

Long Island Sound Study Will Introduce First State of the Sound Report

In the June 2000 issue of *Sound Outlook*, we recognized the 15th anniversary of the Long Island Sound Study (LISS), National Estuary Program. As part of the celebration, the LISS partners, the Connecticut Department of Environmental Protection (DEP), New York Department of Environmental Conservation, and the U.S. Environmental Protection Agency (EPA) are preparing the first state of the Sound report. Entitled, *Sound Health 2000—Status and Trends in the Health of Long Island Sound*, the report draws from data provided by several agencies, universities, and municipal programs. The data have been compiled and reviewed, and will be presented in a format that will give readers a picture of the health of Long Island Sound (LIS), the problems still occurring in the Sound, and how we can continue to improve the living marine resources of LIS.

Readers of *Sound Outlook* may recall that the October 1999 issue included an article entitled "Indicators of Sound Health." Measurement of both environmental and anthropogenic (human caused) indicators enable environmental resource managers, state and municipal officials, and the general public to get a feel for the health of the LIS estuary. The *Sound Health 2000* report provides a snapshot of Long Island Sound, drawing from information collected on 37 key indicators in and around LIS. Examples of indicators include the level of dissolved oxygen in bottom waters, the number of winter flounder caught per trawl in the DEP research vessel *John Dempsey*, the number of successful osprey breeding pairs observed, and the amount of nitrogen discharged to LIS from Connecticut's municipal sewage treatment plants.

The report does not draw final conclusions or contain rigid theories about the current health of the Sound; rather, it lets readers identify the trends for themselves based on the information provided. An abbreviated version of *Sound Health 2000*, to be printed in January 2001, will highlight 18 of the 37 environmental and anthropogenic indicators. The full *Sound Health 2000* report will be available on the EPA LISS internet website, with links from the DEP website, in February or March 2001 (www.epa.gov/region01/eco/lis/). The full report will be printed in the future.



Cooperative Effort Pulls Water Chestnut from Hockanum River

It's ba-ack!! Just when DEP staff thought they might have squeaked through with only one outbreak of this invasive, non-native species of water chestnut in Connecticut waters (see Sound Outlook October 1999 issue), a new infestation was discovered in the shallow waters of the Hockanum River in East Hartford. On June 30th, plants in the seven-acre site were pulled using a combination of mechanical harvesters for deeper water areas and hand pulling for concentrations of the plant in less than two feet of water. Volunteers also scouted downstream from the harvesting operation to locate and remove any additional vegetation or cut plants that may have escaped the harvesting equipment. Over the next month, additional hand pulling was conducted by DEP staff to remove the remaining plants.

Spearheaded by DEP's Office of Long Island Sound Programs (OLISP), representatives from the Nature Conservancy, the Town of East Hartford, The Connecticut River Watershed Council, the U.S. Fish and Wildlife Service (USFWS), the Hockanum River Watershed Association and volunteers from the United Technologies Corporation were all a part of the effort to corral this outbreak and prevent further spreading of water chestnut to other parts of the River. If allowed to grow, the chestnut can make swimming, boating and fishing impossible in shallow water areas and it can permanently alter vital habitats.

"An infestation of water chestnut, left unchallenged, will permanently alter the very same habitats and ecosystems which make the Connecticut River so special," said DEP Deputy Commissioner David K. Leff. "The control of this and other invasive species throughout Connecticut will prevent the degradation of these significant habitats and ensure the continued viability of Connecticut's natural resources."

To prevent the spread of this invasive plant to Connecticut, DEP staff have been working with the USFWS and volunteer organizations to monitor infestations stemming from a site in Holyoke, Massachusetts where plants were detected in 1998. In the summer of 1999, a population of water chestnuts was discovered in the Keeney Cove area of Glastonbury, by staff of DEP's Environmental Geographic and Information Center (EGIC) who were conducting mapping work. The plants were pulled before they could drop any seeds. The seven-acre Hockanum River

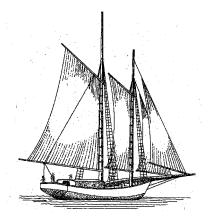


Volunteers pull water chestnut plants into their canoe.

site was discovered later in the 1999 season. However, because the plants had already dropped their seeds, removal efforts were postponed until this year.

"The timing of this harvest was very important," said OLISP's Lori Benoit. "We had to be sure to pull this new growth of plants before they matured, dropped their seeds and caused the infestation to grow larger." Monitoring of this site and the entire river will be ongoing for as long as 7-10 years, since seeds can lie dormant for many years before sprouting.

Coastal Permitting Program Strikes the Balance



When it comes to protecting Connecticut's waterways, OLISP's permit section certainly gets their feet wet. These staffers are responsible for ensuring that coastal activities occur in a manner consistent with the laws. The activities range widely from interstate highway reconstruction to urban waterfront revitaliza-

tion; from residential or marina dock proposals to wetland restoration efforts.

In evaluating such projects, staff routinely inspect the location of the proposed work to determine if the project will have any adverse impacts on coastal resources such as tidal wetlands, submerged aquatic vegetation and intertidal flats. Staff recommend construction methodologies so that the work is conducted in an environmentally-friendly manner. Appropriate enforcement action is taken when work is conducted without a permit or is not in conformance with an authorization.

Occasionally, the activity is of a large scale, such as OpSail 2000CT. Planning for the sailing festival's recent three-day stop in New London began several years ago. The permit section had to authorize structures for the tall-ships to berth and accessways for the public to view the ships while

still allowing for commercial, recreational and military vessel traffic within New London Harbor.

Similarly, a permit was issued for the installation of a permanent berth and public access docks on the waterfront along Long Wharf Drive in New Haven, for the replica *Amistad* schooner. The permit authorized the installation of two large floating docks with access ramps at the existing Long Wharf Pier to allow pedestrian traffic to reach the vessel for public access to the ship. The berthing location was historically utilized for berthing ships but required modification to allow public access at this location in New Haven.

OLISP also issued a permit to the City of New London to construct a public waterfront park on the Thames River along an urban and previously

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DEP Gains New Access Site Through Appeal of Stonington Planning and Zoning Approval of Subdivision*

An appeal by the Attorney General, on behalf of the DEP, was recently resolved through a stipulation which will provide more public access to Long Island Sound and its resources.

Through the stipulation between the DEP and various parties, the property owner is required to provide public access over a portion of a 6-lot waterfront residential subdivision that had been proposed and approved for a 73.8 acre site along the Wamphassuc Marsh on Fishers Island Sound in Stonington. The public access will consist of a 500-foot long path to

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May 1999

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Wamphassuc Marsh, and will include a designated marsh viewing area. This public access easement lies within and improves upon 40.3 acres of "open space" which the developer separately conveyed to the Avalonia Land Conservancy, Inc. The easement provides the general public access necessary to render the property a water-depen-

dent use under the Connecticut Coastal Management Act (CCMA). The accessway is expected to be completed sometime in 2001.

An approval issued by the town of Stonington's Planning and Zoning Commission in August 1999 concerning this application for a residential subdivision was appealed because the proposed development of the site did not provide a water-dependent use.

"With the help and support of the Attorney General, DEP is keeping a vigilant watch over cases where the loss of a water-dependent use for a coastal property is at stake," said Arthur J. Rocque, Jr., DEP Commissioner. "It is essential that we maintain the policies and standards established by the Connecticut Coastal Management Act to protect water-dependent uses for our coastal area, and we are satisfied that the stipulation does so."

The Avalonia Land Conservancy, Inc. will be responsible for maintaining the access way, which will include a four foot wide crushed stone path (two feet cleared on either side), wooden board walk, a crushed stone viewing area containing a simple bench, and a sign identifying the area as "shoreline public access."

"This new access path will allow the public to visit and enjoy this pristine and productive marsh, which was previously only accessible by water," said Commissioner Rocque. "Improving public access to Long Island Sound and its natural resources is one of our primary goals in implementing the CCMA. To date, over 12.5 miles of coastal access have been acquired through the municipal Coastal Site Plan Review process as set forth in the CCMA."

The DEP will continue to identify additional public access sites for inclusion in future editions of the Connecticut Coastal Access Guide to improve the public's awareness of the extent and variety of coastal recreation opportunities along

Connecticut's coast. A copy of the Coastal Access Guide can be obtained by calling the DEP's Office of Long Island Sound Programs at (860) 424-3034 or e-mailing a request to coastal.access@po.state.ct.us. A version of the Guide will also be published on the DEP's website in coming months.

* Look for future issues of *Sound Outlook* to again feature articles highlighting sites from the Coastal Access Guide. In addition, we will tell you when the Wamphassuc Marsh access facility becomes available for public use.

Sound Tips

ATTENTION KIDS! (and child-like adults)

With school underway and fall upon us, our summer activities are now fond memories. But visiting the coast and enjoying the environment is really only a key stroke away if you take the time to visit these fun and informative web sites!*

ConneCT Kids http://www.kids.state.ct.us/

U.S. Environmental Protection Agency Explorer's Club http://www.epa.gov/kids/

Center for Marine Conservation Wading Pool—http://www.cmcocean.org/wading/wading.php3

The Sound School http://www.soundschool.com/

U.S. Coast Guard Ship, Eagle http://www.cga.edu/eagle/default.htm

*Please note—this is not a comprehensive listing, but rather those that seem to have a greater focus for children. Those web sites listed in an earlier edition of Sound Tips have not been listed again. If you know of other sites that should be highlighted in future editions, please contact Sound Outlook.



Coastal Permitting Program Strikes the Balance

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under-developed waterfront. This project is part of the City of New London's downtown revitalization efforts and is intended to draw the public back to the waterfront. The park will support both active and passive water-related recreational opportunities for the general public including fishing, boating, docking for transient boaters, a stage and gathering area, scenic walkways, and educational areas that feature the ecology and his-

tory of New London's waterfront. The intention of the project is to create a public gathering and recreational area with the city's maritime history as the centerpiece.

The permitting program is an essential part of DEP's effort to protect our fragile coastal resources while maintaining the economic viability of our state's coastal economy. Striking the balance takes time, hard work and dedication, but the end result is a shoreline we can all enjoy.

A NEWSLETTER OF CT DEP

Putting Your LIS Plate Money to Work:

100,000 Plates Sold!



Participants (left to right): J. H. Torrance Downes, designer of the LIS plate; DEP Commissioner Arthur J. Rocque, Jr.; Isaak Indik, 100,000th plate recipient; Lieutenant Governor M. Jodi Rell; Jay Warner, 100,001st plate recipient; DMV Commissioner Jose O. Salinas; Kate Hughes, Long Island Sound Fund Coordinator

n May 31, 2000, Lieutenant Governor M. Jodi Rell, DEP Commissioner Arthur J. Rocque, Jr. and DMV Commissioner Jose O. Salinas marked the milestone of the issuance of the 100,000th Long Island Sound license plate at Gulf Beach in Milford. The Long Island Sound license plates debuted in 1992 and were the first special interest plates in Connecticut. The sale of the plates raises funds to support projects that preserve and protect Long Island Sound. The success of this special interest license plate program reflects the importance placed on the protection of the Sound by Connecticut's citizens. The Long Island Sound license plate provides the public with an opportunity to invest directly in the preservation of the Sound and Connecticut's shoreline.

Lieutenant Governor Rell and Commissioner Rocque also announced



Purchase of an LIS License Plate supports the LIS Fund

As of August 31, 2000:

Plates sold: 104,270

· Funds raised: Over \$3.5 million

· Projects funded: 183

The LIS Fund supports projects benefiting Long Island Sound in the categories of habitat restoration, public access, education and outreach, and research.

For information on ordering a Long Island Sound license plate, call 1-800-CT-SOUND.

that 22 environmental projects will be funded out of the Long Island Sound Fund in 2000, which is financed in large part by the sale of these special license plates. A total of \$336,524 is being distributed in this year's round of grants. Some of the many projects funded this year include: acquisition of a property with tidal wetlands for open space and public access in Guilford; characterization of harbor seal habitat in the Norwalk Islands; construction of a fishway to restore anadromous fish passage over a dam in New Haven; development of a non-point source pollution program for elementary school students in Shelton; purchase of a specially adapted sailboat and a sailing program for persons with disabilities in Westbrook; and the creation of three new in-water canoe/kayak trails in Deep River, Cromwell and Middletown, and Norwalk.

Monies for the LIS Fund are generated through the sale of *Preserve the Sound* license plates, proceeds from the People's Bank *Preserve the Sound* Affinity Credit Card and by private donations to the Fund. Through these measures, the LIS Fund has raised in excess of \$3.5 million for projects benefiting Long Island Sound. To date, over \$2.9 million has been allocated to fund 183 projects in the categories of public access, education and outreach, research and habitat restoration. The program has awarded monies for projects in 53 coastal and inland towns in Connecticut.

For more information about the program or a complete list of funded projects, please contact the Long Island Sound Fund Coordinator, Kate Hughes, at (860) 424-3034, by e-mail at kate.hughes@po. state.ct.us, or visit our website at http://dep.state.ct.us/olisp/licplate/licplate.htm.

LOOK OUT for upcoming events!!

2000

October 7: Connecticut River Source to Sea Clean-up. Contact Connecticut River Watershed Council (860) 528-3588 or email crwc@crocker.com for more information.

October 27–28: National Environmental Career Conference, Atlanta, Georgia. Contact the Environmental Careers Organization (617) 422-0021 or e-mail necc@eco.org for more information.

October 29: Coastal walk at Branford Trolley Trail in honor of CT Coastal Management Program 20th anniversary. Contact Laurie Reynolds Rardin, DEP, Office of LIS Programs, (860) 424-4157 for more information.

October 30–November 3: Wetlands Regulatory Workshop, Atlantic City, New Jersey. Contact Ralph J. Spagnolo, EPA, Region III, (215) 814-2718 for more information.

November 17–18: Long Island Sound Research Conference, Stamford, Connecticut. Contact Barbara Mahoney (860) 405-9151 or e-mail barbara.mahoney@uconn.edu for more information.

December: Bald eagles return to Connecticut for the winter. Call 1-800-368-8954, after December 8th, for reservations and more information on the Shepaug Eagle Observation Area.

December: Harbor seals return to the Sound for the winter.

2001

January: LIS Fund Request for Proposals mailed.

February 2-3: Free training for Project WET and Project WILD "wanna be" facilitators, Incarnation Center, Ivoryton, Connecticut. Contact Roger Lawson or Diane Joy (203) 734-2513 for more information and to obtain a registration form.

March 14: Deadline for LIS License Plate grant applications to be received in hand (no postmarks accepted). Contact Kate Hughes, DEP, Office of Long Island Sound Programs, (860) 424-3034 for more information.

Please be sure and check the Calendar of Events listed in DEP's website: http://dep.state.ct.us

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SPOTLIGHTED Coastal Resource:

The Long Island Sound Estuary

At a recent event celebrating the LIS License Plate Program, Lieutenant Governor M. Jodi Rell stated that, "Long Island Sound is one of Connecticut's environmental, recreational, and cultural jewels." As we celebrate the 15th anniversary of the LISS, we would like to take this opportunity to remind our readers what makes the Sound such a unique treasure.

Long Island Sound is an estuary, a place where salt water from the ocean mixes with fresh water from rivers and the land. Bounded by Connecticut and Westchester County, New York, on the north and by Long Island on the south, the Sound is approximately 110 miles long (east to west) and about 21 miles across at its widest point. The depth of the Sound ranges to approximately 120 feet.

Like other estuaries, Long Island Sound abounds in fish, shellfish, and waterfowl. It provides feeding, breeding, nesting, and nursery areas for diverse animal and plant life. But the Sound is unique in other ways. Its east-west orientation makes it unusual; most large estuaries in the North Atlantic are north-south. Unlike other estuaries, LIS does not have just one connection with the sea, it has two. The Sound is open at both ends, through The Race to the east and through the East River and New

York Harbor to the west.

Most of the Sound's fresh water comes from a series of south-flowing rivers and streams entering along its northern flank, including the Connecticut, Housatonic and Thames Rivers, some of whose drainages reach as far north as Canada. The Sound combines this multiple inflow/outflow system with an irregular shoreline marked by many harbors and embayments. Taken together, these physical features result in a system of complex tides and currents.

The average salinity (grams of salt dissolved in one kilogram of water) of the open ocean is 35 parts per thousand (ppt) or 3.5%. Waters in the Eastern Sound, closer to the open Atlantic, have an average salinity of 28-31ppt and are saltier than water in the Western Sound, where salinity averages 24-28ppt. Similarly, each river mouth is itself a sub-estuary where fresh river water initially mixes with the already lowered saline waters of the open Sound. For example, in the lower Thames River, a University of Connecticut monitoring buoy measures salinity in the range of 15-18 ppt. The data are posted on the MYSound website at www.mysound. uconn.edu/ (see Sound Outlook, June

Because estuarine organisms live where environmental conditions, includ-

ing salinity, are ideal for their survival, changes such as the reduction of near-shore salinity following heavy rains, can affect their occurrence in the Sound. Furthermore, the response to changes in salinity varies among species. Bottom-dwelling animals are able to retreat into their shells or burrows, while more mobile finfish may move offshore, until salinities return to normal levels. This salinity dynamic is but one variable in a system that contributes to LIS being such a valuable, fragile, and changeable ecosystem.



The Sound is also unusual in that it lies in the midst of the most densely populated region of the United States. More than 17 million people live within 50 miles of Long Island Sound, and many use the Sound on a regular basis. More than \$5 billion is generated annually in the regional economy from boating, commercial and sport fishing, shell-fish harvesting, swimming, and other recreational pursuits. The ability of the Sound to support these uses is dependent upon the quality of its waters and aquatic habitats, plus the health of its living resources.

There are other LIS-related values that are less quantifiable. Natural habitats and good water quality contribute to shoreline residential property values. The Sound also inspires special bonds between people and the water. While it is difficult to assign a price tag to such things, Long Island Sound's intrinsic value as a natural resource, plus its more readily understood economic value, enhances the quality of life for all of Connecticut's citizens. Long Island Sound is clearly among the most important estuaries in the nation.

Walk the Coast to Celebrate 20 Years

Please join us for a guided coastal walk at the Branford Trolley Trail on Sunday, October 29, 2000 at 2:00 p.m. in recognition of the 20th anniversary of Connecticut's Coastal Management Program. Highlighted in the February 2000 issue of *Sound Outlook*, the site is featured in the *Connecticut Coastal Access Guide* (#137). The walk will cover approximately 1 mile along the abandoned trolley line, which offers stunning

views of a tidal marsh, Branford Harbor, the Thimble Islands, and the end of fall foliage. Learn more about the salt marsh ecosystem, enjoy the views and fresh air and get some exercise!

Contact Laurie Reynolds Rardin, DEP, Office of LIS Programs, (860) 424-4157, or e-mail laurie.rardin@po.state.ct.us for registration and directions. Limit 30 people. Rain date is Sunday, November 5, 2000 at 2:00 p.m.

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A NEWSLETTER OF CT DEP 5



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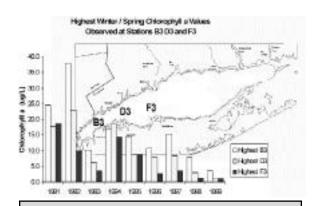
How's the Water? Going Green?

No matter when we attended school, one of the first biological mechanisms we learned about was photosynthesis. And what is the key chemical that is essential for photosynthesis? **Chlorophyll**. All plants on this planet contain chlorophyll and have the ability to perform photosynthesis.

The most abundant plants in Long Island Sound are algae, collectively called phytoplankton, and are often referred to as "grass of the sea." These microscopic plants thrive in the sunlit surface waters of LIS where warming water temperatures in the spring and summer and plentiful nutrients provide ideal conditions for growth. When the algae dies, it decays, using up oxygen and contributing to hypoxia (low dissolved oxygen).

Scientists measure and quantify phytoplankton by chemically measuring the amount of chlorophyll (known as "chlorophyll a") in water samples collected from the Sound. As part of DEP's LIS Water Quality Monitoring Program, chlorophyll a is used to determine the severity of excessive algae growth called "blooms" and to help predict the severity of late summer hypoxia. High levels of chlorophyll mean a lot of algae has been produced.

The attached graph showing chlorophyll a levels over time at three western LIS monitoring stations seems to indicate that chlorophyll a has been decreasing. DEP managers hope this will result in less severe hypoxia events in the future, but time will tell. To help ensure that phytoplankton blooms are better controlled, all citizens within the LIS watershed must be vigilant, even in winter, to reduce nutrient contamination of surface water runoff. Controlling nutrients from careless use of fertilizers, pet wastes, and faulty septic systems is important because "going green" (increased algae) in LIS waters is not always a good thing.



Visit the DEP website at http://dep.state.ct.us

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