

Sound Update



Spring
2004

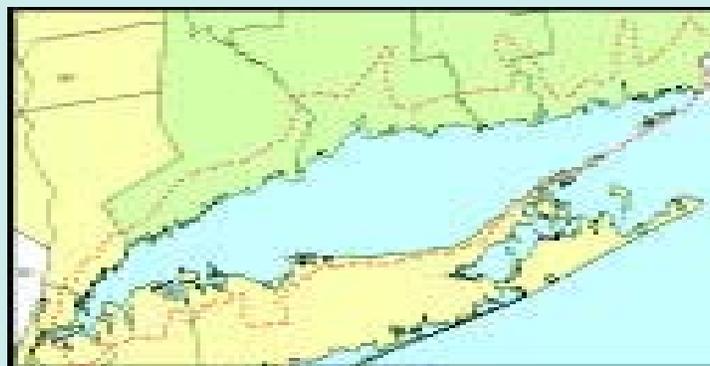
INSIDE

- 2 CAC Corner
- 3 LIS Research Program
- 4 Vanishing Tidal Wetlands
- 5 Continuing Research in LIS Lobster Mortalities
- 6 Draft EIS
- 7 Invasive Species in LIS
- 8 Program News

Sound Update is published by the public outreach program to inform the public about issues pertaining to the Long Island Sound Study.

Message from the Director

The Long Island Sound Study Stewardship Initiative is working to identify places along the coast with significant biological, scientific, or recreational value and develop a strategy to protect and enhance those special places. Development of the strategy is a commitment in the Long Island Sound 2003 Agreement.



Coastal area boundary for the Stewardship Initiative

The first phase of work, an inventory of the Sound's valuable ecological and recreational resources, is nearing completion. The second phase will identify critical coastal areas that currently support these resources or have the capacity to do so in the future. The initiative will help identify priorities for land acquisition and protection, for increasing and improving public access, and for managing use conflicts around ecologically sensitive areas.

Identify the special areas, the threats to these areas, and develop a strategy to protect and enhance them. Sounds simple, right? Wrong. The coastal areas of Long Island Sound are highly developed and intensively used, resulting in conflicts among conservation, recreation, and commercial uses. Land use decisions are made locally and a variety of public and private programs already exist to acquire land, improve public access, and

manage public lands. How can information on these "special places" best be used? How can existing programs be made more effective while avoiding redundancy? Where will the needed funding come from?

To help answer these and other questions, the Long Island Sound Study held eight public meetings in February and March to present progress to date and receive input on future efforts. At the meetings, LISS partners described the inventory of Long Island Sound's coastal ecological and recreational resources and displayed maps of this information. Time was provided for attendees to comment on whether important places or features were missed in the inventory. And reaction was sought to some potential implementation options for improving the stewardship of Long Island Sound's coastal resources. All public comments and responses to a survey will be posted on the LISS web site, www.longislandsoundstudy.net, and will be used to help finalize the strategy to improve the stewardship of the Sound's special places.

Mark Tedesco



West Meadow Beach Stony Brook, New York. Photograph by Kimberly Zimmer.



Director
Mark Tedesco

Program Specialist
Joe Salata

Communications Coordinator
Robert Burg

Connecticut Outreach Coordinator
Mark Parker

New York Outreach Coordinator
Kimberly Zimmer

Editors
Karen Chylato, NYS DEC
Rick D Amico, NYS DEC
Jane MacLellan, USFWS, LIS Office
Mark Parker, CT DEP
Joe Salata, EPA LIS Office
Paul Stacey, CT DEP
Mark Tedesco, EPA LIS Office

Layout
Kimberly Zimmer, New York Sea Grant - kszi@cornell.edu

The Long Island Sound Study is sponsored by the States of New York and Connecticut and the US Environmental Protection Agency. The LISS Management Committee consists of representatives from the USEPA, NYSDEC, NYSDOS, CTDEP, NYCDER, USDOJ, Interstate Environmental Commission, NY and CT Sea Grant Programs, Technical Advisory Committee and Citizens Advisory Committee co-chairs.

The Long Island Sound Study Update is produced and printed by New York Sea Grant (NYSG) under a cooperative agreement with the US EPA #CE-982455-01. The viewpoints expressed here do not necessarily represent those of NYSG, USEPA or the LISS Management Committee, nor does mention of trade names, commercial products or causes constitute endorsement or recommendation for use.

Connecticut EPA LIS Office
Stamford Government Center
888 Washington Blvd.
Stamford, CT 06904-2152
(203) 977-1541
Fax: (203) 977-1546

New York Sea Grant
146 Suffolk Hall
Stony Brook University
Stony Brook, NY 11794-5002
(631) 632-9216
Fax: (631) 632-8216

www.longislandsoundstudy.net
www.epa.gov
dep.state.ct.us
www.dec.state.ny.us



CAC Corner

By Nancy Seligson

The Citizens Advisory Committee (CAC) continues to play an important role in the Long Island Sound Study (LISS). One of the most important CAC activities is participating in and advising on the LISS budget process. After participating in the LISS budget process for the first time as the new CAC Co-chair from New York, I realized that the CAC should be having more input on the budget priorities and the budget process itself. The CAC then worked with the LISS Office to change and improve the process, making it more organized and open for input.

The budget is now set up as four components. The first component is the **base program**. These are the core, long-term programs of the Long Island Sound Study. These include staff coordination, water quality monitoring, the small grants program, and CAC support. These activities will not be subject to the LISS Request for Proposals (RFP) process.

The second component is **program enhancements**. These enhancements are short-term efforts needed to support implementation of the Comprehensive Conservation and Management Plan (CCMP) and the LIS 2003 Agreement actions. These enhancements can be identified by LISS work group in their two-year work plans. Examples include mapping of tidal wetlands or submerged aquatic vegetation, surveying public attitudes about Long Island Sound, or computer modeling of pollution problems. The program enhancements will be part of an open RFP process.

The third component is the **research program**, which is announced in an RFP every two years. The research RFP consists of research priorities recommended by the STAC, with input from the LISS work groups and CAC. These will include research topics such as

submerged aquatic vegetation, tidal wetlands, the Sound's food web, and others.

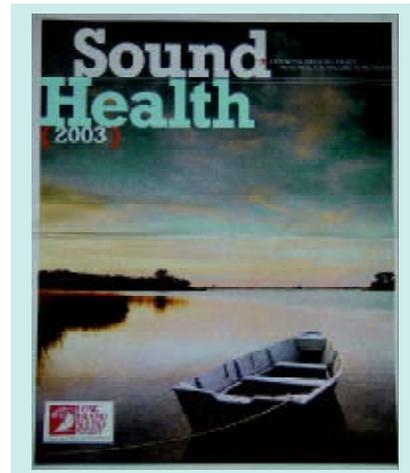
The fourth component is the **implementation grants**. These grants support local implementation of actions to protect and restore LIS. These funds are for projects to upgrade sewage treatment plants for nitrogen control, nonpoint source pollution controls, storm water controls, wetland restoration, and habitat restoration planning and implementation. The LISS will utilize a grantee to promote funding partnerships for these projects.

This improvement in the budget process should advance the recommendations for the CCMP, make it easier to apply for funding, and most importantly speed up the cleanup of Long Island Sound.

Nancy Seligson is the new New York co-chair of the LISS Citizens Advisory Committee. David Miller, the previous co-chair stepped down after many years, and will continue to represent the National Audubon Society on the CAC. Nancy has been a member of the CAC for 10 years representing NY for Save the Sound. She is currently the co-chair of Save the Sound, chair of the Westchester County Committee on Nonpoint Source Pollution in Long Island Sound and is an elected Councilwoman in the Town of Mamaroneck, NY.

Sound Health 2003 Still Available.

Are you offering a program on the Sound or have a free materials display? Please contact either the Connecticut or New York office for a supply of the publication. We appreciate your help with the distribution.



Long Island Sound Study Research Program

By Jane MacLellan

Scientific research provides a key to better understanding and more effectively managing Long Island Sound. Recognizing the important role that research plays in decision-making, the US Environmental Protection Agency – Long Island Sound Office (EPA-LISO), Connecticut Sea Grant (CTSG), and New York Sea Grant (NYSG) developed a cooperative program to fund research in support of the Long Island Sound Study. Initiated in 1999, the Long Island Sound Research Grant Program awards funds to researchers whose work helps meet the needs of decision-makers to improve the management of Long Island Sound.

Projects funded by the Long Island Sound Research Grant Program in the past have included research focused on living marine and marine-dependent resources. For example, Dr. Richard French examined the health of lobsters in Long Island Sound and the impacts that disease pathogens, environmental stressors, and contaminants have on this economically-important species. The goal of that study was to help identify causes of Long Island Sound's lobster population declines and provide insight for management and recovery efforts. Another project that received support from the Long Island Sound Research Grant Program is ongoing research, by Dr. Chris Elphick, focused on the population dynamics of saltmarsh breeding sparrows. This project will increase the understanding of the ecology of these specialized marsh birds and provide a model by which alternative management scenarios can be compared.

The third funding cycle for the grant program was launched in August 2003. Priority research topics, identified with the help of the Long Island Sound Study Science & Technical Advisory Committee, include eutrophication, submerged aquatic vegetation, food web dynamics, and tidal wetland loss. The

Research Grant Program is highly competitive – in response to this year's announcement, forty preliminary proposals were submitted for review with close to \$5 million in funds requested. Nineteen full proposals were solicited for further consideration. From these full proposals, EPA-LISO, CTSG, and NYSG selected the following projects for funding:

1.A Biological-Physical Numerical Simulation Model for the Investigation, Prediction and Management of Oxygen Production and Consumption in Long Island Sound: Data analysis and model formulation. Dr. W. Frank Bohlen, UCONN

2.Natural Isotopic Tracers for Anthropogenic Nitrogen in Long Island Sound. Dr. Mark Altabet, Univ. of Massachusetts, and Dr. Johan Varekamp, Wesleyan Univ.

3.Food Webs in Long Island Sound: Review, synthesis and potential applications. Dr. Roman Zajac, University of New Haven.

4.Application of Remote Sensing Technologies for the Delineation and Assessment of Coastal Marshes and their Constituent Species. Dr. Daniel Civco, UCONN, and Dr. Martha Gilmore, Wesleyan University.

5.Understanding the Role of Nutrient Enrichment in Tidal Marsh Loss in Long Island Sound. Dr. Shimon Anisfeld, Yale University.

6.Temporal and Spatial Changes in Copper Speciation and Toxic Metal Concentrations in Long Island Sound: Effect of changes in water temperature and dissolved oxygen levels. Sergio Sanudo-Wilhelmy, SUNY Stony Brook.

7.Assessment of the Effects of Bottom Water Temperature and Chemical Conditions, Sediment Temperature, and Sedimentary Organic Matter (Type and Amount) on Release of Sulfide and Ammonia from Sediments in Long Island Sound. Carmela Cuomo, University of New Haven.

Jane E. MacLellan works for the U.S. Fish & Wildlife Service and is the Liaison to the Long Island Sound Study.

...the Long Island Sound Research Grant Program awards funds to researchers whose work helps meet the needs of decision-makers to improve the management of Long Island Sound.

Vanishing Tidal Wetlands

By Lisa Holst

For the last thirty years the value of wetlands to wildlife, fisheries, and water quality has been widely accepted. New York and Connecticut passed legislation to protect tidal wetlands from outright destruction in the mid-1970s. Until that time marshes were routinely filled to create waterfront land, dispose of garbage and dredge spoils, or manipulated to manage waterfowl or harvest salt hay. These obvious assaults were soon virtually halted by the protective legislation, but a more insidious threat lurked quietly in the background. In the late 1990s, managers in the Connecticut Department of Environmental Protection and the New York State Department of Environmental Conservation began to document their own and others' observations of vanishing salt marshes in the bays and river mouths of Long Island Sound. These marshes appeared to be drowning. They were getting wetter, no longer able to maintain the delicate balance at the water's edge they have adapted to over thousands of years. This loss of vegetation seems to have been happening slowly and subtly over the last thirty years.

When the states passed their coastal wetland protection laws, they inventoried their salt marshes. It is this inventory that provides a valuable clue in the struggle to understand the process and causes of the recent loss of salt marshes. Using the mid-1970s inventory, aerial photographs from more recent years, and historic maps from as early as the 1800s, state managers have been able to document cycles of wetland building and decline. The overall acreage and locations of salt marshes are naturally variable, shifting with storms, wave action, and other influences like dredging and river currents. But, the losses documented since the 1970s appear to be outside normal cycles of increase and loss since the 1800s. The members of the LISS Habitat Restoration Work Group recognized the potential harmful

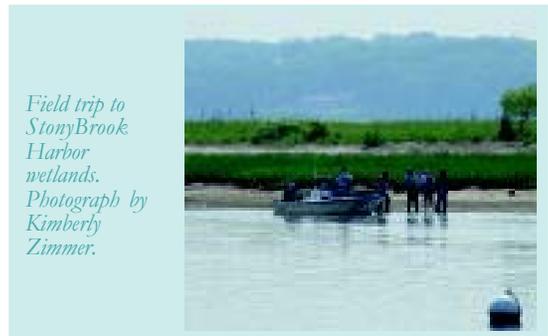
impacts to water quality and living resources in Long Island Sound that could be caused by the losses. In June 2003 the Work Group convened a workshop involving regional and national experts in tidal wetlands and coastal processes to set a research agenda and recommend a course of action to address this important issue.

The first day of the workshop was devoted to invited presentations by state wetland managers, and regional scientists describing the observed losses and other pertinent research on marshes and sea level rise. Two keynote addresses were delivered, one by Donald Cahoon, of the United States Geological Service, regarding fine scale marsh elevation measurement techniques, and one by R. Eugene Turner, of Louisiana State University, about the role of organic and inorganic matter in the maintenance of marsh elevation. All of the talks generated animated discussion among participants.

The second day of the workshop was devoted to small group discussions about the causes and effects of marsh loss, and developing recommendations for research, monitoring, management, and restoration activities to address the loss. These recommendations have been compiled into a report to the Management Committee of LISS. The research recommendations were also distilled by the Habitat Restoration Workgroup into priority areas of investigation contained in the recent LISS Research Request for Proposals.

Lisa Holst works for New York State Department of Environmental Conservation as the State Wildlife Grant Coordinator.

...some salt marshes in the bays and river mouths of Long Island Sound appear to be drowning.



Field trip to Stony Brook Harbor wetlands. Photograph by Kimberly Zimmer.

Continuing Research in LIS Lobster Mortalities

By Antoinette Clemetson

The lobster fishery in Long Island Sound continues to suffer from low abundance. Although there were reports of lobster mortalities in summer 2003, these events were not comparable to the mortalities that occurred in 1999. While there hasn't been a reoccurrence of paramoebiasis, and this organism is reported to have significantly declined in the aquatic environment (paramoebiasis was diagnosed in lobsters by UConn researchers in the 1999 event), shell



Two bacteria organisms were isolated from shell lesions from Long Island Sound lobsters; they are believed to be the main cause of shell disease. Photograph by Andrei Chistoserdon, University of Louisiana, Lafayette, and Roxanna Smolowitz, Marine Biology Laboratory.

disease and calcinosis remain problems. The few lobstermen that have managed to remain in business are lamenting the poor fishing conditions.

The Long Island Sound Lobster Research Initiative, a collaboration funded by the National Oceanic and Atmospheric Administration's (NOAA) National Marine Fisheries Service, Connecticut Department of Environmental Protection, and Sea Grant College Programs (Connecticut, New York, and the National Office) was formed in 2000. Nineteen research and monitoring projects were initiated, supported by more than \$6.6 million, to help understand the causes of the lobster die-off in LIS. The research focused on disease, effects of warm water temperatures, pesticides, and hypoxia. The

results of the research will be presented at the 4th Annual LIS Lobster Health Symposium to be held in New York October 4, 2004. Some of the work is summarized below.

Calcinosis, a disease that was first diagnosed in Long Island Sound lobsters in 2002, is apparently confined to populations in areas from Oyster Bay to Mattituck, NY. Dr. Al Dove at the Marine Disease Pathology & Research Consortium Laboratory at Stony Brook University is conducting research on this disease, which is being attributed to prolonged exposure to elevated temperatures in the bottom waters that causes metabolic and respiratory failure. The long term effects of high temperature cause the lobsters' metabolism to get out of synchrony, and there is an abnormal accumulation of calcium carbonate deposits in the antennal glands (or 'kidneys') and the gills. These deposits resemble the kidney stones that are frequently diagnosed in humans. The gills become fouled and the lobsters eventually suffocate. Dr. Dove's team has evidence that high temperatures have a role in causing the disease.

Shell disease continues to be on the increase in a generally westward migration in Long Island Sound, and it is now prevalent in the central basin in areas such as Huntington, NY. Research found that communities composed of several bacteria species are associated with shell lesions. At least three or more (up to eight) different bacteria occur in every location, although the exact compositions of

Continued on page 7.



Lobster eggs hatch into microscopic organisms that live in the plankton; they undergo several transformations, and Stage II is equivalent to a 2-3 day old larvae. Photograph by Jan Factor, SUNY Purchase.

There has been renewed interest in pesticide research...

Long Island Sound Draft Environmental Impact Statement Update

By Ann Rodney

If you would like to be placed on the Long Island Sound Environmental Impact Statement mailing list, give comment or would like more information please contact:

Ann Rodney
EPA - Region I
One Congress St
Suite 1100, CWQ
Boston, MA
02114-2023

(617) 918-1538
(617) 918-1505 fax
rodney.ann@epa.gov

The *Draft Environmental Impact Statement (DEIS) for the Designation of Dredged Material Disposal Sites in Central and Western Long Island Sound, Connecticut and New York* was published on September 12, 2003 for public review and comment. This DEIS was developed and produced by the US Environmental Protection Agency (EPA), Regions I and II, and the US Army Corps of Engineers, New England and New York Districts (ACE). The DEIS is a document that assesses the potential environmental impact of a proposed action. In this case, the proposed action is the designation of one or more disposal sites in Long Island Sound for dredged material.

The DEIS describes the environmental effects of designating a dredged material disposal site(s) in western and central Long Island Sound. Open ocean, upland, beneficial use, treatment technologies, and four open-water alternatives for dredged material disposal were evaluated and a required "No Action" alternative. Initial screening eliminated the open ocean, upland, beneficial use and treatment technology alternatives. The remaining alternatives (four open-water and the No Action alternatives) were then assessed. The potential primary effects identified

include the temporary increase in suspended solids and burial of aquatic resources. The EPA's Preferred Alternative is to designate the Western Long Island Sound and Central Long Island Sound Dredged Material Disposal sites.

The comment period originally ran from September 12, 2003 to October 27, 2003. However, a request for an extension to the public comment period until November 17, 2003 was received and granted. A second extension was requested, and granted extending the public comment period to December 15, 2003, and additional public hearings were held to receive comments.

The next step is for the EPA and the ACE to review any and all comments received, which is currently underway. The EPA and the ACE will produce a document called a Final Environmental Impact Statement (FEIS) that will include a response to any and all comments received during the 95 day comment period. Once the FEIS is published, anticipated in the spring of 2004, it will be available for a formal public comment period.

Information on this project can be found at the website www.epa.gov/region01/eco/lisidreg/. This website will be updated as information becomes available.



Original and Modified Zone of Siting Feasibility

Lobsters continued from page 5.

these bacterial colonies vary. The research team led by Drs. Andrei Chistoserdov and Roxanna Smolowitz are focusing on two bacterial species — *Pseudoalteromonas gracilis* and *Cytophaga* sp., because both were isolated from shell lesions taken from infected lobsters to date.

There has been renewed interest in pesticide research with the resurgence of the West Nile virus. Dr. Anne McElroy, assisted by Ms. Ann Zulkosky at the Marine Sciences Research Center, Stony Brook University, is investigating the sensitivity of lobster larvae and juvenile lobsters to pesticides and has found that they react differently to these chemicals. The experiments tested pesticides that were likely to be used in mosquito control programs within the vicinity of Long Island Sound (methoprene, malathion, sumethrin, resmethrin, and piperonyl butoxide — a chemical that is used to make pyrethroids work more efficiently). They found toxicity increases when Stage II (2-3 day old) larvae are exposed to a constant dose of resmethrin. The tests were conducted at varying temperatures to determine if it affects lobster mortality in Long Island Sound. At the highest temperature tested (24°C) even larvae that were not exposed to pesticides were negatively affected, whether or not they were also exposed to resmethrin. This means that temperature is a major stress factor that could make lobsters susceptible to disease, or other stressors. McElroy and Zulkosky are assessing sublethal dose (and elevated temperature) effects on the immune system in young lobsters.

Visit www.seagrant.sunysb.edu/LILobsters to download a copy of Lobster Health News or to obtain more information.

Antoinette Clemetson works for New York Sea Grant and is the LIS Lobster Community Outreach Specialist.

Invasive Species in Long Island Sound

By Jane MacLellan

A management issue of critical importance to the Long Island Sound ecosystem is the introduction of invasive species. Invasive species are those that are not native to the Sound and whose introduction can negatively impact the environment, the economy, and public health. The Long Island Sound Study is working with researchers at academic institutions and state agencies to develop a comprehensive list of invasive species that are present in Long Island Sound. The effects of invasive species introductions can be devastating, and efforts to eliminate populations once they have become established are challenging and costly. One invasive species that has become common throughout Long



Green crabs (Carcinus maenas) compete with native species for food and devour native shellfish, which can have devastating economic impacts. Photograph by Jane MacLellan.

Island Sound is the green crab. Green crabs, which are native to Europe, are believed to have been introduced to Long Island Sound more than 150 years ago. Green crabs are voracious predators that devour economically important native species, such as scallops. By developing a list of invasive species present in the Sound, the Long Island Sound Study will produce a record that can serve as a baseline for future monitoring and management efforts.

Jane E. MacLellan works for the U.S. Fish & Wildlife Service and is the Liaison to the Long Island Sound Study.

Green crabs are voracious predators that devour economically important native species...

Calendar

March 18, 2004

LISS CAC Meeting
Stamford, CT.
Contact Edna Nolfi at
(203) 977-1541.

April 2, 2004

LIS Educators Conference
at The Maritime Aquarium
at Norwalk. Visit
www.oceanology.org/seneme/seneme.html or
contact Lauren Rader at
(860)445-9007 ext. 3021.

April 29, 2004

LISS Management
Committee Meeting in
Stamford, CT.
Contact Edna Nolfi at
(203) 977-1541.

May 28, 2004

LISS STAC Meeting.
Contact Edna Nolfi at
(203) 977-1541.

June 4-6, 2004

New York State Marine
Education Association
Annual Conference at
Southampton College.
<http://members.aol.com/NYSMEA>

June 10, 2004

LISS CAC Meeting in New
York City. Contact Edna
Nolfi at (203) 977-1541.

WWW.LONGISLANDSOUNDSTUDY.NET

The Long Island Sound Study has a new, easy to remember, and easy to use website.

Longislandsoundstudy.net includes links to publications and other information that will help expand your knowledge about the Sound, including *Sound Health 2003*, Long Island Sound Study environmental indicators, the summary of our management plan, and back issues of *Sound Update*.

The home page highlights new Long Island Sound Study projects as well as other programs of interest to the Long Island Sound environmental community. The home page also includes a search engine that links users to some of the most recent articles about Long Island Sound and to real-time water quality monitoring. The kids/teachers page includes tours in and around the Sound.

You can also use the site to find other Long Island Sound programs and projects, including Connecticut Department of Environmental Protection's Long Island Sound monitoring program and New York City's Harbor Water Quality Survey.

Come visit the site. We welcome your feedback on the new design and suggestions for further improvements.



What's An Estuary? Now You Know.

Estuaries are the most productive ecosystems on earth. Thousands of species of fish, birds and mammals use estuaries as a nursery, call it home, and a source of food. Estuaries are unique in that they are protected bodies of water, often partially enclosed by reefs, barrier islands or fingers of land. Estuaries, like Long Island Sound, are where rivers meet the sea.

"What's An Estuary? Now You Know" is a national campaign to make "estuary" an everyday household word like "river" or "bay" by the year 2005. The campaign is sponsored by the Association of National Estuary Programs, the National Estuarine Research Reserves, the US Fish and Wildlife Service, Restore Americas Estuaries and Living on the Edge.

*Long Island Sound Study
c/o New York Sea Grant
146 Suffolk Hall
SUNY at Stony Brook
Stony Brook, NY 11794-5002*

**NONPROFIT
U.S. POSTAGE PAID
UNIVERSITY AT
STONY BROOK**

ADDRESS CORRECTION REQUIRED

www.longislandsoudstudy.net