parks as part of the annual International Coastal Cleanup event. The volunteers collected 17,811 pounds of debris along 103 miles of shoreline.

LISS’s Habitat Restoration and Stewardship Coordinator participated in a citizen science project to monitor alewives, a river herring, in LI streams and rivers. A total of 23 volunteers monitored 15 different LIS sites. Alewife were spotted at 5 of these locations.

The information is useful in helping to plan for future fish passage restoration projects.

In a 2017 survey by The Nature Conservancy, 75% of Niantic River Watershed residents said that they were willing to use less fertilizer and pesticides in order to protect the local streams, and Sound.

Spotlight on Public Outreach and Education

Protecting Coastal Birds through Public Education

The “Be a Good Egg” campaign strives to reduce human disturbance threats to beach-nesting birds through social marketing and community engagement. In 2017, in partnership with the Four Harbors, Huntington Oyster Bay, and North Shore Audubon societies, Audubon New York staff and 35 volunteers hosted nine outreach events at five priority Long Island Sound beaches.

The campaign, which was funded through a Long Island Sound Futures Fund grant, provided educational materials and successfully encouraged 1,487 beach-goers to sign the pledge to respect fenced-off nesting areas, keep trash off the beach, and not bring dogs to the beach in order to protect nesting birds. “Be a Good Egg” also partnered with Virginia Tech University to design and implement an outreach event evaluation study, which will inform the campaign’s messaging and events in the future.

More than 250 elementary students participated in a shorebird lesson and “Share the Shore” sign design contest. A subset of the students’ weather-resistant signs were installed on the beach to alert beach-goers of nesting areas. Four coastal stewardship events were held, during which 40 volunteers helped clean up trash from the beach, build wooden tern shelters, install symbolic fencing around nesting habitat, and map tern nests.

VOLUNTEERS for the “Be a Good Egg” program search for well-camouflaged Roseate and Common Tern nests on Great Gull Island.
Sound Science and Inclusive Management

THE GOAL OF THIS THEME is to manage Long Island Sound using sound science and cross-jurisdictional governance that is inclusive, adaptive, innovative and accountable.

BY THE NUMBERS
In 2017, the LISS Indicators Work Group drafted 20 web pages to help track the ecosystem targets developed for the Comprehensive Conservation and Management Plan. The targets were published in March 2018. Visit http://longislandsoundstudy.net/research-monitoring/liss-ecosystem-targets-and-supporting-indicators.

Three Long Island Sound Study research grants, totaling nearly $800,000, were awarded to scientists conducting Long Island Sound research on the impact of sea level rise on coastal marshes, nutrient and carbon flows in the Long Island Sound, and the sources and flows of excess nitrogen from groundwater discharges.

As part of the CT Blue Plan—a plan to protect traditional uses, ecological resources, minimize conflicts and maximize compatibility of future uses—CTDEEP, CT Sea Grant, The Nature Conservancy, and others compiled in 19 “map books,” collections of datasets and maps of different human uses and ecological resources of Long Island Sound in 2017. The information was used to develop a Resource and Use Inventory of Long Island Sound, a report that contains 13 ecological and 14 human use chapters. The report was published online in draft format on the CTDEEP website in March 2018.

CTDEEP and Interstate Environmental Commission (IEC) have been collecting summer dissolved oxygen data in Long Island Sound since 1991. In 2017, CTDEEP collected data at 48 stations around the Sound, and IEC collected data in 22 stations in the far Western (The Narrows) section of the Sound.

The Unified Water Study, a program managed by Save the Sound, involved 11 local community groups to monitor water quality at 24 bays and harbors in 2017. The program is expected to expand to 21 groups covering 36 bays and harbors in 2018.

Spotlight on Clean Water Management

New Nitrogen Pollution Reduction Strategies
The EPA, CTDEEP, and the NYSDEC have been working in parallel in order to aggressively reduce nitrogen pollution in the Long Island Sound. In 2000, all three agencies have adopted a Total Maximum Daily Load (TMDL) for nitrogen. A TMDL establishes the maximum load of a pollutant that a waterbody can use and still be healthy. The TMDL limits certain amounts of the pollutant that can be discharged, and the goal to achieve a 58.5 percent reduction of nitrogen from wastewater treatment plants was achieved in 2016. The three agencies are now pursuing new initiatives to further reduce nitrogen levels:

• The EPA’s Nitrogen Strategy works to achieve water quality standards throughout Long Island Sound and its embayments and near shore coastal waters.
• New York State appropriated $5 million to Long Island Nitrogen Action Plan (LINAP), which is a project to determine how to best reduce nitrogen loading, through technical, management and regulatory/policy actions.
• CT DEEP’s second generation strategy for addressing nitrogen pollution in Connecticut, includes completing planned upgrades at wastewater facilities and continuing the trading program, using new regulatory and non-regulatory approaches to stormwater management, and focusing on monitoring and outreach for embayments.

THE LIS WATER QUALITY MONITORING PROGRAM: CTDEEP operates 47 summer-time sampling stations (red pins). It also operates 17 year-round stations (blue pins). UConn operates real-time monitoring sensors deployed on buoys (yellow pins). IEC’s 22 sampling stations in the far western “Narrows” section of the Sound are not visible on this map.

LISS BUDGET
Fiscal Year 2017

<table>
<thead>
<tr>
<th>Coordination &amp; Reporting of Environmental Actions and Results</th>
<th>$513,316</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public Outreach, Information, Participation and Education</td>
<td>$715,112</td>
</tr>
<tr>
<td>Water Quality Monitoring, Modeling and Scientific Research</td>
<td>$3,022,706</td>
</tr>
<tr>
<td>CCMP Implementation Support and Technical Assistance</td>
<td>$4,378,866</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>$8,630,000</strong></td>
</tr>
</tbody>
</table>
What You Can Do to Help the Sound

In summer 2017, Long Island Sound Study’s social media campaign informed residents of the global crisis of plastics in the ocean and how it affects our own wildlife in the Sound (see article below). This summer the campaign will continue with a request to ask residents to break the plastic habit by bringing a reusable bottle or bag to the beach or shoreline park, and make sure waste is properly disposed of or carried out.

Social Media Campaign
Long Island Sound Study and its partners educated thousands of social media users in the summer of 2017, about the problem of marine debris in Long Island Sound. The #DontTrashLISound campaign posts and tweets were seen more than 80,000 times on Facebook and Twitter from mid-July to International Coastal Cleanup Day on Sept. 16. The posts included a graphic on the top 10 types of litter found in the Sound, the harm abandoned gear is having on fish and other marine life, and the threat of microplastics to water quality.

Volunteer Opportunities
There are many organizations in New York and Connecticut that need your help restoring and protecting Long Island Sound! For more information on how to get involved, please check out our website at: http://longislandsoundstudy.net/get-involved/lis-volunteer-opportunities/

If you would like to be added to the mailing list, or your organization would like its volunteer event advertised please contact Anna Weshner-Dunning at amw392@cornell.edu or 631-632-8730.