Sound UPDATE
Newsletter of the Long Island Sound Study Spring 2011

Top Priorities for Restoring the Sound

Estuaries—or places where saltwater and freshwater mix—are vital ecosystems worldwide, and Long Island Sound (LIS) is no exception. In addition to providing critical habitats for a wide array of wildlife, LIS also provides fundamental ecosystem resources for the many people who rely on this water body for income as well as recreation. But the very resources that attract people to the Sound are under pressure from past and current stresses.

Judy Preston

A beautiful view along the mouth of North Cove on the Connecticut River estuary in town of Old Saybrook, CT.

That's why there is the Long Island Sound Study (LISS), a partnership of federal, state, interstate, and local agencies, universities, environmental groups, industry, and the public, working for the common purpose of protecting the natural resources of LIS. There are significant pressures on a body of water that is surrounded by millions of people along the nation's crowded northeast corridor. Recognizing this, in 1985 the United States Congress appropriated funds for the Environmental Protection Agency (EPA) and the states of Connecticut and New York to research, monitor, and assess the water quality of LIS. Two years later, Congress created the National Estuary Program, and LIS became one of the first officially designated Estuaries of National Significance, of which there are now 28 in the entire country.

Through the efforts of many dedicated individuals and organizations, a Comprehensive Conservation and Management Plan was generated in 1994 to create common goals for the protection and management of LIS. This document created a blueprint for protecting and improving the health of LIS while ensuring compatible human uses within the Sound ecosystem. Key issues were identified: the need to improve water quality, protect habitat and living resources, educate and involve the public, and improve the long-term understanding of how to manage the Sound to accommodate multiple needs. Priorities for plan implementation have been established through Action Agreements, the most recent signed in 2003, with another planned for 2011. Every year, through LISS's Citizens Advisory Committee, Science and Technical Advisory Committee, and a number of Work Groups, federal, state, and local agency staff, non-profit organizations, local residents and researchers collaborate to implement a shared vision to protect Long Island Sound.

This issue of Sound Update highlights the issues facing the Sound, the progress being made to address them, and upcoming priorities for action. In the ongoing effort to bring multiple resources and innovation to the task of protecting the vital resources of LIS, this publication takes a moment to assess our progress.

LISS Priorities

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

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Sound Update: Special Issue

This special issue of Sound Update assesses the progress made toward the Long Island Sound Study's top priorities: healthy waters and watersheds; healthy habitats; land conservation and stewardship; wildlife, biodiversity, and human uses; research and assessment; public education and involvement; and adapting to climate change.

Healthy Waters and Watersheds

Background:

Healthy watersheds (the land where waters drain into a common waterbody) allow for clean waters that support abundant wildlife and provide for recreational and commercial fisheries in LIS. Because of the density of coastal developments, special effort must be made to mitigate the pollution—often arriving as polluted runoff—that threatens clean, productive coastal waters. In addition to assisting local decision-makers implement existing land use protection programs, efforts are being made to enhance public outreach and education to promote a greater understanding of the importance of healthy waters and watersheds, and encourage public participation to become part of the solution.

Accomplishments:

- Contributed more than $2.2 million to various water quality improvements around the watershed through the Long Island Sound Futures Fund, which leveraged an additional $5.5 million since 2005.

- Established an enforceable plan in the states of Connecticut and New York in 2000 to reduce the amount of the nutrient nitrogen discharged into the Sound by 58.5% by 2014.

- Implemented innovative nitrogen permit and "trading" programs as a cost-effective mechanism for attaining the nitrogen reduction goals for sewage treatment plants, a major source of nitrogen to Long Island Sound.

- Created a "No Discharge Zone" in CT waters and drafted and submitted a petition to the EPA which, when approved, will designate the entire Sound as a vessel waste no discharge zone.

- Monitored water quality to identify trends and evaluate the effectiveness of management efforts since 1987.

- Funded numerous projects to reduce polluted runoff and serve as examples for future projects, such as reducing the amount of paved surfaces in the Town of Mansfield, CT, enhancing upland buffer habitat to reduce polluted stormwater runoff in Old Field, NY, and installing storm drain filters to remove pollutants in South Norwalk, CT and Mamaroneck, NY.

- Worked with communities to develop and approve watershed-based plans and supported other watershed planning efforts in more than 30 sub-watersheds.

The Long Island Sound watershed stretches, north, to Canada and is home to over 8.8 million people.

Three simple things you can do:

1. **Conserve water** to reduce the volume of wastewater discharged to home septic systems and sewage treatment plants and, if you have a septic tank or cesspool, be sure to maintain it so these systems do not contaminate ground water and surface water with harmful nutrients and pathogens.

2. **Use Sound-friendly landscaping techniques** to reduce the amount of polluted runoff that comes from your property. Visit our "What you can do" section of our Web site to learn more!

3. **Properly dispose of hazardous substances** such as paints, oil, antifreeze unwanted medicines, and pesticides so they do not end up in drinking water and Long Island Sound. Visit Earth911.org for collections in your area.

Next Steps:

- Improve our understanding of best management practices to reduce nutrients and pathogens in stormwater, determine how effective these practices are in the LIS region, and provide this information to managers that regulate polluted runoff in communities.

- Work with state partners to establish residential fertilizer controls similar to those passed in Suffolk and Nassau Counties, NY, including drafting uniform region-wide controls on the application of residential fertilizer.

- Educate the public about new fertilizer laws, polluted runoff, riparian corridors, and "Sound" lawn and garden care and develop a website which will be a resource for local decision makers and the general public.

- Establish enforceable agreements for nitrogen control at dischargers within all states in the watershed.

Healthy Habitats

Find a Habitat Restoration Site near you!

To explore the habitat restoration projects in your area, visit http://lisshabitatrestoration.com/search.aspx

Background:

Healthy coastal habitats provide critical feeding, breeding, and migratory stopover sites for the diverse abundance of plants and animals that call Long Island Sound home. In 1996, LISS established the Habitat Restoration Initiative, and in 1998 established a goal of restoring and protecting 12 priority LIS habitat types around the Sound. The Initiative uses partnerships to accomplish the restoration objectives and leverage limited state, local, and federal funds. Restoration can be accomplished by opening river barriers for migratory fish species, such as the American shad (Alosa sapidissima), or reducing or eliminating non-native species, such as the common reed (Phragmites spp.), from coastal marshes.

BEFORE: Denuded and debris covered bank of the Bronx River, and site of a former concrete mixing plant, prior to restoration.

AFTER: The Bronx River Alliance Conservation Crew and volunteers restored the area and, here, the bank is shown after two growing seasons.

Both photos by David Kaplan

Accomplishments:

- Contributed more than $2.4 million to various habitat restoration projects around the watershed through the Long Island Sound Futures Fund, which leveraged an additional $6.3 million since 2005.

- Designated 12 priority habitats in the LIS estuary: beaches and dunes, cliffs and bluffs, estuarine embayments, coastal and island forests, freshwater wetlands, coastal grasslands, intertidal flats, rocky intertidal zones, riverine migratory corridors, submerged aquatic vegetation beds, shellfish reefs, and tidal wetlands.

- Completed 108 habitat restoration projects from 1998 to 2010 throughout the LIS watershed including the restoration of 23.5-acres of forest in the headwaters area of Alley Creek in Queens, NY, and the restoration of more than 80 acres of tidal marsh and 5 miles of riverine habitat for migratory fish at Rocky Neck State Park in East Lyme, CT.

- Restored 1,040 acres of coastal habitats and opened 160.4 river miles since the beginning of the Habitat Restoration Initiative in 1998 through 2010.

- Collected data to determine the distribution and abundance of eelgrass, a plant that provides critical habitat for fish and shellfish, especially scallops, in eastern LIS.

Next Steps:

- Create a method to determine the success of completed habitat restoration projects and prioritize future habitat restoration projects.

- Improve the online database to enable the public to learn about habitat restoration projects.

- Work with the states to overcome issues pertaining to and develop restoration guidelines to allow shellfish reef restoration.

- Discuss how to protect, restore and/or manage other habitat types, such as island and underwater habitats.

- Reassess and update the 1998 plan and strategy for habitat restoration.

Land Conservation and Stewardship

Background:

In 2006, LISS established the Stewardship Initiative to conserve natural areas, increase access to the Sound, protect important habitats, and plan for multiple uses. The Stewardship Initiative identified places with significant ecological or recreational value throughout the Sound and developed a strategy to protect and enhance these special places. In 2006, the LISS adopted thirty-three inaugural Stewardship Areas that represent lands of outstanding or exemplary scientific, recreational, educational, or biological value for protection, management. These areas provide opportunities around the Sound to enhance the public's awareness and personal connection with our special estuary.

Find a Stewardship Area near you!

In 2006, the LISS Stewardship Initiative Work Group announced the 33 sites that were chosen as Inaugural Stewardship Areas around the Sound. These Areas were selected based on their recreational and ecological value to the Sound. Explore each of them at http://longislandsoundstudy.net/stewardship.

Accomplishments:

- Contributed more than $1 million to various stewardship activities around the watershed, through the Long Island Sound Futures Fund, which leveraged an additional $2.6 million since 2002.

- Created the 2006 Stewardship Atlas, which provides information on the location and ecological and recreational benefits in each of the 33 Inaugural Stewardship Areas.

- Funded more than $1.7 million toward acquisition and acquired lands at several key sites in CT and NY, including in Stonington, CT and Setauket, NY near the Barn Island and Stony Brook Harbor Stewardship Areas, respectively.

- Funded watershed planning efforts at various Stewardships Areas including Nissequogue River, Oyster Bay, Plum & Gull Islands (NY), and Milford Point and Great Meadows (CT).

- Funded a project to map the change in land cover in CT and NY over the past 25 years.

- Developed a GIS tool to guide the selection of future Stewardship Areas.

Next Steps:

- Identify and designate additional Stewardship Areas and provide habitat-management planning assistance for these new areas.

- Develop criteria to select additional sites to be protected, restored, and/or managed, with an emphasis on islands and, possibly, underwater habitats.

- Assist state and non-state entities that are seeking funding for land acquisitions.

- Create projects that will increase access and encourage watershed residents to participate in activities in, on, or around the Sound.

Simple things you can do:

1. **Create a habitat in your yard** by participating in the National Wildlife Federation's Backyard Habitat Program. More at http://www.nwf.org/gardenforwildlife.

2. **Plant native plants or trees** to create a natural habitat for wildlife. More at www.ct-botanical-society.org/garden/index.html.

3. **Build a riparian (or vegetated) buffer** to improve water quality, increase bank stabilization, and provide habitat for wildlife. More at www.crjc.org/riparianbuffers.

4. **Support local land acquisition.**

5. **Let your legislators know** that the preservation of open space is important to you!

Joaquin Cotten

Long Island Sound Stewardship Areas are not only important for ecological reasons, but for recreational purposes, too!

Wildlife, Biodiversity, and Human Uses

Background:

Long Island Sound is an estuary—a place where the salty waters of the Atlantic Ocean mix with the freshwaters from our rivers and streams, and one of the most productive ecosystems on Earth. Our estuary is home to more than 1,200 species of invertebrates, 170 species of fish, and dozens of species of migratory birds that live at least part of the year along these waters. The Sound serves as feeding, breeding, and nursery areas for many of these species.

Like wildlife, we also depend on the Sound. Ferries, ships, and barges transport people and goods into the harbors around LIS, commercial and recreational fishers harvest shellfish and fish, and many enjoy the Sound's beaches and ports for sunbathing, picnicking, bird watching, kayaking, and boating. With over 20 million people living within 50 miles of the Sound, it is often challenging for managers to preserve the biodiversity in LIS while allowing multiple human uses.

Judy Preston

Ospreys nest along many Long Island Sound shores.

Accomplishments:

- Tracked the size of fish populations in the Sound for the past 25 years through the CT Department of Environmental Protection (CT DEP) LIS trawl survey.

- Monitored the abundance of fish in embayments and tributaries in the Sound through the New York State Department of Environmental Conservation and CT DEP.

- Monitored the abundance of wildlife, including piping plovers, horseshoe crabs, and anadromous fish, around the Sound through state programs established by various environmental agencies, community groups, researchers, and environmental groups.

- Developed environmental indicators that provide the public with key measures to assess the health of Long Island Sound's water quality, fish populations, and habitats as well as management goals that track efforts to restore and protect the Sound.

- Established a $7 million settlement fund to map the seafloor of the Sound and help assess and manage potential conflicts resulting from energy projects and other commercial uses.

Philip LoCicero

A hermit crab crawls along the bottom of West Meadow Creek, in Stony Brook, NY.

Next Steps:

- Continue to fund projects to restore crucial habitats through the LIS Futures Fund Program in order to provide wildlife with critical habitats and increase biodiversity.

- Continue to support state and local government efforts to acquire, or protect through easements, privately owned natural areas that act as buffers to enhance and protect stewardship areas.

- Map the seafloor to provide a framework to better understand and manage the resources that depend on diverse, benthic habitats.manage the resources dependant on these diverse habitats.

- Complete a dredged material management plan that evaluates a full range of alternatives for the management of sediments dredged from navigation projects in the Long Island Sound region.

Three simple things you can do:

1. **Be a "Sound" boater** by stashing your trash, using pump out stations, preventing the spread of aquatic invaders, and maintaining your boat. Obey fishery regulations and be sure to handle the fish that you plan to release with care so they survive when they are returned to the water.

2. **Report marine mammal and sea turtle sightings** by calling Mystic Aquarium at 860-572-5955, ext 107 (CT) or the Riverhead Foundation at 631-369-9829 (NY).

3. If you find a wild animal that you think is abandoned, **call your local nature center and ask to speak to a wildlife rehabilitator;** they can access the situation and provide assistance if needed.

Read more on all of these tips at http://longislandsoundstudy.net/what-you-can-do/around-the-sound

Science and Management

Background:

In order to successfully protect and restore LIS, policy and management officials must have the best available scientific and technical information. The Science and Technical Advisory Committee (STAC) was created to provide objective advice on science and technical issues to the LISS Management Committee. Specifically, the STAC and various LISS Work Groups identify emerging issues facing the Sound; develops recommendations for research, monitoring, and assessment priorities; provides advice regarding technical issues, programs, and projects; and ensures objective peer review of technical products and research proposals.

Lloyd Langevin

Water quality samples throughout the Sound have been collected for the last 20 years through the Long Island Sound Study Water Quality Monitoring Program.

Learn more...

The LISS Research Grant Program was created in 1999 to award funds to researchers whose work helps meet the needs of decision-makers to improve the management of Long Island Sound. Learn more about the projects that have been funded at: http://longislandsoundstudy.net/lis-research-grant-program/.

Accomplishments:

- Reviewed monitoring, assessment and research work in LIS, annually, to identify implications for management and gaps in knowledge for further research.

- Funded more than $4.5 million for research projects through the LISS Research Program since 1999.

- Organized and hosted a Bioextraction Conference in 2009 to discuss new and innovative technologies to address the management of eutrophication and hypoxia in the Sound. This workshop was attended by more than 100 people, with presentations from top scientists from all over the world.

- Held a series of scientific discussions about topics relevant to the management of LIS during regularly scheduled STAC meetings.

How does the Sound measure up?

Find out by downloading the Sound Health 2010 report at http://longislandsoundstudy.net/sound-health-2010. The report looks at indicators of the Sound's health in the areas of water quality, coastal and animal populations, habitats, and land use.

The Long Island Sound Study also recently updated the full set of environmental indicators that is used to produce the Sound Health report. Our "Status and Trends" Web page includes more than 60 indicators that track environmental conditions in Long Island Sound and management's response to improve the health of Long Island Sound. See the data at: http://longislandsoundstudy.net/category/status-and-trends.

Next Steps:

- Synthesize advances in science from the past 20 years of research, monitoring, and modeling to strengthen ecosystem based management.

- Enhance and coordinate monitoring in embayments and harbors to improve Sound-wide assessments of conditions.

- Evaluate the effectiveness of bioextraction in removing nitrogen in Long Island Sound through projects that are currently being funded.

- Develop a Sound-wide ecosystem based model to integrate water quality and living resource elements.

- Enhance STAC participation in working with the LISS Management Committee and Citizens Advisory Committee to define and refine broad management goals into specific management targets.

Public Involvement and Education

Background:

A Public Perception Survey, conducted by LISS in 2006, suggests that LIS residents are not well informed about environmental issues and terms. For example, less than one-third of those questioned in the survey knew that storm drains empty into the Sound and its tributaries. The survey also indicated that environmentally knowledgeable residents are more likely to engage in behaviors to prevent pollution (such as lawn care practices to reduce fertilizer runoff into storm drains) as compared to residents that were less knowledgeable.

The LISS promotes an understanding and appreciation of LIS as a regional ecosystem and a national treasure. Working with various partners, LISS supports projects to inspire the public to appreciate the wonders of the Sound, inform the public about the issues that can imperil the Sound's fragile ecosystem, and engage the public to practice behaviors that will help contribute to a healthy LIS.

North Country Middle School

LISS Partners and staff work to increase knowledge, appreciation, and stewardship for Long Island Sound.

A lot of little actions add up to one BIG difference!

There are many ways that you can help Long Island Sound. Why not volunteer for a local organization that protects the Sound and could use your help? For a list of opportunities near you, visit our Volunteer Web page at http://longislandsoundstudy.net/volunteer-opportunities/.

Accomplishments:

- Contributed more than $2.4 million to various educational projects around the watershed through the Long Island Sound Futures Fund since 2005, which has leveraged an additional $6.3 million.

- Incorporated new social marketing techniques into the program to increase the effectiveness and efficiency of public outreach and education campaigns.

- Developed new programs, such as the Sound Stewards program where students participate in research projects to increase awareness and stewardship for LISS Stewardship sites.

- Conducted 22 Mentor Teacher workshops to enhance and reinforce awareness and understanding of the importance of LIS and its watershed since 2002. These workshops have taught 284 formal and informal educators in CT and NY and, through them, more than 12,600 students.

- Updated the LISS Web site to make it easier for public to learn about LIS and LISS efforts to restore and protect the Sound.

- Developed publications such as newsletters, Sound Health, and Protection and Progress to promote an understanding and appreciation of the Sound.

Next Steps:

- Continue to develop, implement, and evaluate current publications and programs.

- Continue to research and implement social marketing strategies and design a pilot social marketing program to help promote education campaigns that foster sustainable behavior and environmental results.

- Team up with other work groups and new partners to develop outreach tools, such as fact sheets for Stewardship areas, and work with the Nonpoint Source Pollution Work Group to foster sustainable behaviors.

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Adapting to a Changing Climate

Background:

Climate change has been predicted to impact LIS in a variety of ways, including increased water temperatures, increased coastal flooding, altered rain and snowfall patterns, and changes to runoff. In 2007, the LISS Management Committee requested the development of a dynamic, bi-state climate change monitoring program for LIS and its coastal ecoregions. The long-term goals of this program are to better understand how climate change is currently impacting the Sound, detect early-warning indicators (or "sentinels") of future impacts, and be able to make recommendations for action and preparation to government officials, state and local agencies, and the general public.

How will climate change affect the Sound?

For the latest updates on how our changing climate is affecting the Sound, read our Sound Health report at http://longislandsoundstudy.net/sound-health-2010/.

Accomplishments:

- Formed technical work groups with representatives from various agencies and organizations to make recommendations for monitoring and oversee the development of a bi-state pilot monitoring program.

- Developed a sentinel monitoring strategy for LIS after winning a technical assistance grant from EPA's Climate Ready Estuaries program.

- Identified numerous existing data sources that could be used to identify climate change signals in LIS, developed criteria for climate change sentinels, and used these criteria to prioritize proposed climate change indicators.

- Implemented a Coastal Climate Change Adaptation Project at the local level to explore the climate change adaptation planning process, using Groton, CT as a model.

Next Steps:

- Synthesize and assessing existing and historical datasets in the context of climate change to identify trends at the regional, Sound-wide, and/or local scale.

- Finalize a dynamic strategy to analyze data and identify early warning findings from the pilot study.

Jennifer George

Researchers from Stony Brook University collect water samples to bring back to the lab for analysis.

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