



Fall 1995

## In This Issue

Letter From The Executive  
Director

Cover Page

What is Habitat Restoration

Page 2

Habitat Restoration for LIS

Page 3

Marsh Restoration At  
Saybrook Point

Page 4

Cooperative Partnerships

Page 3

Volunteers Participate in  
Eelgrass Study

Page 5

Changes In Our Land

Page 6

LISS's GIS

Page 6

Research Cruise on LIS

Page 7

Calendar

Page 8

## A Message From Executive Director

**Carolyn Hughes**

With the approval of the Comprehensive Conservation and Management Plan (CCMP) last fall, the Long Island Sound Study (LISS) has shifted focus from planning to implementation. This shift in focus is leading to changes in the organization and management of the Long Island Sound Study to involve the broader spectrum of people who will be involved in implementing the CCMP. The Citizen's Advisory Committee is being revitalized and expanded, the Technical Advisory Committee is being reconstituted, and consideration is being given to expanding membership on other Long Island Sound Study Committees to help guide implementation activities.

Staff activities are also changing. Staff from EPA and the states of New York and Connecticut are now focusing on the details of a nitrogen reduction strategy to address the problem of low dissolved oxygen in the Sound. Low dissolved oxygen, or hypoxia is the most significant problem identified in the CCMP.

In addition to nitrogen reduction, staff will be developing a system to track and monitor CCMP implementation actions. The tracking system will involve the development of specific time frames or implementation actions, a means to track the status of those actions, and will include the development of appropriate environmental indicators to assess the effectiveness of clean-up strategies. Other areas of focus over the next year include.

- developing a bi-state strategy for expanding public access and open space on the Sound,
- establishing a partnership with the Natural Resource Conservation Service for a watershed initiative designed to address land use and water quality issues affecting the Sound,
- completing a bi-state habitat restoration strategy, and initiating site specific restoration projects, and
- conducting an aggressive effort to involve the public in implementing the CCMP.

With all this change in the air, we thought that *UPDATE* should continue to evolve as well. Beginning with this issue, the quarterly editions of *UPDATE* will each focus on a specific topic or theme related to CCMP implementation. This issue focuses on Habitat Restoration. Future issues will address nitrogen reduction, monitoring, toxics, and plants and animals of LIS.

We'd also like to hear from you if there is a specific topic you'd be interested in reading more about, or if you would like to submit an article for publication.

## LOOK FOR

LISS materials and information on the World Wide Web. Over the coming months we will be working to expand the range of information available. To access LISS information:

<http://www.epa.gov/eparegions/region1.html>

## UPDATE

THE LONG ISLAND SOUND STUDY UPDATE IS PUBLISHED QUARTERLY BY THE PUBLIC OUTREACH PROGRAM OF THE LONG ISLAND SOUND STUDY TO INFORM THE PUBLIC ABOUT ISSUES PERTAINING TO THE STUDY.

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### For More Information:

<http://www.epa.gov/eparegions/region1.html>

# What is Habitat Restoration?

by Lisa Brown

Habitat restoration is currently a hot area of environmental interest, but what does it mean? The Habitat Restoration Team of the Long Island Sound Study defines habitat restoration as "the intentional alteration of a site in an attempt to re-establish an indigenous, historic population of plants and animals." This new population must be self-sustaining with minimal management.

In order for the restoration to be self-sustaining, site selection is critical. While establishing a cranberry bog in your backyard may sound like a neat idea, without the proper landscape elements, it would be time consuming and work-intensive to keep it there year after year. Most habitats require a particular combination of geological and environmental conditions to survive. Attempts to plant and establish wildlife habitat in an unsuitable location will inevitably fail.

How do habitats become degraded? When humans occupy a space, they tend to alter it in such a way as to make it unsuitable for most fish and wildlife species to remain there. Families require a home, schools, grocery stores, churches, post offices to meet their basic needs. This translates into a huge territory required for humans to roam that is very different from the natural habitat that once existed there.

Natural habitats can become fragmented. A particular wild animal may need several acres in which to forage for its food. If a subdivision is built right in the middle of the animal's range, the continuous area for it to forage in is reduced. In effect, the same number of animals in a geographic area become "boxed in" by surrounding development and end up competing for dwindling food and space. Once the disturbance to the habitat reaches a critical point, the populations of fish and wildlife species may become reduced, and some species may disappear from an area altogether.

Species can be affected by the loss of complementary habitats. For example, some salamanders require standing fresh water to reproduce in, as well as an adjacent forested upland area in which to forage for food. While State and Federal regulations protect wetland areas such as ponds, the forest surrounding it may be cleared for development. The salamanders would disappear from that area because an essential part of their habitat was lost.

## Key Restoration Terms

**Habitat Restoration:** To intentionally alter a site to approximate biological, chemical, and physical conditions existing prior to disturbance of an ecosystem or natural community.

**Habitat Creation:** To bring into existence an ecosystem or community on a site which did not historically support that community. This involves destruction of the existing habitat.

**Habitat Enhancement:** The intentional alteration of a habitat to improve one or more, but not all functions of the existing habitat type.

**Degraded habitat:** Reduced in quality or value. Characterized by degeneration of structure or function.

**Destroyed Habitat:** Altered from an original state to the point of being unrecognizable or having few original characteristics. Shift in state from one community type to another.

Other things cause degradation of habitat as well. Pollution is a common problem in waterways and wetlands, be it chemical effluent from an industry or sewage treatment plant, the dumping of tires and garbage, or runoff from roads and parking lots. The key to restoring habitats degraded in this manner is to find and correct the source of pollution.

Sometimes habitats are so fragile that just walking through them causes degradation. An example of this is sand dunes. Dune habitats are very harsh environments, the vegetation is adapted to salt spray and the low nutrients in the sand. However, the vegetation has not adapted to people walking or driving on it. Even pedestrian traffic on a dune system will

cause the vegetation to disappear in the paths. This leads to erosion of the dune and loss of cover for the animals inhabiting it.

Why restore habitats? It is in our own best interest to restore degraded habitats. Healthy habitats will support thriving populations of harvestable fish, shellfish and game species, protect endangered and threatened species and provide scenic views and vistas.

There are things you can do to help restore habitats, or keep them from becoming degraded in the first place. By participating in organized beach cleanups, you can restore piping plover nesting habitats. By not driving on nesting beaches during the breeding season, you can help prevent degradation. By disposing of waste properly, you can help prevent bioaccumulation of toxic materials by the wildlife in and around the Sound.

Another way to aid in habitat restoration efforts from the comfort of your own back yard is to landscape with native vegetation. By planting native trees and shrubs, wildflowers, and encouraging wetlands on your property, you can lessen the impact that building your house caused. You will also attract many varieties of interesting birds and other animals. By offering natural food sources, you will lessen the attraction of your garbage can. By providing native cover species, you will discourage the use of your attic as a nest.

*Lisa Brown is the Restoration Planning Coordinator for New York State Department of Environmental Conservation.*

## Habitat Restoration For Long Island Sound

by Sue Mickolyzck

The Comprehensive Conservation and Management Plan (CCMP) for Long Island Sound recommended that New York and Connecticut jointly develop a Habitat Restoration Strategy for the Sound. Scientists from both states began meeting in February 1994 to develop the strategy, with the goal of identifying

degraded aquatic and terrestrial habitats and prioritizing potential restoration sites. The plan is being developed by a team comprised of representatives from the U.S. Environmental Protection Agency (USEPA), U.S. Fish and Wildlife Service, New York State Department of Environmental Conservation (NYSDEC), New York State Department of State (NYSDOS) and Connecticut Department of Environmental Protection (CTDEP).

The CCMP called for the states of New York and Connecticut to "develop a restoration plan for coastal terrestrial and estuarine aquatic habitats adjacent to and in Long Island Sound."

### Selected Habitat Types

#### Terrestrial:

Coastal Barriers  
Coastal Beach  
Coastal Sand Dune  
Coastal & Island Forests  
Riparian Zones  
Coastal Grasslands  
Sea Cliffs and Bluffs

#### Wetlands and Open Waters:

Tidal wetlands  
Intertidal Flats  
Rocky Intertidal  
Submerged Aquatic Vegetation  
Macroscopic Algae Communities  
Oyster Reefs  
Mussel Reefs  
Coastal Embayments  
Coastal Ponds  
Freshwater Wetlands  
Rivers  
Sand Shoal

In addition to the staff time and resources made available by the five participating agencies, the EPA has committed \$250,000 for the effort. Funds are being used to support the staffing of a restoration planning coordinator in each state. The positions were filled by Lisa Brown with the NYSDEC Division of Marine Resources in November, 1994 and by Sue Mickolyzck with the CTDEP Office of Long Island Sound Programs a month later.

During the first year of the restoration project, the Habitat

Restoration Team will:

- select general habitat types to be targeted
- define criteria for defining habitats as degraded
- assess the status and trends of general habitats
- develop recommendations for general restoration goals and techniques
- identify specific sites with potential for restoration
- define site ranking criteria

During the second year of the project, the Team will:

- rank sites according to established criteria
- develop site-specific restoration goals and techniques
- identify costs and potential funding sources for each site
- finalize Geographic Information System products
- produce a final report

The Team plans to involve the public in the habitat restoration project during site identification and in the review of the draft plan and proposed priorities. The habitat restoration team is in the process of developing a survey that will be sent to local officials and non-profit organizations requesting input on potential restoration sites. Once a draft plan has been completed, the team plans to hold a series of public meetings to solicit input on the draft plan.

*Sue Mickolyzck is the Restoration Planning Coordinator for the Connecticut Department of Environmental Protection, Office of Long Island Sound Programs.*

## Cooperative Partnerships - Working To Protect and Restore Habitats

Partnerships are a key to the successes of the U.S. Fish and Wildlife Service in protecting and enhancing habitats for wildlife. The Service works in cooperation with other Federal and State agencies, private organizations and landowners to protect declining habitats

*continued on page 5*

# Marsh Restoration At Saybrook Point

by Judy Preston

At the Fort Saybrook Monument Park in Old Saybrook, visitors come to read historical markers and learn about the extensive human history of the area. Until recently, a peripheral wooden boardwalk led through towering stands of the invasive reed grass, *Phragmites*, and seemed an after thought to the rest of the park.

*Phragmites* is usually found along the upper border of saltmarshes, especially where there has been a disturbance. This aggressive plant is often indicative of salt marsh demise because it can replace spartina grasses, wild rice and has little or no food or habitat value for wildlife.



Today, thanks to a full scale marsh restoration project, this park is a terrific spot to observe the hopeful rebirth of a diverse salt marsh, and the ecological history of the park is now as interesting as its human occupation.

In the spring of 1994, the CT DEP Wetlands Restoration Unit undertook the revitalization of the Saybrook marsh, in cooperation with US Fish & Wildlife Service, CT DEP Office of Long Island Sound Programs, the Town of Old Saybrook, the Fort Saybrook Monument Park Association, and The Nature Conservancy.

Historically, this area was open tidal brackish salt marsh, but through time the advent of a constricting railroad dike and the gradual accumulation of large logs at the inlet have reduced the free exchange of brackish water into the marsh. Gradually, with restricted tidal exchange and the accumulation of sediment raising the marsh elevation, conditions became ripe for the invasion of *Phragmites*. While this invasive species grows readily along the shore, it is adverse to high concentrations of salt. It often invades areas that have, through the unwitting act of humans, been elevated or restricted from tidal flow just enough to permit its successful spread.

Over the years this small marsh became a nearly solid stand of *Phragmites*. The elevated "view" from the park boardwalk was merely a dense stand of the waving ten foot high flowering stalks (the word *Phragmites* is derived from the Greek word for fence). From an ecological viewpoint, the predominance of any one species over the diversity of potential multiple species that occur in a healthy brackish salt marsh is undesirable. A diversity of plant species hosts equally diverse wildlife populations -- from insects to great blue herons.

The CT DEP Wetlands Restoration Unit is a team of individuals that are capable of transforming a *phragmites* marsh into a whole new system of shallow ponds and open marsh. Their craft, called open water marsh management, relies on the opening of tidal inlets and construction of shallow ponds to revitalize salt marshes. Heavy construction machinery -- the traditional foreboding enemy of wetlands -- has been specialized to restore rather than destroy wetlands. Machinery with names such as "John Deere 350 C Dozer/Backhoe" have been modified with wide tracks that result in as little as 2 pounds of pressure per square foot over the marsh surface, creating less of an impact than a typical human foot print on the marsh surface! This specialized machinery, some of which has also been made amphibious, permits the restoration unit to access and modify the degraded marsh.

At the Saybrook marsh, existing channels have been cleared of debris and a series of shallow ponds created. The ponds are indirectly connected to the tidal inlets by shallow depressions, or swales. Monthly high tides bring small fish overland via these shallow swales into the pond. The fish will keep potential mosquito populations in check as well as attract wading birds and other wildlife. The ponds are isolated from the tidal inlet in order to prevent daily tidal draining. Overtime these ponds will become increasingly saline through the process of evaporation. The increasing

salinity discourages the *phragmites*, and allows other marsh vegetation to return.

Initially the changes at Saybrook Point look dramatic. It has gone, seemingly overnight, from dense, impenetrable *phragmites* to an open marsh with ponds. However, *Phragmites*' first reaction to radical disturbance is to come back like gangbusters in response to the availability of nutrients formerly "locked up" in the muck soils of the marsh. At some point, herbicides may be employed to add an extra punch to the control of *Phragmites*. The primary controls, however, will be the new, lower elevations of the marsh and increased salinity levels. Over time, native marsh vegetation -- particularly the *spartina* grasses -- can be expected to return, many of which have lain dormant in the marsh for many years.

*Spartina* is abundant in salt marshes, provide food and habitat for many animals. The roots intertwine with ribbed mussels, trapping sediments and creating the bulk of the marshland.

As more diverse vegetation makes a comeback, wildlife will likely respond as well. Fish have already begun to attract wading birds to the site.

This is a good news project. It's an opportunity to "give back", to employ technology in a new and exciting way. At the Saybrook Point restoration site, we're trying to find answers to a very complex ecological puzzle. No one knows for sure if this restoration will be successful. It is unlikely that *phragmites* will be entirely eliminated. But given a foothold, the chances are good that a greater diversity of marsh plants will succeed in creating a new, more diverse and healthy marsh at Saybrook Point. The Nature Conservancy has monitored every move of the restoration project, documenting each step on film and is eager to become more involved in future restoration projects.

For more information contact The Connecticut Chapter of The Nature Conservancy, 55 High Street, Middletown, CT 06457-3788

*Partnerships continued from page 3* through habitat improvement projects, land acquisition, research and education. Particular emphasis has been placed on the conservation of wetlands and their associated habitats.

Approximately half of the Nation's wetlands, some 100 million acres, that existed in colonial times have been destroyed. On the Atlantic Coast alone nearly 500,000 acres have been lost since the 1950's. Despite Federal, State and local laws and regulations, wetland alteration continues at a rate of 300,000 to 450,000 acres per year. Development and population growth continues to diminish the quality and productivity of many wetlands upon which we rely for food, flood protection, water purification and recreation. Hundreds of species of wetland-dependent plants and animals, including one-third of those species listed as endangered or threatened, are also affected by these wetland losses.

To reverse this trend in wetlands losses, many cooperative initiatives have been established, the most notable being the North American Waterfowl Management Plan (NAWMP). Signed by the U.S. and Canada in 1986, the plan establishes goals for conserving wetland habitats and restoring waterfowl populations. It identifies several regions of the U.S., Canada and Mexico that are critical to waterfowl as breeding, migration and wintering areas, the Atlantic Coast being one. Joint ventures, partnerships between Federal and State agencies, conservation organizations and landowners, have been established to achieve these goals.

The Atlantic Coast Joint Venture gives special consideration to black ducks, which have been steadily declining since the 1970's. Through this program, important habitats are being purchased, leased or protected by conservation easements, and landowners are offered economic incentives for practices that benefit waterfowl, such as reflooding fields once used for agriculture or planting cover for nesting birds. It is hoped that these efforts will provide for

the protection of more than 6 million acres of wetlands and 62 million breeding waterfowl by the year 2000.

Recognizing that over two-thirds of the land in the United States is under private ownership, the Service also initiated the Partners For Wildlife Program in 1987. This program is designed to protect and enhance fish and wildlife habitat on private lands by providing financial and technical assistance to landowners interested in restoring degraded or lost wetlands on their property. Special consideration is given to those projects that would restore habitats of benefit to threatened and endangered species, anadromous fish, neotropical migratory birds and other declining species. To date, the Partners For Wildlife program has restored over 300,000 acres of wetlands, 25,000 acres of grassland, and over 300 miles of riparian habitat by working cooperatively with over 12,000 willing landowners.

The Service and Connecticut Department of Environmental Protection (DEP) have worked cooperatively to protect and restore wetlands for the benefit of migratory birds and other wetland-associated wildlife since 1991. Connecticut's habitat restoration program has focused primarily on restoring degraded tidal salt marshes along the coast. Restoration activities may consist of removing old dredge spoil material to reestablish the original marsh elevation; replacing damaged or undersized culvert pipes and selectively cleaning out existing ditches to reestablish tidal flow; or selectively herbiciding areas to control less desirable, invasive plants such as Phragmites.

Sometimes low ground pressure equipment specially designed to work in wetland habitats is used to construct a system of interconnected ponds and shallow water channels on the marsh surface. This technique is known as "open water marsh management", increases marsh habitat diversity and provides refuge for fish and feeding sites for shorebirds, wading birds and

waterfowl.

To date, cooperative partnerships with private landowners, and other organizations such as The Connecticut Chapter of the Nature Conservancy, Ducks Unlimited, the National Fish and Wildlife Foundation, Connecticut Waterfowl Association and Iroquois Gas Transmission Systems, have resulted in the restoration of over 350 acres of wetlands in Connecticut. Federal funds have been provided through both the NAWMP and Partners For Wildlife Programs. The Service is looking to expand its habitat restoration program in Connecticut to include freshwater wetland and riparian restoration.

For more information, contact the Stewart B. McKinney National Wildlife Refuge, P.O. Box 1030, Westbrook, CT 06498.

## **Volunteers Participate In Eelgrass Study**

by Sue Mickolyszck

The Connecticut Department of Environmental Protection (CTDEP) has solicited volunteer support from groups located along the shoreline to assist in the collection of data from an on-going eelgrass study. Study participants are collecting water clarity data from nine locations along the Connecticut coast in order to help establish the minimum habitat requirements for eelgrass and to determine possible sites for habitat restoration work.

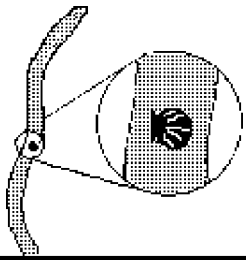
Environmental impacts have caused a decline in eelgrass over the last few decades. Although the specific cause of the decline has not been pinpointed, water quality problems may be responsible. Studies conducted in Chesapeake Bay have proven that decreased water quality is a main cause for eelgrass decline. Man-introduced nutrients, such as nitrogen, contribute to excessive growth of microscopic plants called phytoplankton which grow in the water column. The phytoplankton effectively shades sunlight from the bottom sediments and prevents

*continued on page 6*

*continued from page 5*

the growth of bottom plants such as eelgrass. While eelgrass distribution has recovered in eastern Long Island Sound, it remains absent in the central and western Sound where the water quality is poorer.

Eelgrass *Zostera marina* is a submerged flowering plant that grows in estuarine and marine waters along the east coast of North America from Nova Scotia to North Carolina. In Long Island Sound, eelgrass may be rooted in muddy or sandy sediments down to depths of approximately 15 feet. Beds of this seagrass provide valuable habitat to numerous marine organisms as both a nursery area and as a source of substrate for attachment. For example, juvenile bay scallops *Argopecten irradians* depend heavily on eelgrass as a surface for attachment and as shelter from predators.



eelgrass blades with juvenile scallop attached

The CTDEP Office of Long Island Sound Programs has provided study participants with equipment to determine the clarity of the water. The volunteer researchers use a black and white, circular secchi disk to record the depth at which visibility disappears. The methodology they are using is a standard one that was developed following a Chesapeake Bay protocol. As the study progresses, a photoelectric light meter will be used at each of the sites to obtain light absorption for the development of conversion factors to be used with the secchi depth measurements. The data are being collected during the eelgrass growing season from spring to fall.

The monitoring and mapping of eelgrass in the Sound began several years ago with researchers from the University of Connecticut under a grant from the CT DEP Long Island Sound Research Fund.

The water clarity data being collected this season by volunteer researchers will augment the data collected during the UConn studies and will be used to identify areas of limited light availability and areas of potential eelgrass restoration. Eelgrass has been identified as a priority resource under the LISS Habitat Restoration Project (see related articles).

The groups involved in the volunteer water clarity monitoring include Save the Sound (formerly Long Island Sound Taskforce); Nature Center for Environmental Activities; National Marine Fisheries Service, Schooner, Inc.; Cedar Island Marina; CTDEP Marine Fisheries; Northeast Utilities; and Project Oceanology.

*Sue Mickolyzk is the Restoration Planning Coordinator for the Connecticut Department of Environmental Protection, Office of Long Island Sound Programs.*

## **Changes In Our Land Environmental History Exhibition**

Have you ever wondered what the Long Island Sound Region looked like without people? Before there were roads, houses, railroads or boats; before there was any one to pollute the waters with sewage, runoff or acid rain; when there were no paintings, books or photographs to record this changing and beautiful landscape?

The Bruce Museum's environmental history exhibition "Changes in Our Land" invites the visitor to journey from this early period to the present.

A gallery on the formation of Long Island Sound reconstructs the geological events leading to the land forms seen today. A History Wall gives an overview of three main periods in the development of the region. The first looks at the abundance of resources - birds, fish, shellfish and marshes - before the arrival of European settlers. The second looks at the agricultural period when most of the land bordering the Sound and the rivers running into it became farmland. The third looks at the industrial period

and how the advent of the railroad and the development of highways changed lifestyles. In each section the impact on wildlife is discussed.

The biggest attraction of the exhibition is a marine room with its large free-form touch tank. Here visitors can see specimens from the Sound using the rock formations as their natural habitat. Another main attraction is a room-size diorama of woodlands bordering the Sound as they would have appeared five hundred years ago. This diorama includes a Native American dwelling and wildlife, like the mountain lion, which are no longer seen in our local woods.

The issues facing Long Island Sound today and the work of the Long Island Sound Study are addressed on a "jeopardy" wall. This exhibit is composed of rotating panels. On one face of the panel is a question such as "What is hypoxia? On another is the answer. The wall is designed so that when all the questions have been answered a pristine outline of Long Island Sound is obtained. By turning the panels once more a map of the region showing cities, villages, roads, railways and bridges is formed. This activity clearly shows the impact of increasing population on the region.

The Bruce Museum is located on Museum Drive, Greenwich, CT 06830, one and one half blocks south of I-95 exit 3 and one block from the Greenwich railroad station. Open Tuesdays - Saturdays 10 am - 5 pm, Sundays 2 - 5 pm. For further information call (203)869-0376.

## **Long Island Sound Study's Geographic Information System**

by Mark Tedesco

A Geographic Information System (GIS) is a powerful tool to analyze and map spatial data. The Long Island Sound Study, with technical assistance and guidance by the Living Marine Resource workgroup, began development of a GIS in 1994 to permit mapping of habitats and resources of Long Island Sound and its coastal area. The firm of Applied Geographics, Inc. was selected to develop the Long Island Sound GIS.

The first priority was to establish a base map of Long Island Sound that integrated data from various sources into a cohesive database. The scale of 1:24,000 was selected

how the information can be used and portrayed.

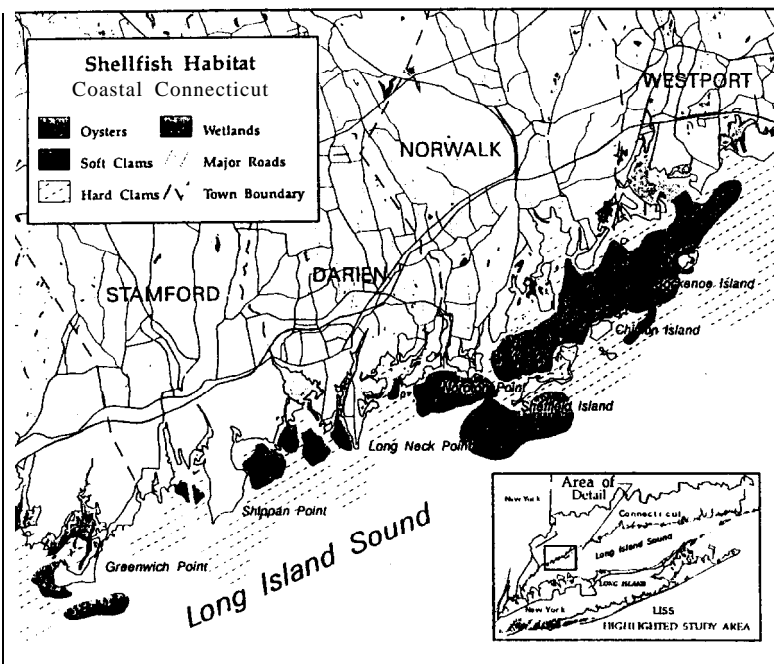
To ensure that users can understand the quality of the data portrayed in the

## Research Cruise on LIS

by Rick Rendigs

Long Island Sound GIS, a data documentation system based on the standards set by the Federal Geographic Data Committee was created. This system fully describes the available data, how it was collected and for what purpose, and

One of the tasks of the Branch of Atlantic Marine Geology (BAMG) is that of investigating issues in environmental quality and preservation in the marine environment. To this end, a basic understanding of geologic processes such as sediment and pollutant accumulation and transport becomes a fundamental part in defining various sedimentary environments in the coastal region. These studies typically include seafloor mapping of erosion and deposition patterns using **sidescan** sonar (similar to an aerial photograph of the seafloor) and other appropriate measurements of the physical and sediment parameters, that are important in controlling erosional, depositional, and transport processes. Results generally take the form of sedimentary environment maps and digital images of the seafloor. These data products are useful for a variety of issues dealing with contaminant transport and seafloor utilization.



as appropriate for Soundwide mapping and for the production of work maps since many projects are currently done on U.S. Geological Survey's 1:24,000 topographic quadrangles. The geographic extent of the base map was determined by the Long Island Sound Study area. Landward, this includes the areas in New York that drain to Long Island Sound and the coastal area in Connecticut up to the salt wedge of the rivers. The boundary of the map to the west is The Battery at the southern tip of Manhattan, while the eastern extent is The Race. Within this boundary the base map includes roads, political boundaries, hydrography such as streams, lakes, and wetlands, and the names of land and water features. To complete the base map, the bathymetry or bottom water depths of the Sound were added.

The next step was to add available data into the Long Island Sound GIS for analysis and portrayal on the base map. These thematic layers include data on shellfish habitats and harvest rates, beaches, sediment types, land use and commercial activities, and habitats significant for living resources and of scenic beauty. The map of shellfishing areas off of Stamford, CT is an example of

creates standards for ongoing documentation to guide the collection and addition of new data into the GIS.

With the basic Long Island Sound GIS well underway, it is beginning to be used to support habitat restoration initiatives. The LISS Habitat Restoration Team (see related article) is identifying how the GIS can assist in finding and displaying degraded habitats and help prioritize restoration activities. To assure that the Long Island Sound GIS can serve regional needs into the future, the LISS is investigating the feasibility of transferring the data to the GIS maintained by the Connecticut Department of Environmental Protection's Long Island Sound Resource Center. The Resource Center is well qualified to provide the necessary technical support to interface GIS data with users to develop specific applications and to update and integrate data on an ongoing basis. If the transition is successful the prospects are promising for using GIS to better understand and manage Long Island Sound.

Mark Tedesco is the Technical Director for the *Long Island Sound Office*.

A research cruise was recently completed in Long Island Sound aboard the Environmental Protection Agency Ocean Survey Vessel *Peter Anderson* by scientists from BAMG. This cruise is the beginning of a long term effort by BAMG, in conjunction with the State of Connecticut Geological and Natural History Survey and the Environmental Protection Agency, to determine a regional perspective of sedimentary environments in LIS for the purpose of addressing the following environmentally related issues: (1) the regional distribution of geologic and oceanographic conditions across the Sound; and (2) the locations where **fine-grained** sediments and related contaminants are likely to be either removed or deposited.

The objective of the was to collect a regional set of digital high-resolution **sidescan** sonographs that can be used to make a reconnaissance map of the bottom sedimentary environments for LIS. The information obtained during this

*continued on page 8*

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survey are considered basic to a wide range of environmental issues and will be beneficial to other state and federal agencies that will be involved with regulating the environmental quality of LIS.

Future projects in LIS by BAMG may include sidescan digital mosaicing of selected environmentally or geologically sensitive areas, strategic sampling of sediments for geochemical and textural analyses, and assessment and modeling of the wave and current regimes within the Sound. *Rick Rendigs is a Marine Geologist for the US Geological Surveys Branch of Atlantic Marine Geology.*

## CALENDAR OF EVENTS

### September

- 6 LISS Public Outreach Workgroup in Stony Brook 3-5pm, contact Kimberly Zimmer (516)632-9216.
- 9 SoundWaters Public Sail, 1-4pm, Yacht Haven Marina, (203)323-1978 for reservations.
- 12 LISS Habitat Restoration Team Meeting, contact Lisa Brown (516)444-0469.
- 14 LISS Citizen's Advisory Committee Meeting in East Setauket, contact Carolyn Hughes (203)977-1541.
- 16 SoundWaters Public Sail, 1-4pm, Indian Harbor Yacht Club, (203)323-1978 for reservations
- 26 LISS Policy Committee Meeting Contact Carolyn Hughes (203)977-1541.

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### **Project Ocean Planet Awareness: A Core K-12 Education Initiative**

Project Ocean Planet Awareness is an education initiative developed by the Consortium for Oceanographic Research and Education to maximize the educational usefulness of the Smithsonian Institution's *Ocean Planet* Exhibition. The purpose of the project is to provide teachers with an appropriate level of understanding of basic oceanographic principles and issues. For further information, please call Terry Schaff of Consortium for Oceanographic Research and Education at (202) 232-3900, ext.210.

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### **EPA Education Grants**

EPA New England announced they have funded 26 recipients of the 1995 Environmental Education grants. A LISS partner, SoundWaters of Stamford, CT received \$4,988 for a Science of the Sound Learning Station Project that educates students and adults within the Long Island Sound watershed about factors that affect the health of the Sound.

### October

- 7 SoundWaters Public Sail, 1-4pm, Yacht Haven Marina, (203)323-1978 for reservations.

If your organization has events you'd like to advertise in *UPDATE*, please fax the information to Kimberly Zimmer at (516)632-8216.

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Long Island Sound Study  
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