

# SOUND UPDATE

NEWSLETTER OF THE LONG ISLAND SOUND STUDY

## Long Island Sound Study's Year in Review: 2016

We can aptly call 2016 the year of transition. It marked the first full year of implementing the 2015 Long Island Sound Comprehensive Conservation and Management Plan, with its new goals and actions. The year launched new federal, state, and local efforts to understand the impact of nitrogen pollution on the water quality of the Sound's bays and harbors, in addition to its open waters. And, yes, the presidential election set the stage for a transition to a new administration in 2017.

One thing that didn't change was progress toward a cleaner, healthier Long Island Sound. Nitrogen pollution from the 106 wastewater treatment facilities in Connecticut and New York decreased by another 2.49 million pounds compared to 2015. The annual discharge is now 44.1 million pounds less than the early 1990s, a 57 percent decline. Conservation programs restored or protected an additional 532 acres of coastal habitat, including tidal wetlands, dunes, riparian buffers, and freshwater wetlands, for wildlife and human recreation. And removal of dams or construction of fish ladders reopened 50 more miles of river habitat to migratory fish for spawning and feeding.

Returning to nitrogen pollution, more progress is coming. Connecticut announced a *2nd Generation Nitrogen Strategy*. In addition to targeting more wastewater treatment plants for upgrades, Connecticut is working to reduce stormwater pollution, evaluate the role of septic systems as nitrogen sources, and work in communities to reduce turf fertilizer. New York finalized a *Long Island Nitrogen Action Plan*, which targets nitrogen pollution to all of Long Island's coastal waters, including the Sound. Both efforts prioritize embayments for

analysis and water quality improvements. These embayments are the areas most used by the public for swimming, kayaking, and other recreational activities. They are also susceptible to a variety of impairments from nitrogen pollution: loss of eelgrass, harmful algae blooms, nuisance seaweed growth, and low dissolved oxygen. The U.S. Environmental Protection Agency is working to coordinate its *Long Island Sound Nitrogen Reduction Strategy* with these new state and local initiatives, integrating them Soundwide.

The key to these efforts is to identify nitrogen endpoints (or thresholds) that protect the uses of the threatened waters. The endpoints can take the form of either ambient nitrogen concentrations or loading rates. The loading of nitrogen from direct point source discharges and nonpoint sources in the watershed can then be evaluated against levels needed to attain these thresholds. Localized watershed nitrogen targets would provide incentives for state collaboration and community engagement. Resulting actions to reduce nitrogen will help alleviate local impairments and open water hypoxia in western LIS.

Despite the progress on reducing nitrogen pollution, the summertime area of low dissolved oxygen in Long Island Sound increased to 198 square miles in 2016 compared to 38 square miles in 2015. This highlights how the severity of hypoxia varies each year in part due to weather. On the bright side, anoxia, the near absence of dissolved oxygen in the water, did not occur. Levels that low, which have serious consequences for aquatic life, have not occurred for seven of the past eight years.

For 2017, stay tuned and stay engaged.

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

THE 2015 CCMP is organized around four themes, as is this newsletter.

|  |  |  |   |
|--|--|--|---|
| <p><b>Clean Waters and Healthy Watersheds</b><br/>Improve water quality by reducing contaminant and nutrient loads from the land and the waters impacting Long Island Sound.</p> | <p><b>Thriving Habitats and Abundant Wildlife</b><br/>Restore and protect the Sound's ecological balance in a healthy, productive, and resilient state to benefit both people and the natural environment.</p> | <p><b>Sustainable and Resilient Communities</b><br/>Support vibrant, informed, and engaged communities that use, appreciate, and help protect Long Island Sound.</p> | <p><b>Sound Science and Inclusive Management</b><br/>Manage Long Island Sound using sound science and cross jurisdictional governance that is inclusive, adaptive, innovative, and accountable.</p> |
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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: 2016

In 2016, the Long Island Sound Futures Fund awarded nearly \$1.3 million in grants to groups that matched these funds with an additional \$1.3 million to conduct 25 stewardship, restoration, watershed management, and education projects. During this period, EPA, the US Fish and Wildlife Service (USFWS), and the National Fish and Wildlife Foundation (NFWF) provided funds to support the program. Since 2005, the Futures Fund has invested \$15 million in 352 projects. With recipient match of \$30 million, the program has generated \$45 million for locally based conservation. The projects have opened up 157 river miles for fish passage, restored 1,051 acres of critical fish and wildlife habitat and open space, treated 101 million gallons of pollution from ground and surface sources, and educated and engaged 2.1 million people from communities surrounding the Sound. See [www.longislandsoundstudy.net/grants](http://www.longislandsoundstudy.net/grants) for descriptions of all projects.



Robert Burg

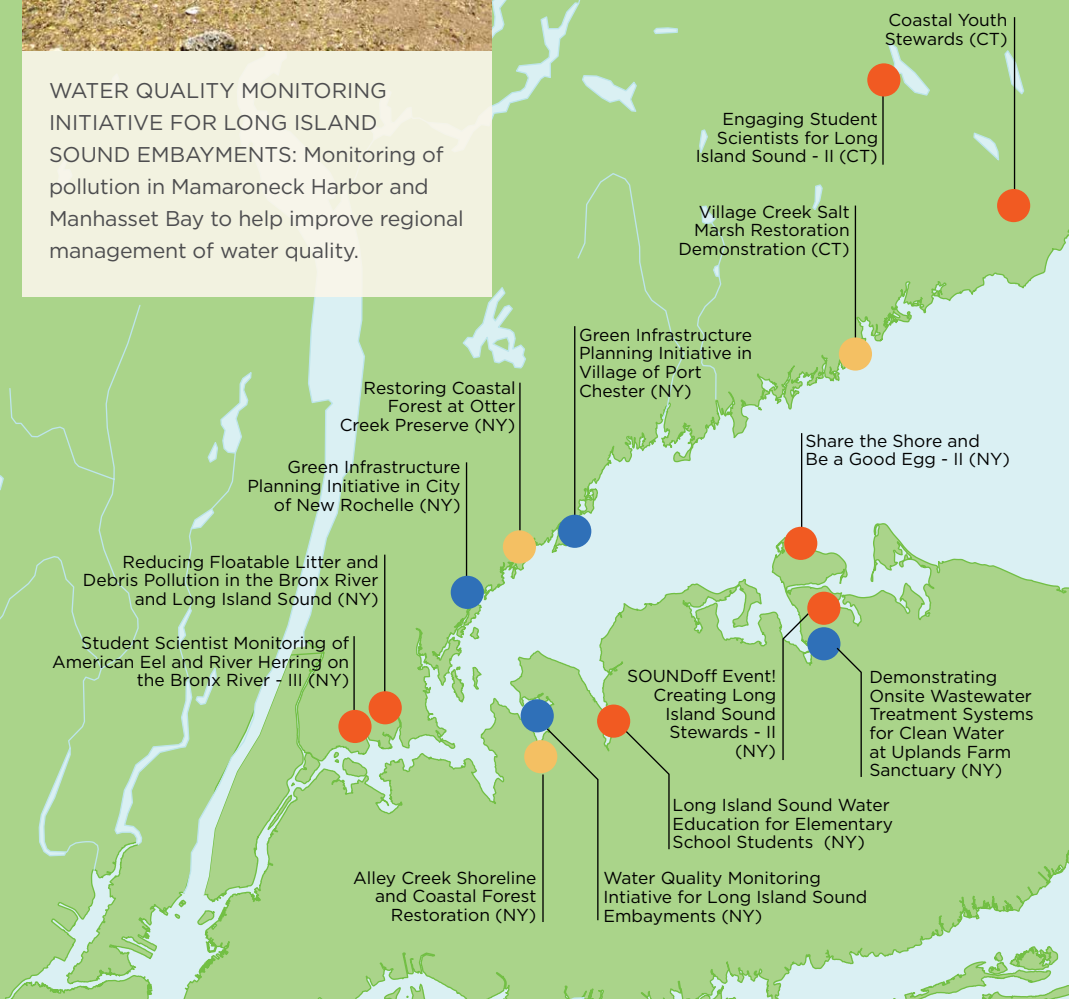
**STUDENT SCIENTIST FISH MONITORING ON THE BRONX RIVER:** Increase local community awareness of the Bronx River as a habitat for river herring and American eels and contribute to the development of a management plan for these species.



Save The Sound

**WATER QUALITY MONITORING INITIATIVE FOR LONG ISLAND SOUND EMBAYMENTS:** Monitoring of pollution in Mamaroneck Harbor and Manhasset Bay to help improve regional management of water quality.

- Clean Water + Healthy Watersheds
- Thriving Habitats + Abundant Wildlife
- Educating + Engaging Sustainable and Resilient Communities





River Smart Community Stormwater Education in the Farmington River Watershed (CT)

Save The Sound



GREEN INFRASTRUCTURE FOR BEARDSLEY ZOO: Install bioretention, tree pits, and pervious pavers that will capture and treat 1 million gallons of urban stormwater runoff annually.

Scott Kruitbosch



AUDUBON WILDLIFE GUARDS AT PLEASURE BEACH: Employ students to encourage the public to share the coast with beach-nesting coastal waterbirds at Pleasure Beach in Bridgeport, CT.

Patrick Herron



RESTORING FISH PASSAGE ON FALLS RIVER: Develop designs for fish passage at two dams on the Falls River in Centerbrook, CT. The project will set the stage for access to over 45 acres and 1.5 miles of stream habitat for river herring.

Green Infrastructure for Beardsley Zoo (CT)

Audubon Wildlife Guards - A Coastal Stewardship and Youth Conservation Training Program (CT)

Planning for Restoring Fish Passage on the Falls River (CT)

Sound Engagement for Families (CT)

Stonington Harbors Water Quality Monitoring and Education Initiative (CT)

Coastal Dune Restoration at Stratford Point (CT)

Cultivating Champions for Healthy Soil and Clean Water for Long Island Sound (NY)

A Blue Marine Plan for Long Island Sound (NY, CT)

My Yard, Our Sound: Planting for Clean Water and Wildlife (NY)

Onsite Wastewater Treatment Systems for Clean Water Robert E. Reid Sr. Recreation Center (NY)

Lindsay Morris



CULTIVATING CHAMPIONS FOR HEALTHY SOIL AND CLEAN WATER: Promote the use of soil health practices among Suffolk County's 140 vegetable farms and reduce nitrogen from farms in the Long Island Sound drainage area.

# Clean Waters and Healthy Watersheds

THE GOAL OF THIS THEME is to improve water quality by reducing contaminant and nutrient loads from the land and the waters impacting Long Island Sound. Here are just a few of the projects that were awarded grants in 2016.

## Water Quality Monitoring and Education

In 2016, the Sea Research Foundation at the Mystic Aquarium was awarded a Long Island Sound Futures Fund grant to monitor and identify local pollution sources in near-shore areas and conduct a public education program along the coastline of Stonington. The project will reduce sources of nitrogen pollution into the Stonington coast and Long Island Sound.

### VOLUNTEERS AT STONINGTON

HARBOR rake the seafloor to monitor the abundance of macroalgae (seaweed). An excess of macroalgae is an indicator of nitrogen pollution.



Mystic Aquarium

## Onsite Wastewater Treatment Systems

In 2016, The Nature Conservancy on Long Island was awarded a Long Island Sound Futures Fund grant to construct a nitrogen-reducing vegetated wastewater treatment system in Cold Spring Harbor. The constructed wetland system will treat wastewater in a natural manner and will serve as a demonstration of an alternative to traditional wastewater treatment systems like cesspools. This innovative system will reduce nitrogen in effluent to nearly zero, resulting in a reduction of at least 150 pounds of nitrogen annually.

THE WETLAND SYSTEM will be installed at the Upland Farms complex, which serves as an office for the Long Island Chapter of TNC.



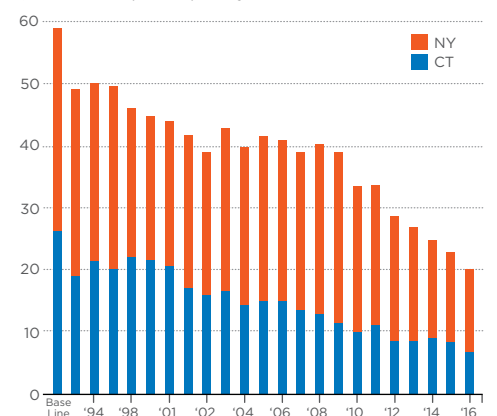
Derek Rogers/The Nature Conservancy

## Reducing Nitrogen

In 2016, New York and Connecticut reached and exceeded the goal of the Long Island Sound Total Maximum Daily Load (TMDL) to reduce nitrogen. As a result of plant modernization, wastewater treatment plants discharged 20,400 trade equalized pounds per day of nitrogen compared to the early 1990s baseline level of 59,147 pounds, a 57% decrease. The TMDL goal was to reach 22,775 trade equalized pounds. The milestone reflects progress by the states in reducing nitrogen pollution, a contributor to poor water quality.

Equalization is a mathematical calculation of the transport efficiency of a pound of nitrogen released from a source based on its geographical proximity to Long Island Sound.

LIS POINT SOURCE NITROGEN TRADE-EQUALIZED LOADS (Thousands TE pounds per day)



# 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. Here are just a few of the projects that were awarded grants in 2016.

## Shoreline and Coastal Forest Restoration

In 2016, the City of New York Department of Parks and Recreation was awarded a Long Island Sound Futures Fund grant to construct a living shoreline to restore approximately one acre of degraded salt marsh and enhance 13 acres of coastal grassland, forest, and upland in Alley Pond Park in Douglaston. The project aims to stop the continued loss of urban salt marsh.

A LIVING SHORELINE will be constructed along approximately 200 linear feet of the Alley Creek shoreline.



Nathan Kensingler

## Salt Marsh Restoration Demonstration

In 2016, the Norwalk Land Trust was awarded a Long Island Sound Futures Fund grant to plan and design restoration of approximately eight acres of degraded intertidal salt meadows at the Village Creek salt marsh in Norwalk. The project will provide the foundation for a salt marsh restoration program with a focused project plan to improve restoration success in an important wildlife area.

THE VILLAGE CREEK salt marsh in Norwalk will undergo salt marsh restoration.



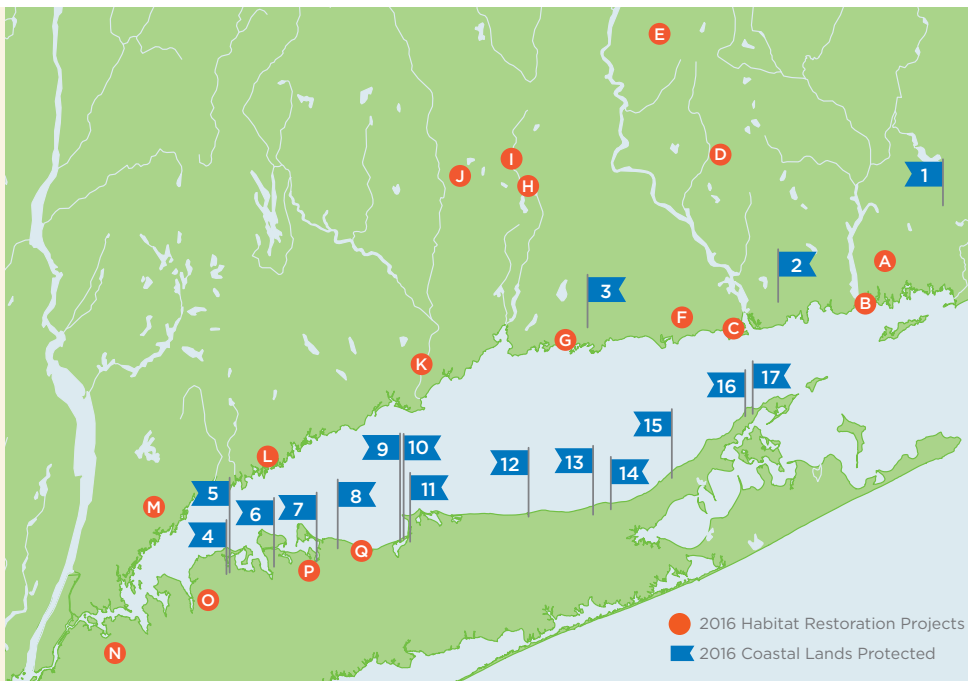
Alex Von Kleydorff / Hearst Connecticut Media

### HABITAT RESTORATION

- A. Candlewood Ridge New England Cottontail Coastal Forest Habitat Restoration
- B. Hutchinson Tidal Marsh Restoration
- C. Hill Street Tidal Marsh Restoration
- D. Norton Paper Mill Dam Removal
- E. Hilliard Pond Dam Removal
- F. Chapman Millpond Dam Fishway
- G. Juniper Point Tidal Marsh Restoration - West Side
- H. Carpenter Dam Removal
- I. Clark Brothers Dam Removal
- J. Century Brass Dam Removal
- K. Powerline Marsh
- L. R. Upper Pond Dam Fishway
- M. Mamaroneck River Floodplain Restoration- Phase 2
- N. Meadow Lake Water Quality and Habitat Improvement Project
- O. Clark Sanctuary Restoration
- P. Carpenter Farm Restoration
- Q. Sunken Meadow Creek Salt Marsh Restoration-Phase 2

### LAND PROTECTION

- 1. Acquisition of the O'Toole Property
- 2. Acquisition of 106 Four Mile River Road
- 3. Acquisition of the Westwoods North Property
- 4. Cushman Woods Acquisition
- 5. Smithers Connector Parcels Acquisition
- 6. Wawapek Preserve Addition
- 7. Greenlawn Water District Property Acquisition
- 8. Tannenbaum Property Acquisition
- 9. Zausin Property Acquisition
- 10. Neitzel Property Acquisition
- 11. Merrick Property Easement
- 12. Stewart McMullan Property Acquisition
- 13. Roanoke Farmland Acquisition
- 14. North Fork Preserve Inc. Property Acquisition
- 15. Biggane Property Easement
- 16. Sinatra/Highpoint Woods Acquisition
- 17. Rose Property Acquisition



● 2016 Habitat Restoration Projects  
 ■ 2016 Coastal Lands Protected

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and www.dec.ny.gov



**Department of Environmental Conservation**

# Sustainable and Resilient Communities

THE GOAL OF THIS THEME is to support vibrant, informed, and engaged communities that use, appreciate, and help protect Long Island Sound. Here are just a few of the projects that were conducted or proposed in 2016.

UConn CLEAR



**My Yard, Our Sound**

In 2016, The Maritime Explorium at Port Jeff Harbor was awarded a Long Island Sound Futures Fund grant to engage homeowners through an exhibit and workshops on how to transform their yards and gardens with native plants. The project will provide natural landscaping guidance to homeowners to encourage the use of alternatives to chemicals and nutrient-intensive landscaping to benefit water quality and living resources of Long Island Sound.

RAIN GARDENS are just one of the many personal actions that homeowners can do to reduce polluted stormwater.

**SOUNDoff Festival**

In 2016, the Whaling Museum and Education Center of Cold Spring Harbor hosted a one-day festival to engage and inform children and adults about how to play an active role in preserving the Long Island Sound through hands-on activities. Over 400 visitors attended the festival, and since it was successful, another SOUNDoff festival will occur in 2017.

FESTIVAL ATTENDEES learn about Long Island Sound marine life.

The Whaling Museum and Education Center of Cold Spring Harbor



Bronx River Alliance



**Community Partners**

The effort to restore and protect Long Island Sound would not be possible without the efforts of volunteers and the community groups they serve. For example, in 2016, the Bronx River Alliance engaged over 1,000 volunteers, recorded over 3,000 volunteer hours, planted 2,746 trees, and hauled away 741 bags of trash collected along the banks of the Bronx River.

VOLUNTEERS PICKING UP TRASH along the banks of the Bronx River.

# 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. Here are just a few of the projects that were conducted in 2016.



THE WESTERN SOUND Station Buoy.

## Automated Nutrient Sensors Deployed in Long Island Sound

Nitrate, phosphate, and ammonium are three important nutrients controlling phytoplankton (plant plankton) productivity in coastal ecosystems. In particular, nitrate, and ammonium are implicated as important components of the excess nitrogen that causes hypoxia, harmful algal blooms, and other water quality problems in the Sound and other coastal estuaries. While nutrients in the Sound are routinely measured by the various monitoring programs, continuous measurements have been unavailable until now. To improve our understanding of these nutrients, automated nutrient sensors that continuously measure nitrate, phosphate, and ammonium have recently been installed at a 2 meter depth at the Western Sound Station buoy of the Long Island Sound Integrated Coastal Observing System (LISICOS). LISICOS, which is maintained by the University of Connecticut, has previously deployed sensors which continuously measure dissolved oxygen, and these have been particularly useful for gaining a detailed understanding of the bottom water hypoxia which occurs each summer in the Western Sound.

Dr. Jim O'Donnell, of the University of Connecticut, has reported the initial results of this deployment, and the data demonstrates significant variability in surface nitrate concentrations, though not to the same degree as sometimes seen in dissolved oxygen. Nutrient patterns should become clearer as continuous data is collected and comparisons to other parameters are made.



## Long Island Sound Report Card

The second ecosystem health report card for Long Island Sound was released in New Haven and Queens in October 2016. The report card, which was coordinated by Save the Sound, partner organizations, and scientists, showed a gradient of water quality from very good in Eastern Long Island Sound to very poor in the Western Narrows in the New York metropolitan area.

The report card compares water quality indicators (dissolved oxygen, nutrients, chlorophyll a, and water quality) to scientifically derived thresholds or goals. These indicators are combined into an overarching Water Quality Index, which is presented as a subregion percent score. The report card provides a geographically specific assessment of annual Long Island Sound ecosystem health for 2015. The grades can be viewed on the report card website at [longislandsound.ecoreportcard.org](http://longislandsound.ecoreportcard.org).

## Long Island Sound Blue Plan

In 2016, the University of Connecticut was awarded a Long Island Sound Futures Fund grant to engage scientists, government, industry, and the public in the development of maps and information on natural resources and human use to become part of an online resource for the Long Island Sound watershed. The project will support the public process needed for the development of a Blue Plan, which looks at human activities in the marine environment to achieve ecological, economic, and social objectives with an aim of protecting and restoring the Sound.



Judy Preston

## LISS BUDGET FY 2016 (Oct. 2015 - Sept. 2016)

|   |                    |
|---|--------------------|
| Coordination & Reporting of Environmental Actions and Results | \$447,245          |
| Public Outreach, Information, Participation and Education     | \$600,129          |
| Water Quality Monitoring, Modeling and Scientific Research    | \$2,078,444        |
| CCMP Implementation Support and Technical Assistance          | \$1,502,302        |
| <b>TOTAL</b>  | <b>\$4,628,120</b> |



# What You Can Do to Help the Sound

Long Island Sound provides recreational fun for us, habitat for wildlife, and income to many local economies. However, the Sound is heavily affected by the nearly 24 million people who live within 50 miles of the coastline. We all must do our part to make sure we understand how our everyday actions affect Long Island Sound and protect it however we can. Visit [lisvolunteer.net](http://lisvolunteer.net) to learn about upcoming volunteer events and organizations in your community that need your help restoring and protecting Long Island Sound. Like Margaret Mead once said “Never doubt that a small group of thoughtful, committed citizens can change the world; indeed, it’s the only thing that ever has.”



Amy Mandelbaum



Robert Burg



Robert Burg

TOP: Volunteers remove mile-a-minute, an invasive vine, as part of the grassland restoration project at Caumsett State Historic Park Preserve.

BOTTOM: Volunteers assist with trail maintenance at the Sheffield Island National Trails Day event.



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