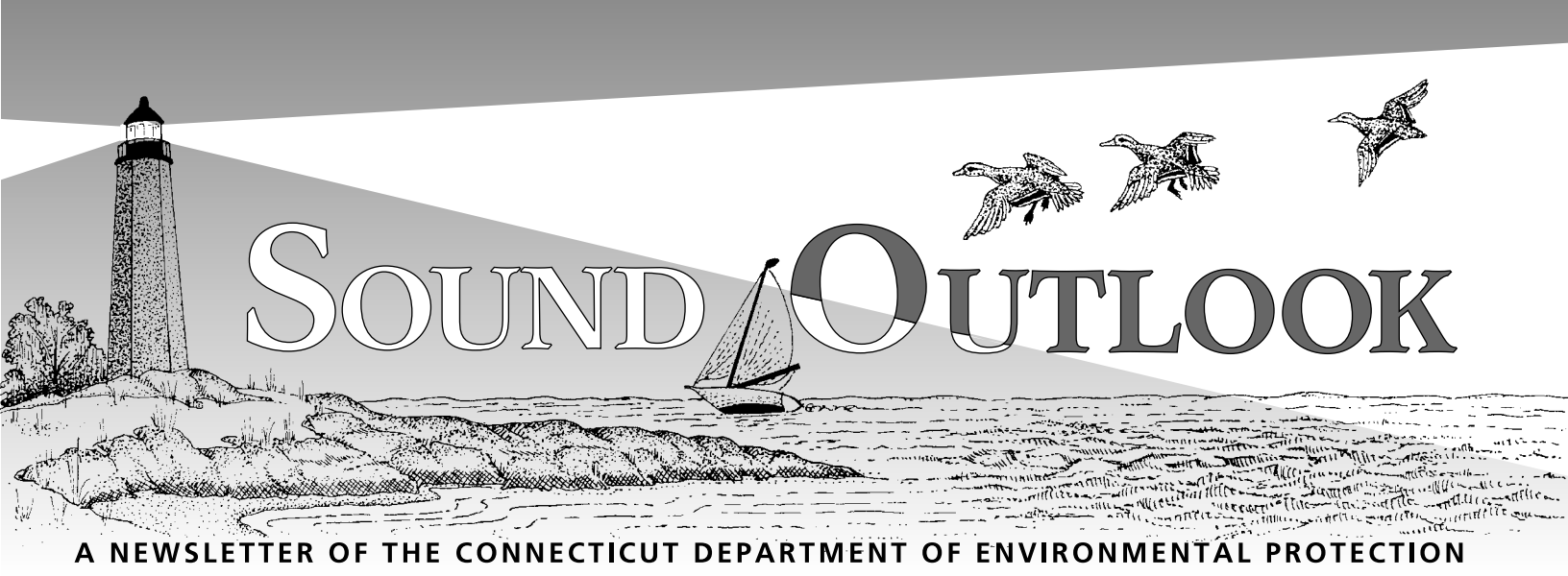


SOUND OUTLOOK

A NEWSLETTER OF THE CONNECTICUT DEPARTMENT OF ENVIRONMENTAL PROTECTION

What Benefits the Naugatuck River Benefits the Sound

The Long Island Sound Study (LISS) recently affirmed the LISS partners' commitment to both reduce the nitrogen load to Long Island Sound (LIS) and restore 100 miles of riverine migratory corridor for anadromous fish. Connecticut, as one of the partners in the LISS, is diligently working to meet these goals. The restoration of the Naugatuck River is an excellent example.

In the late 1980's, the City of Waterbury's aging 25 million gallon per day (mgd) Water Pollution Control Facility (WPCF) was having difficulty meeting permitted effluent limits. Added capacity was needed to treat ammonia-nitrogen, address combined sewer overflow (CSO) discharges, and to remove nitrogen for the benefit of LIS.

In 1992, designs were developed for a new plant to treat up to 52 mgd of sewage and primary treatment for up to 83 mgd to resolve storm event related CSO flow in downtown Waterbury. The construction of the plant was completed in 34 months, on April 30, 2000 (one month ahead of schedule). The nitrogen concentration of the new plant's effluent is a very low 4 milligrams per liter, about a 75% reduction. This adds to the benefits from previously completed WPCF upgrades in the towns of Torrington, Thomaston, Naugatuck, and Seymour.

Concurrently, the Connecticut Department of Environmental Protection (DEP), Waterbury, the Naugatuck Chapter of Trout Unlimited, the Naugatuck Watershed Association, and the Fish and Wildlife Foundation engaged in another significant effort to improve habitat in and along the Naugatuck River. In September and October 1999, four dams were removed from the Naugatuck River: the Platts Mill (located just below the WPCF), the Freight Street and Anaconda dams in Waterbury, and the Union City Dam in Naugatuck. The removal of these dams plus fish ladder installation at the Kinneytown Dam in Seymour effectively opened over 18 miles of river to improve fish migration and habitat for aquatic life.

In 2001, three more dams will be removed and a fish bypass channel will be built around a fourth. Once completed, over 30 miles of the Naugatuck River will be opened to anadromous fish species for their annual migration and spawning run from LIS. This action combined with the improved water quality from the WPCF upgrades will restore the Naugatuck River system to a condition it hasn't seen since before the Industrial Revolution. This is a success story for all that benefit from restoring water quality and fisheries habitat, and especially for all of the people who worked hard to see it happen, including the City of Waterbury, the other Naugatuck Valley towns, the river advocacy groups, the design engineers, the construction contractor, and the DEP.

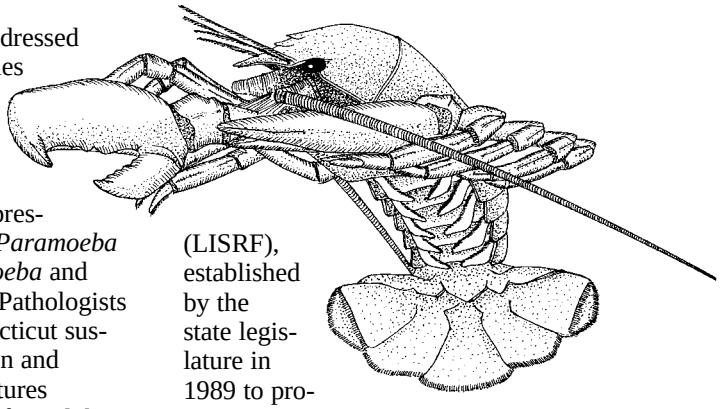
Inside

FEBRUARY 2001
No. 6

Governor Rowland Releases $1 Million For LIS Lobster Research

Lobsters in LIS are a regional multi-million dollar marine fishery. In July of 2000 Governor Rowland released $1 million for research to determine the cause of the highly publicized lobster mortality event during the fall and winter of 1999-2000. The lobster fishery reported losses of nearly 100% in the western end of LIS during that period.

DEP teamed up with New York and Connecticut Sea Grant to produce a joint request for proposals (RFP). Sea Grant is administering a $2.5 million competitive grants process funded out of the $6.5 million in federal money for lobster research. The RFP, "Investigating Long Island Sound Lobster Mortality Events and Shell Disease Syndrome" (**http://www.seagrant.sunysb.edu/LILobsters/LILobsters.htm**) was released in September 2000 and sent out to researchers nationwide. Of the 45 researchers who submitted pre-proposals, 27 were invited to submit full proposals for investigations into the causes of the lobster die-off and shell disease. Grants will be awarded to researchers on a competitive basis, and successful researchers will be notified of awards on February 28, 2001.



Specific research topics addressed by the proposals include studies of contaminant concentrations in the water and sediments of LIS, progression of shell disease, development of tests to quickly detect the presence of the parasitic amoeba *Paramoeba* sp., and the effects of *Paramoeba* and toxins on lobster physiology. Pathologists from the University of Connecticut suspect that low dissolved oxygen and above-average water temperatures stressed the immune system of LIS lobsters, preventing them from fighting off infection by *Paramoeba*. Citizens have suggested a link to the coincidental application of pesticides by the States of New York and Connecticut for the control of mosquitoes carrying the West Nile Virus. Anecdotal data and reports from lobstermen, however, indicate that the lobster mortality may have actually begun in western LIS in 1998, and perhaps as early as 1997, prior to the application of those pesticides.

The $1 million in Connecticut research funds will be administered through the Long Island Sound Research Fund (LISRF), established by the state legislature in 1989 to provide grants to CT-based academic institutions for scientific research on issues directly affecting LIS. The goal of the LISRF is to fulfill research needs and obtain the information necessary to protect and effectively manage the Sound and its valuable resources. Since its inception in 1989, the LISRF has supported over 40 projects covering a broad range of topics including tidal marsh ecology, water quality, seafood consumption, and hypoxia in LIS.

For more information, please contact Harry Yamalis, DEP, Office of Long Island Sound Programs, (860) 424-3034, or e-mail harry.yamalis@po.state.ct.us.

NOAA Recognizes 20 Years of Coastal Management in Connecticut

Professor William A. Niering Honored

At a ceremony looking out over Long Island Sound, William O'Beirne, Northeast Regional Manager for the National Oceanic and Atmospheric Administration's (NOAA) Office of Ocean and Coastal Resource Management, presented Governor John G. Rowland with an award recognizing 20 years of outstanding coastal management in Connecticut and commending the state on its pioneering role in managing coastal resources.

"Connecticut is a national leader in coastal management. The unique partnership between state and local government has ensured that local land-use decisions are made which strike the balance between resource protection and economic development," said O'Beirne. "The diverse and vibrant coast the citizens of Connecticut enjoy today is a testament to the commitment which Connecticut has made to coastal management."

Accepting the award on behalf of DEP, Governor Rowland said, "From the shorelines of Greenwich to Stonington, Connecticut has made great strides over the past 20 years to safeguard fragile natural resources, preserve and encourage water-dependent activities, restore acres of wetlands, beaches and barrier islands, and provide public access to the shore. Through these landmark efforts the state has achieved a standard of excellence that has resulted in the success of the Coastal Management Program."

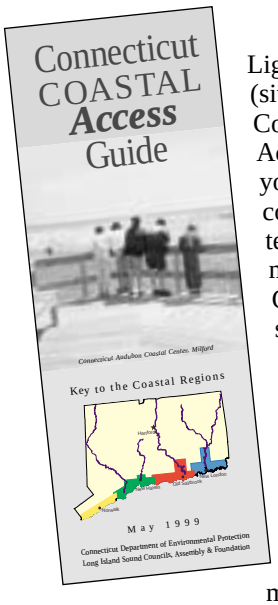
Participants (left to right): DEP Deputy Commissioner Jane K. Stahl, Governor John G. Rowland, DEP Commissioner Arthur J. Rocque, Jr., William O'Beirne, NOAA.

The event, held on December 4, 2000 on the patio of the Eolia mansion at Harkness Memorial State Park in Waterford, was the perfect culmination of a year-long celebration of the 20th anniversary of Connecticut's Coastal Management Program. A variety of other activities, including the celebration of the sale of 100,000 Long Island Sound license plates, have taken place throughout the year to commemorate the anniversary.

The late Dr. William A. Niering was also honored through the re-naming of Goshen Cove, a Natural Area Preserve adjacent to Harkness State Park, as a tribute to the great conservationist who worked tirelessly over the course of his life as an educator and advocate for the protection of Connecticut's salt marsh ecosystems. In the spring, a memorial rock will be permanently placed in the preserve.

The governor also dedicated eight new Natural Area Preserves.

SPOTLIGHTED Coastal Access: Lighthouse Point Park

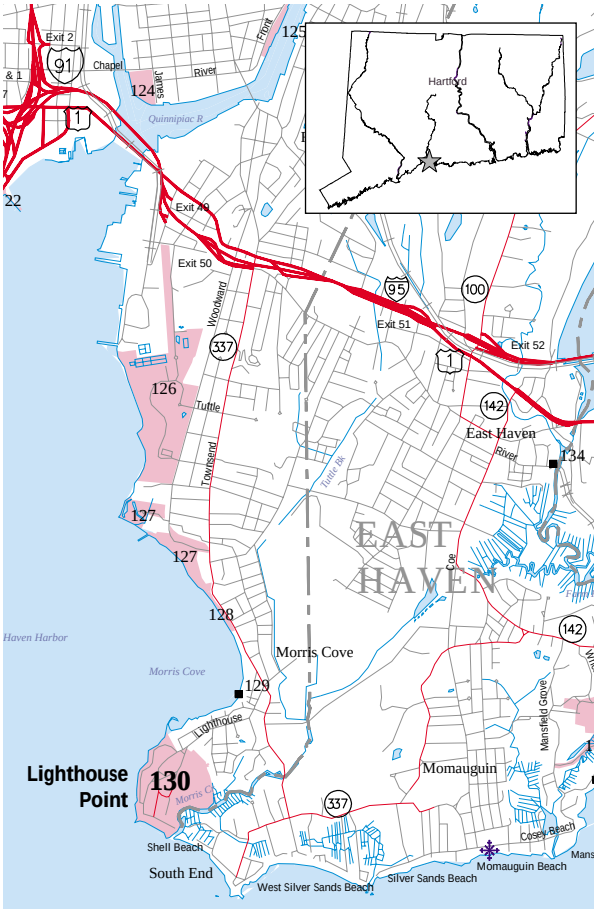


Lighthouse Point Park (site # 130 on the Connecticut Coastal Access Guide) can be your beacon for coastal fun this winter. Acquired and managed by the City of New Haven since 1924, the Park offers something for everyone. History buffs will appreciate the 70-foot tall Five-Mile Point Lighthouse constructed in the 1840's to guide mariners into New Haven Harbor. Look to the south at the breakwater and you can see the Southwest Ledge Light, a scenic operating lighthouse which is now used instead of the Five-Mile Point light. Bring your binoculars because you'll want a good view of large ships entering and departing the harbor from all over the world every day.

Both car-top and trailered boats can access Long Island Sound from the Park. A boat ramp provides stalwart winter boaters with access to New Haven Harbor, but be careful! Strong northwesterly winter winds make the return trip back to shore tricky. The Park offers canoes and kayaks more protected access to coastal waters at a sandy area near the mouth of Morris Creek, located at the east end of the Park's beach past the bathhouses. Time your launch for high tide to paddle the Morris Creek salt marsh.

Landlubbers strolling the beach and lawns should keep their eyes open for early-birds returning from their southern wintering areas. Lighthouse Point is one of the better coastal birding areas in the state to observe spring migrations of birds of prey and waterfowl. Other important coastal resources visible in the park include intertidal flats and rocky shorefront. The flats provide a food source for the coastal shorebirds. You can read more about rocky habitats in this issue's Spotlighted Coastal Resource article.

Stop by the large blue and white pavilion near the lighthouse to peek at the beautifully restored historic carousel. Although it operates in the summer only, it is one of the few carousels on the National Register of Historic Places. Weekdays, children will enjoy exploring the ranger station near the carousel. It includes a saltwater touch tank, aquariums and a recreated ship's deck complete with operating sail, ship's wheel and hammock. The friendly park rangers can also tell you the tale of BW, the beluga whale which visited New Haven Harbor. Make a note to come back and visit the rangers during warm weather when they offer sea-kayak rental and instruction. To get up-to-date listings of upcoming Park program activities call New Haven Parks and Recreation at 203-946-8021. Lighthouse Point Park has it all!



LOOK OUT for upcoming events!!

March 2-3: "State of the Sound: Priorities for the Future" Conference, New York Botanical Garden, Bronx, New York. Contact Robin Kriesberg, Long Island Sound Watershed Alliance, 1-888-SAVELIS for more information.

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.

April 21-22: Mostly Coastal weekend, Mystic Aquarium/Institute for Exploration, Mystic. Contact Jacinta Simoncini, (860) 572-5955 ext.519 for more information or e-mail info@mystic aquarium.org.

April 22: Earth Day

April 30: Wet and Wild on Long Island Sound Educator Workshops, CT Audubon Coastal Center at Milford Point, 8:30 a.m.-5:00 p.m. Grades 5th-8th. Contact Laurie Brant at (203) 734-2513 for more information.

May 5: Canoe New Haven 2001—Mill River, Orange Street launch site, 10:00 a.m. – 2:00 p.m. Contact Peter Davis, New Haven Riverkeeper, (203) 946-6521 for more information.

May 6: Coastal geology walk at Meigs Point, Hammonasset Beach, Madison, 2:00 p.m. (rain date May 20th). Contact Laurie Reynolds Rardin, DEP, Office of LIS Programs, (860) 424-4157 for registration and directions.

May 14-18: National River Clean-Up Week. Various clean-up locations in New Haven area. Contact Peter Davis, New Haven Riverkeeper, (203) 946-6521 for more information.

May 19: Canoe New Haven 2001—West River, West River Memorial Park, 10:00 a.m. – 2:00 p.m. Contact Peter Davis, New Haven Riverkeeper, (203) 946-6521 for more information.

May 25: Long Island Sound Day

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

Putting Your LIS Plate Money to Work:

GRAND OPENING OF SOUNDWATERS ENVIRONMENTAL LEARNING LABORATORY

Students make use of the Community Center for Environmental Education Lab, funded by the LIS FUND.

During the Spring of 1999, the Long Island Sound Fund provided a $24,975.00 grant to SoundWaters, Inc., an environmental education organization in Stamford, to help create a new environmental learning laboratory in the renovated historic Holly-Sanford House located at Cove Island Park. The renovated house is now called the Community Center for Environmental Education, and houses the learning laboratory, an environmental education library, and an environmental business room. Long Island Sound Funds were used to purchase laboratory equipment such as microscopes and collection bottles, and resource materials such as field guides for the laboratory, as well as nets and field equipment for collection of specimens.

In June of 2000, the Long Island Sound Fund provided an additional $25,000.00 in educational funding for creation of 100 year-round environmental education activities about Long Island Sound at the Learning Laboratory and at Cove Island Park. This programming will help to further SoundWaters' efforts to provide family-oriented environmental education to the public. DEP is pleased to be a partner in the worthy efforts of SoundWaters and the many other corporate and individual contributors and environmental organizations that have made this new facility and its opening a success.

The new center celebrated its grand opening on September 23, 2000, with representatives from DEP, SoundWaters, several corporate partners, and City of Stamford officials. For more information about public educational programs which are offered at the new center, contact Tom Day, Co-Director of the Center at (203) 406-3303. For school programs, contact Emily Dupignac at (203) 406-3307.

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**.

Purchase of an LIS License Plate supports the LIS Fund

As of November 30, 2000:

- Plates sold: 106,281
- Funds raised: Over $3.5 million
- Projects funded: 183
- Education & outreach projects funded: 89

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.

White Sands Beach Salt Marsh — A Nonpoint Source Pollution Success Story

White Sands Beach, a 200-300 yard wide barrier beach located in the Town of Old Lyme, separates a five-acre marsh from Long Island Sound. Prior to 1930, the marsh was connected to the Sound's salt water by a natural tidal creek through which salt water entered and freshwater exited the marsh system. In the 1930s, as in many other LIS coastal communities, residences were built on the landward side of the barrier beach isolating the marsh from LIS and effectively blocking most of the flow through the creek. The installation of an underground culvert with a tide gate system reduced tidal flow and effectively drained the marsh during the summer months.

Research has shown that draining salt marshes can cause accelerated soil decomposition that releases dilute sulfuric acid, which can make the marsh soils and water very acidic. The leaching of organic material from the marsh depresses oxygen levels in tidal creeks, making it difficult for fish and other aquatic organisms to survive. In effect, these hydromodifications can convert the marsh from a pollution filter to a nonpoint source of pollution (see **Nonpoint Source Pollution**, p.5).

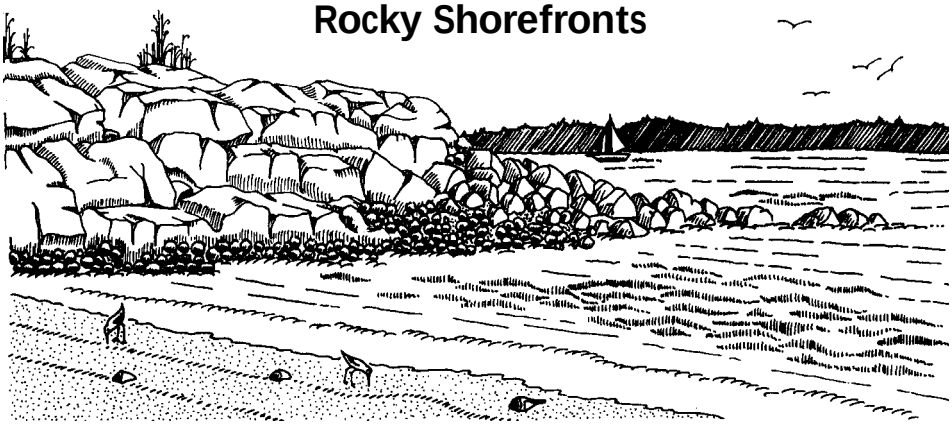
The goal of the marsh restoration project was to restore the natural function and value of the marsh by increasing the flow of salt water into it from Long Island Sound and freshwater flow out of the wetland. DEP, working with area residents, replaced the existing 18-inch diameter, 70-foot long culvert and broken tide gate with a 24-inch diameter, 120-foot long culvert. This action reestablished a freeflowing corridor for the exchange of salt and freshwater between the marsh and LIS. The project was completed in May 1997.

Post-construction monitoring has determined that the project was successful in increasing tidal flow of salt water into the marsh and fresh water out to LIS. Based on experience in similar systems, it can be assumed that the restoration of aquatic natural functions is improving the pollutant-removal capacity of the marsh. Financial assistance for this project was provided through federal and state sources in the amount of $19,000. This includes $9,000 of Clean Water Act Section 319 nonpoint source grant funds (with a DEP match of $4,000) and $6,000 from the Coves and Embayments Program through Connecticut's Clean Water Fund.

The restored salt marsh also serves as a "living" classroom for local residents. Lessons learned from this project will be used to help meet the Long Island Sound Habitat Restoration Strategy goal of restoring 2,000 acres of coastal habitat by the year 2010.

SPOTLIGHTED **Coastal Resource:**

Rocky Shorefronts



While they may not be the most comfortable spots on which to lay your blanket, rocky shorefronts are important coastal resources. As you walk along the beach, the rocky outcropping you discover probably seems like a fun place to climb around, or a nuisance that either stops your walk or causes a long detour. But keep in mind, whatever your perspective may be, these leftovers from the last glacier serve essential ecological functions in our coastal environment.

Rocky shorefronts are naturally occurring boulders, cobbles, or outcrops of bedrock located at the water's edge. Such areas are resistant to erosion, so they are a great natural buffer to wave attack and storms. Rocky shorefronts also provide important habitat for many of the creatures living in Long Island Sound, including blue mussels, starfish, and barnacles, and are an important nursery ground for many life stages of the American lobster.

Birders and wildlife watchers take note: rocky shorefronts are feeding grounds and refuge areas for numerous shorebirds and finfish, which makes them great spots for seeing a variety of birds and other wildlife. And, as anyone who has ever been to Lighthouse Point Park in New Haven or Bluff Point in Groton well knows, these rocky areas are among the most beautiful on the Connecticut coast.

As a result of policies put in place by the Connecticut Coastal Management Act, the important natural functions and characteristics of rocky shorefronts are protected statewide. Development projects must be designed to maintain the natural features of rocky shorefronts that provide habitat, feeding grounds, and refuge areas for shorebirds, finfish and shellfish. The next time you are walking along the beach and find boulders and rocks in your path, take a moment to watch for a black crowned night heron feeding in the cracks and crevices, look at the rocks for mussels and barnacles, and check the tidal pools for small fish. The mysteries that lie beneath and around the rocks that are a part of the beauty of Long Island Sound will continue to astound anyone who takes the time to look.

Nonpoint Source Pollution

Nonpoint source (NPS) pollution is diffuse in nature, both in terms of its origin and in the manner in which it enters surface and ground waters. It results from a variety of human activities that take place over a wide geographic area. Pollutants often find their way into waters in sudden surges, often in large quantities, and are associated with rainfall, thunderstorms, or snowmelt. NPS pollution generally results from land runoff, precipitation, atmospheric dry deposition, drainage, or seepage. Hydromodification (physical disturbance to a water resource caused by filling, draining, ditching, damming, or otherwise altering wetlands and stream courses) is also considered a nonpoint source problem.

Sound Tips

One way you can help LIS and its coastal resources without even getting out of your chair!

➜ Participate in an on-line auction to help restore our Nation's Bays and Estuaries. The auction will be up and running in February 2001.

Ebay.com will be hosting an on-line "charity" auction through which individuals can go on-line and bid on donated auction items. The proceeds from the sale of the tax-deductible donations will go to support the nation's 28 National Estuary Programs (NEPs) and their Association of National Estuary Programs (ANEP). Together, the NEPs and ANEP provide local and national efforts to restore our nation's estuaries, bays and lagoons. If you have Internet access, just go to **www.ebay.com** and select: "Charities".

For more information, or to donate an auction item or service, please contact Dawn Volk, ANEP, at (703) 333-6150, e-mail at drvolk@erols.com. Or, contact the Long Island Sound Study NEP at (203) 977-1541.

QUESTIONS about coastal resources or the municipal coastal site plan review process? Call the Office of Long Island Sound Programs at (860) 424-3034 and request one or more of our twenty-eight new fact sheets and handouts covering various coastal management topics.

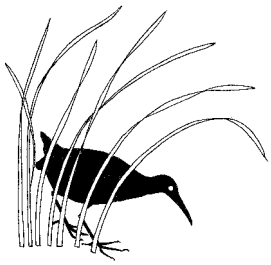
If you did not receive this issue of *Sound Outlook* in the mail and would like to be placed on the mailing list, please fill out below and mail to: Sound Outlook, CT DEP, Office of LIS Programs, 79 Elm Street, Hartford, CT 06106-5127; or e-mail your address to laurie.makowski@po.state.ct.us.

Name: _____

Address: _____

Town: _____ State: _____ Zip: _____

Connecticut Department of
Environmental Protection
79 Elm Street
Hartford, CT 06106-5127



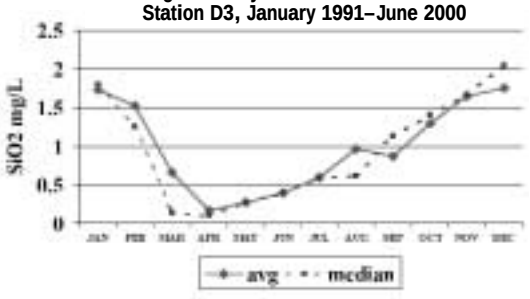
How's the Water? Clear as Glass?

What do glass, sand and salt water have in common? Silica! This mineral is the primary component of glass and sand, and the oceans of the world, including LIS, contain dissolved silica along with the more familiar salts. Certain types of phytoplankton found in salt water depend on the dissolved silica they absorb to build cell walls. These unique types of phytoplankton are known as "diatoms".

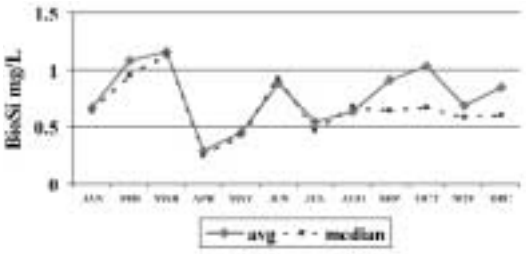
During February and early March, LIS traditionally experiences an increase in the population of diatoms within the phytoplankton population. When this happens, the organisms absorb large amounts of dissolved silica from LIS waters. This phenomenon is documented by lab results showing lowered levels of dissolved silica in water samples taken beginning in February and lasting as late as April. Another lab test helps explain why the dissolved silica decreases in LIS waters in late winter by measuring levels of "biogenic" silica bound up in organic material from the cell walls of diatoms. The data show an increase in biogenic silica at nearly the same time as the decrease in dissolved silica.

DEP measures the amount of silica in water samples collected throughout the Sound as part of its LIS Water Quality Monitoring Program. The availability of silica often controls the seasonality of diatoms. Blooms of diatoms may occur when dissolved silica is available, but, as the nutrient is depleted, the diatoms decline and are replaced by other algae. Siliceous diatoms are good indicators of water quality. Diatom abundance has been shown to decline in polluted waters.

Average Monthly Surface Dissolved Silica – Station D3, January 1991–June 2000



Average Monthly Surface Particulate (Biogenic) Silica – Station D3, January 1991-June 2000



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

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