

A NEWSLETTER OF THE CONNECTICUT DEPARTMENT OF ENVIRONMENTAL PROTECTION

EXPLORING LONG ISLAND SOUND - ISSUES AND OPPORTUNITIES

Cables and Pipelines Under Long Island Sound

ver the past two years, electric utility cable and natural gas pipeline crossings of Long Island Sound (LIS) have spurred lively political debate in Connecticut. The origins of this controversy lie in the deregulation of the energy and telecommunications industries in the 1980's and 90's. As a result, private utility companies competed to get "in the ground" first, and reap free-market profits rather than regulated rates of return. The utilities maintain that the new underwater infrastructure is necessary to ensure a reliable regional energy distribution system, to provide clean-burning natural gas to Long Island, and to promote competition in energy rates. Opponents of the cables and pipelines claim that Connecticut's environment is being sacrificed to provide energy for Long Island, and have called for reforms in the energy regulatory process. As a partial response to this debate, a Working Group established by Executive Order 26 and a Task Force established by Public Act 02-95, jointly issued reports recommending changes in energy planning and project approval procedures. (See http://www.sustainenergy.org/publication/reports.asp).

The DEP is presently dealing with three proposed LIS utility crossings:

- The Northeast Utilities project to address the periodic leakage of dielectric fluid from electric transmission cables between Norwalk and Northport, Long Island. DEP is seeking complete removal of the existing fluid-filled cables. The project is exempt from the moratorium on processing of applications for LIS utility crossings that was enacted in 2002 and recently extended until June 3, 2004.
- The Cross-Sound electric cable from New Haven to Shoreham, Long Island. Installation of the cable received state and federal approval as proposed, but it was not buried to the required depth throughout its entire length. Consideration of Cross-Sound's application to modify its state permit to allow it to operate the cable at the present depth has been prohibited by the moratorium until June 4, 2004. At press time, the U.S. Department of Energy had issued an emergency order for the cable to transmit electricity in response to energy shortages.
- The Islander East natural gas pipeline from Branford to Shoreham. This project has been approved by the Federal Energy Regulatory Commission, but Islander East is appealing DEP's denial of the project's consistency with state coastal management policies due to its adverse impacts on coastal resources. The project also requires state permits, which are subject to the moratorium.

In addition to its regulatory involvement, DEP, along with the many other agencies and interest groups addressing the complex issues of energy supply and transmission and their associated environmental impacts, has been an active member of the Working Group and Task Force. For further information on DEP's perspective, please contact David Blatt, DEP Office of Long Island Sound Programs, at 860-424-3034 or by email at david.blatt@po.state.ct.us.



DEP Certifies First Marina and Boatyard As "Clean Marinas"

uring the 2003 boating season, DEP awarded the first Connecticut Clean Marina certifications to a marina and a boatyard. Both facilities have voluntarily implemented many pollution prevention techniques to reduce nonpoint sources of pollution associated with the operation of their businesses.

DEP awarded Saybrook Point Inn, Marina and Spa in Old Saybrook the first Clean Marina certification in June. The 120-slip marina, part of a larger hotel/spa complex at the mouth of the Connecticut River, has a public boat sewage pumpout station, and collects and recycles used oil, spent lead-acid batteries, newspapers, cardboard, bottles and cans from its customers. The marina prevents drips and spills at the fuel dock, and has a pet walking area equipped with disposal bags.

In July, DEP honored Harry's Marine Repair, a 76-slip facility located on the Patchogue River in Westbrook, as the first full-service boatyard certified as a Connecticut Clean Marina. Harry's collects and either reuses or recycles bottles and cans, oil, antifreeze, waste batteries, scrap metal and spent zinc anodes. The marina has a custom-designed boat

sewage pumpout and dump station available to the public, and provides bags for disposal of pet waste. Both recipients educate customers about their environmental practices by distributing clean boating fliers, and willingly take suggestions on how to improve those practices.



Stephen Tagliatela (I), Saybrook Point, receives Clean Marina flag from Elke Sutt and Commissioner Arthur J. Rocque, Jr. of DEP

DEP is proud of the commitment of these two facilities to help keep Connecticut's waters clean, and encourages all Connecticut marinas, boatyards, and yacht clubs to follow their example. At press time, 20 additional marinas had taken the Clean Marina Pledge to participate in this voluntary program.

For more information visit www.dep.state.ct.us/olisp/clean marina or contact Elke Sutt at 860-424-3034.

Long Island Sound Benefits from Connecticut's Nitrogen Credit Exchange

ince 1985, DEP and other Long Island Sound Study (LISS) partners have identified hypoxia (or low dissolved oxygen) as the primary water quality concern in Long Island Sound (LIS). Hypoxia has been observed to occur in the bottom waters of the western Sound every summer since water monitoring began in 1985. It has also been determined that the pollutant most responsible for this condition is nitrogen. To address this problem, Connecticut and New York have embarked on an aggressive program to reduce nitrogen entering LIS from sewage treatment plants (STPs). The February 2002 issue of Sound Outlook reported on Connecticut's Nitrogen General Permit (see web site http://dep.state.ct.us/olisp/ soundout/sofeb02.pdf). In this issue, we report on the companion program, the Nitrogen Credit Exchange (NCE), an innovative and cost saving management program that has found favor with state lawmakers, regulators, and municipal officials alike.

In 2001, Connecticut legislation was passed establishing the first nitrogen credit exchange program of its kind in the nation. The law also authorized DEP to issue a Nitrogen General Permit and establish a Nitrogen Credit Advisory Board (NCAB) to oversee the program. The board includes representatives from DEP, the Connecticut Office of Policy and

Management, the state Treasurer's Office, and municipal representatives appointed by the legislature and the Governor.

The General Permit was issued in January 2002, setting 2002 as the first year of nitrogen "trading." Monitoring at the 79 STPs covered under the permit determined whether each plant discharged more or less than its individually permitted limit. If a STP exceeded its limit, the town was required to purchase the appropriate amount of nitrogen credits to bring it into compliance; those that did better than their permit limit had credits to sell on the exchange. A credit is defined as a pound of nitrogen that reaches western Long Island Sound waters. Credit prices are set by the NCAB based on the capital, operation, and maintenance costs at 24 STPs that had instituted nitrogen removal projects prior to 2002. For 2002 the credit price was set at \$1.65.

The first year's program was overwhelmingly successful in reducing nitrogen loads to the Sound. Forty-one of the 79 participating STPs reduced nitrogen output below their assigned permit limits, making them eligible to sell a total of \$2.76 million worth of nitrogen credits. The remaining 38 plants exceeded their allocated nitrogen discharges requiring them to purchase \$1.32 million worth of credits. In

aggregate, the 79 plants were well below their combined permit limit, therefore the state was required to purchase the excess credits generated from the towns with approximately \$1.44 million from its Clean Water Fund (CWF). While the state had to scramble to pay for the excess credits, everyone was pleased that the 2002 limit was handily beaten, for the betterment of LIS water quality.

A number of factors contributed to the margin of success in 2002. A mild winter and above average summer/fall temperatures enhanced the biological nitrogen removal (BNR) activity of bacteria at the plants. Below normal precipitation kept water infiltration into sewer systems low, thus increasing the capacity of STPs to remove nitrogen. Twenty-four of the 34 STPs committed to implement BNR retrofits or full-scale denitrification projects had completed construction prior to 2002. Consequently, Connecticut is well on its way to the 2014 goal of reducing the STP nitrogen load to Long Island Sound by 64%. Connecticut's program is serving as a national model for similar programs.

For additional information on the Nitrogen Credit Exchange program visit DEPs web site at http://dep.state.ct.us/wtr/lis/nitrocntr/nitoindex.htm or contact Paul Stacey at paul.stacey@po.state.ct.us.

SPOTLIGHTED Coastal Access:

Connecticut Coastal Birding Trail

re you one of the increasing number of Americans who enjoy bird watching? Whether birding is a lifelong passion or a new hobby, the DEP has begun a new initiative to enhance your enjoyment of the wildlife found along the Connecticut shore.

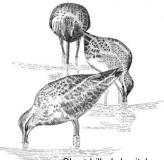
The Connecticut Coastal Birding Trail is being developed by the DEP Wildlife Division with funding from the federal Department of the Interior's Wildlife Conservation and Restoration Act Program. The project will result in the designation of a series of shoreline sites where people can view many of the nearly 400 species of birds that may be found in Connecticut throughout the year. The sites, located along the important Atlantic Flyway, provide nesting and foraging habitat for resident and migratory shorebirds, wading birds, waterfowl, and much more.

Preliminary Birding Trail maps, which provide a guide to viewing many of these species, are available from local tourism offices or via the trail's web site,

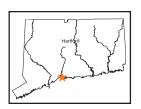
www.ctbirdingtrails.org. The maps will be updated as additional sites are selected.

It is hoped that interest in this initiative on the part of citizens, business owners and town officials will increase support for maintenance of open space and healthy wildlife habitats, and for funding of necessary wildlife management staff and programs.

Many of the sites that will be included on the Birding Trail are also listed in the Connecticut Coastal Access Guide, as revised to July 2001. Three of those sites, numbered in the Guide as follows, can be found in close proximity to each other around New Haven Harbor: Bradley Point(#112) in

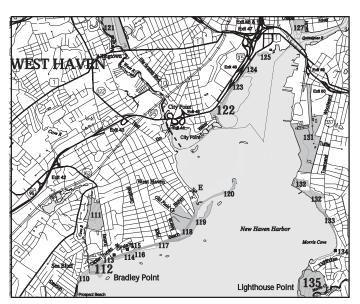


Short-billed dowitchers



Connecticut

West Haven, and Long Wharf Nature Preserve (#122) and Lighthouse Point Park (#135) in New Haven. In addition to their importance as destinations for both birds and birders, these sites introduce the public to a range of coastal habitats, including tidal marshes and rivers, beaches and intertidal flats. Directions to the three sites, which are handicapped-accessible, are shown on the map below.



To learn more about the Connecticut Coastal Birding Trail, including how to nominate a site, visit www.ct birdingtrails.org. For a free copy of the Connecticut Coastal Access Guide, with additional information about the sites listed above. contact the DEP at 860-424-3034 or by e-mail at coastal.access @po.state.ct.us. 🙈

LOOK OUT for upcoming events!!

DEP Environmental Educator Workshops Call 203-734-2513 to register. Fresh Water and Marine Plankton Mon. Oct 20, 9:00 AM - 3:00 PM Kellogg Environmental Center, Derby. Grades 9-12. Collect, identify and

AgEarth Workshop: Farming the Waters

analyze plankton from LIS.

Tue. Nov. 4, 8:30 AM - 2:00 PM The Sound School, New Haven. Grades 7-12. Learn about aquaculture in LIS from 1800's to present. Tour the Sound School, receive hands-on classroom activities.

November: Harbor seals arrive in LIS from northern New England;

Winter flounder move into shallower water.

Norwalk Maritime Aquarium

Cruises. Call 203-852-0700 to register.

Fall Foliage Cruise Weekends in October

1:00 - 3:30 PM

Collect and observe marine animals: view autumn's hues from the water.

Winter Creature Cruise December-January; dates & times tide dependent.

View seals and winter waterfowl. Bring binoculars, dress warmly.

EVENTS AND EXHIBITS

Harbor Seal Feedings. Daily at 11:45 AM, 1:45 PM, 3:45 PM Sea Turtles. Observe Loggerhead sea turtles in a 15,000 gallon habitat; interpretive displays on sea turtle conservation, life history, behavior and migration.

Coral Reefs and Clownfish. Three new coral reef exhibits show these fragile and beautiful habitats and their inhabitants.

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

January: LIS License Plate Request for Proposals will be mailed and posted on DEP website. Contact Kate Hughes Brown, DEP, Office of Long Island Sound Programs, 860-424-3034 for more information.

Please be sure to check the Calendar of Events listed on DEP's website: www.dep.state.ct.us

Long Island Sound Fund 2003 Grant Awards

n May 21, 2003, the Long Island Sound Fund Advisory Committee awarded \$354,541 in grants for 19 projects to help preserve and protect Long Island Sound (LIS). The projects were selected through a competitive grant process. Highlights of the approved projects include:

Education and Outreach:

- Publication of The Connecticut River Forum's River Roundtable recommendations for preservation and protection of the Lower Connecticut River.
- Creation and publication of a historical survey and inventory of remaining marine railways in Southeast Connecticut and evaluation of their potential eligibility for listing on state or national registers of historic places. (See photo below).
- Creation and distribution of a "Marine Animal Response Guide" and workshops concerning proper response to marine animal strandings.



Franklin G. Post & Son Marine Railway © Mystic Seaport, Mystic, Connecticut

Public Access:

- Creation of a new waterfront park adjacent to U.S. Route 1 and the Indian River in Clinton with a boardwalk, dock, observation platform, benches, picnic tables, and interpretive signs.
- Acquisition and preservation of seven parcels totaling 1.38 acres of undeveloped, previously subdivided land located along Morris Creek, New Haven, including areas of tidal wetlands.
- A road ending enhancement project at Bayside Road, Old Saybrook, to provide public access to the Oyster River, accompanied by interpretive signage.

Habitat Restoration:

• Construction of fishways at Gorham's Pond Dam on the Goodwives River in Darien and at the Supply Pond

Dam on Queach Brook in Branford to restore passage for alewife and other anadromous fish to upstream spawning habitats.

Research:

- A study to test the hypothesis that loss of shallow water eelgrass beds can be attributed to persistent grazing by resident mute swans and Canada geese.
- A study to quantify marsh bank erosional processes responsible for loss of high marsh habitat at Nells Island, Milford.
- A study to determine winter flounder spawning habitat requirements and essential fish habitat for winter flounder eggs in New Haven and Milford Harbors.

The DEP looks forward to working with the successful applicants. Connecticut residents can support future projects by purchasing a Preserve the Sound license plate, acquiring a People's Bank LIS credit card, or making a direct contribution to the Fund. LIS license plates can also be purchased as gifts.

LIS Fund Storm Drain Marker Program Update

The DEP's Long Island Sound Fund launched a new Storm Drain Marker Program this year to raise awareness about the impacts of stormwater on Connecticut's waterways and Long Island Sound, and to assist municipalities with their Phase 2 stormwater permitting requirements. As of August 26, 2003, the program had distributed approximately 60,000 free storm drain markers to over 49 municipalities, lake associations, marinas, environmental groups and scout troops across Connecticut. The markers, which

read "Drains to Waterways and Long Island Sound – No Dumping," are available in English and Spanish, are accompanied by the glue, safety gloves, educational brochures and directions needed to conduct a storm drain marker program in your area.

For more information about how to obtain a storm drain marker kit, please contact Kate Hughes Brown, Long Island Sound Fund Coordinator at 860-424-3034, or visit DEP's web site at http://dep.state.ct.us/olisp/stormdrain/stormdrainmarker.pdf.

Purchase of an LIS License Plate supports the LIS Fund



As of July 31, 2003:

Plates sold: 120,819

• Funds raised: Over \$4.2 million

Projects funded: 246

The LIS Fund suppports projects in the areas of education, public access to the shoreline, habitat restoration, and research.

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

Sound Tips

Protect Your Waters - Stop Aquatic Hitchhikers!

Aquatic nuisance species can hitch a ride on our clothing, boats and items used in the water. When we go to another lake, stream or coastal area, the nuisance species can be released, with potentially drastic results. By taking the simple steps outlined below each time we leave the water, we can stop aquatic hitchhikers.

- Before leaving any body of water, examine boats, trailers, clothing, boots, and buckets, and remove any visible mud, plants, fish or animals.
- Eliminate all water from equipment before transporting it to another water body.
- Clean and dry any equipment, clothing and dogs that came in contact with water. Recipes for cleaning items that cannot be exposed to hot water are available at http:www.protectyour waters.org/prevention/prevention_ generic.php#3

Never release plants, fish or animals into a body of water unless they came out of that body of water. This includes aquarium plants and animals and live bait.

Reprinted with permission of the Aquatic Nuisance Species (ANS) Task Force. For more information, visit the Stop Aquatic Hitchhikers web site, www.protectyourwaters.org. The website is sponsored by the U.S. Fish and Wildlife Service and the U.S. Coast Guard.

\$ SOUND OUTLOOK

SPOTLIGHTED Coastal Resource: Rocky Intertidal Zone

he intertidal zone, also called the "littoral zone," is the transitional area between terrestrial (land) ecosystems and the ocean. The rocky intertidal zone is a specific type of littoral zone ecosystem composed of any combination of bedrock, boulders and cobbles. This substrate is highly erosion-resistant and typically interspersed with tidal pools. Rocky shores are found along the coasts of every continent, ranging in size and structure from nearly flat to extremely steep with cliffs and overhangs. Approximately 55 percent of Connecticut's coast is composed of rocky intertidal habitat. Examples can be found at places like Sherwood Island State Park (west of Sherwood Point) in Westport. Hammonasset Beach State Park (east of Meigs Point) in Madison, and Bluff Point State Park in Groton, to name a few.

This zone is a harsh environment inhabited by a unique collection of species, many of which face challenges not encountered by their relatives in deeper waters. These challenges include exposure to tides, air, waves, temperature extremes, and constantly fluctuating salinity. Additionally, intertidal animals are frequently subject to pollution and human intrusion.

Many inhabitants of the intertidal zone have developed adaptations that enable them to survive amidst these unique conditions. Arthropods, such as crabs, barnacles and amphipods, and mollusks, such as snails, mussels and oysters, have succeeded in this zone due to their hard, protective shells which guard against the pounding force of ocean waves. Crabs' shells are composed predominantly of a natural polymer called chitin that both prevents water from passing into or out of the body and acts as an antifreeze. Consequently, many arthropods are able to burrow under rocks and sand and to escape the temperature extremes of

temperature extremes of summer and winter.
Mollusks are able to withstand exposure to

Blue mussels, barnacles

temperatures and tides by receding within their protective shells.

Most intertidal creatures have some form of attachment to avoid being swept away. Gastropod mollusks, including limpets, turban snails, periwinkles, oyster drills, and nudibranchs, anchor themselves to rocks with a muscular structure known as a foot. Mussels use strong "byssal threads" to attach to rocks, while oysters and barnacles secrete a "cement" that holds them in place. Algae such as rockweed and Irish moss develop permanent attachments called "holdfasts" that prevent their removal by waves.



Sampling the intertidal zone

As harsh as it is, the intertidal zone is also rich with nutrients. As the tide washes in, it carries plankton and detritus, the particulate remnants of dead plants and animals. Animals like crabs, barnacles, starfish and anemones, as well as small fish and shorebirds, feed on this organic matter. In tide pools, which remain wet at low tide, these and other animals continue to graze on the food that remains after the tides recede.

New England's rocky intertidal zone is also home to several invasive organisms from other continents. Among them, the green crab, one of our older invasive species, arrived about 150 years ago from its native northern European coastal waters. The Asian shore crab (a/k/a Japanese shore crab or Pacific crab) is the most recent and prolific invasive species found on the U.S. east coast. First noticed

in New Jersey in 1988, the Asian shore crab is now well established,

with its range extending north to New Hampshire.
Populations along the Connecticut shore are continuing to increase in size. Both species are

believed to have arrived here in the ballast water of ocean-going ships.

During the spring of 2003, a rocky intertidal zone inventory project conducted by six Connecticut high school science classes under the supervision of DEP staff found hundreds of Asian shore crabs, along with many native organisms, residing under and between the intertidal rocks at Sherwood Island and Hammonasset State Parks. Their densities ranged from 10 to 30 crabs per square meter. Asian shore crabs may be out-competing green crabs due to their broad diet. Scientists are continuing to study the Asian crab's impact on other populations.

The best way to learn about the rocky intertidal zone is to experience it yourself. If you do plan to visit this amazing habitat, be careful not to harm it. If you pick up organisms, try to return them to where you found them. If you turn over rocks, return them to their original position so the animals attached to them do not die. Please do not remove any plant or animal that is permanently attached to the rocks, and be sure not to litter!

For additional information on rocky intertidal zones, or if you are interested in having your high school science class participate in Connecticut's Rocky Intertidal Zone project, contact Alberto Mimo at 203-734-2513 or by email at alberto.mimo@po.state.ct.us, or Mark Parker at 860-424-3276 or by email at mark.parker@po.state.ct.us. Also visit the DEP website at www.dep.state.ct.us/educ/cere/schoolprograms.htm.

If you did not receive this issue of Sound Outlook in the mail and would like to be placed on the mailing list, please send your name and address to: Sound Outlook, Connecticut DEP, Office of Long Island Sound Programs, 79 Elm Street, Hartford, CT 06106-5127; or email your address to laurie.valente@po.state.ct.us.



PRSRT STD
US POSTAGE
PAID
HARTFORD CT
PERMIT NO. 2884



How's the Water (in the Rocky Intertidal Zone)?

he waters of the Long Island Sound (LIS) estuary are highly variable affect the character and quality of many different habitats. One of those habitats is the rocky intertidal zone, described on page 5 of this issue of *Sound Outlook*.

Twice in every 24 hours, the tides move water into and out of the intertidal zone. Because of this and other factors, the creatures living in this area experience a wide range of chemical and physical water quality conditions. When the tide recedes, some areas become completely dry, with the exception of tidal pools in which remaining water can experience 15-20°F temperature swings on summer days. For example, with summer surface water temperatures in the Sound averaging 70°F, exposed pools in the upper tidal zone on a 90+F° degree summer day can warm by 20 degrees within a few hours until cooler water returns on the high tide. In the winter, when surface water temperatures average 48°F, a cold 28°F day could cause tidal pool temperatures to drop by 20 degrees after the tide recedes.

In smaller pools, evaporation can cause salt concentration to climb as high as 40 parts per thousand (ppt), compared to normal ocean water which averages 32 ppt. At the other extreme, on a rainy day, salinity in tide pools may be diluted to a concentration in the single ppt range. The concentration of dissolved oxygen (DO) in tide pools generally remains at healthy levels of 7 to 12 parts per million (ppm) but occasionally in the summer time, due to heat, water chemistry, low tide, and the number of organisms trapped in the pool, DO can drop to unhealthy levels of one ppm in a matter of a few hours. The creatures must then bide their time until refreshing new water returns with the tide. Just as a famous New England quote states, "If you don't like the weather, wait a minute," so too can it be said of conditions in the rocky intertidal zone.

Long Island Sound Stewardship System Discussion

Public meetings on the proposed Long Island Sound Stewardship System will be held in October and November in Groton, Branford and Stamford, CT, and New Rochelle, Queens, Roslyn and Riverhead, NY.

The Stewardship System addresses recognition and protection of significant ecological and recreation areas around the Sound. System structure, benefits and area selection process will be discussed. For more information contact Robin Kriesberg at Save the Sound, 1-888-SAVE LIS or rkriesberg@savethesound.org.

Visit the DEP website at www.dep.state.ct.us

Published by The Connecticut Department of Environmental Protection, Office of Long Island Sound Programs and Bureau of Water Management.

Editor: Tom Ouellette; Illustrations by Tom Ouellette; Contributing Editor: Mark Parker; Contributors: David Blatt, Kate Brown, Mark Parker, Elke Sutt. Printed on 100% post-consumer recycled paper using vegetable-based ink.

Financial assistance for **Sound Outlook** was provided by the Coastal Zone Management Act of 1972, as amended, administered by the Office of Ocean and Coastal Resource Management, National Oceanic and Atmospheric Administration (NOAA). Financial assistance was also provided by the federal Environmental Protection Agency under the National Estuary Program.

The Department of Environmental Protection is an affirmative action/equal opportunity employer, providing programs and services in a fair and impartial manner. In conformance with the Americans with Disabilities Act, DEP makes every effort to provide equally effective services for persons with disabilities. Individuals with disabilities needing auxillary aids of services, or for more information by voice or TTY/TDD, call 860-424-3000.