Sound *UPDATE*

Newsletter of the Long Island Sound Study Winter 2010

Long Island Sound Study's Role in Habitat Restoration

By Heather Young

Judy Preston

Riparian, or vegetated, buffers protect water resources and provide valuable wildlife habitat.

A habitat is the natural environment in which an organism or biological population lives or grows. The Sound's coastal habitats—including tidal wetlands, eelgrass beds, and forests—support diverse species of plants and wildlife, ranging from microscopic plants that drift with the currents to economically important finfish to rare birds that nest along the shore.

Habitats are important for many reasons. Wetlands, for example, provide much more than a scenic vista. The shallow vegetated meadows characteristic of tidal wetlands absorb and slow the flood waters of storms and high tides. The plants of the low marsh provide food and shelter to juvenile finfish, crabs and shellfish. Some of the marine life found in wetlands is enjoyed on our dinner plates, while others serve as food for popular recreational fish. The plants of the high marsh provide food and shelter for many species of coastal birds and mammals. When looking at other habitats, such as forests, many of us recognize the common wildlife species, including squirrels, raccoon, owls and deer. Most of us don't realize, however, that each of these animals has different requirements for food and shelter, utilizing different parts of the forest and each needing a different sized parcel to maximize survival.

Over the years the abundance and diversity of the Sound's coastal habitats have been diminished. Much of the habitat degradation around the Sound is due to development activities over the past two hundred years, such as ditching and filling of wetlands, damming of rivers, fragmenting coastal forests and grassland habitats, and decreased water quality that adversely impacts shellfish and eelgrass beds. In order to reverse the damage caused in the past by these activities, habitats need to be restored.

In 1994, the Long Island Sound Study (LISS) identified habitat loss and degradation as the most serious threats to the living marine resources around the Sound. In making habitat restoration a priority, LISS created the Habitat Restoration Initiative (HRI) in 1996. A Work Group, co-led by NYS Department of Environmental Conservation and CT Department of Environmental Protection, directs the effort. As defined by the HRI, habitat restoration is the intentional alteration of a site in an attempt to re-establish the approximate conditions that existed prior to disturbance. In a watershed that has experienced human development for over 350 years, this can be a challenging prospect.

Over the years, the HRI Work Group has discovered that the most successful way to complete habitat restoration projects is through partnerships. This Work Group has active participation of state natural resources agencies, federal, local, and non-profit partners, all working together on projects of interest. To date, the partners of this Work Group have restored 152 river miles and 804 acres of habitat around the Sound. To learn more about these projects, visit the HRI Web page at www.longislandsoundstudy.net/habitatrestoration/index.htm and search the interactive *Habitat Restoration Database*.

Young is the New York Long Island Sound Study Habitat Restoration Coordinator for the New York State Department of Environmental Conservation.

Habitats Around the Sound

ATTENTION:
Up to $3 million is expected to be released for grants through Long Island Sound Futures Fund! Apply today!
See page 2.

Sound Update provides readers with news about the Sound and the Long Island Sound Study.

Keeping Long Island Sound Habitats Healthy!

Long Island Sound is a unique and highly productive ecosystem that supports an array of living resources. The Sound's coastal habitats—including tidal wetlands, eelgrass beds, and forests—are home to diverse species of plants and wildlife. This issue focuses on important habitats around the Sound, how habitats are being restored, and ways you can help!

Grasslands of Long Island Sound

By Juliana Barrett

Along Long Island Sound, coastal grasslands, heathlands (or areas where dwarf-shrubs are dominant), and shrublands are ecologically significant ecosystems with limited occurrence. They are called "Edge of the Ice" communities, referring to their occurrence on areas which were formed from the terminal moraine (or the rock, sand and gravel carried and deposited by a glacier at its leading edge) of the Wisconsin glaciation period. The grasslands are typically found on sandy, glacially-derived, nutrient poor soils. They are maintained by periodic disturbances – both natural and anthropogenic.

Contrary to the assumption that coastal grasslands, heathlands, and shrublands are all natural in origin, researchers have demonstrated that most of these areas resulted from European settlers' agricultural practices, particularly livestock grazing. That is not to say that there were no grasslands prior to the 17th century—there is evidence to support that there were. However, these grasslands were relatively small in size and on highly exposed coastal sites and/or near Native American settlements. Post-European settlement agricultural practices greatly expanded the extent of these coastal grasslands. Now, however, development, succession, and loss of cultural processes such as grazing, plowing, and burning have led to the loss of these grasslands throughout Long Island and New England.

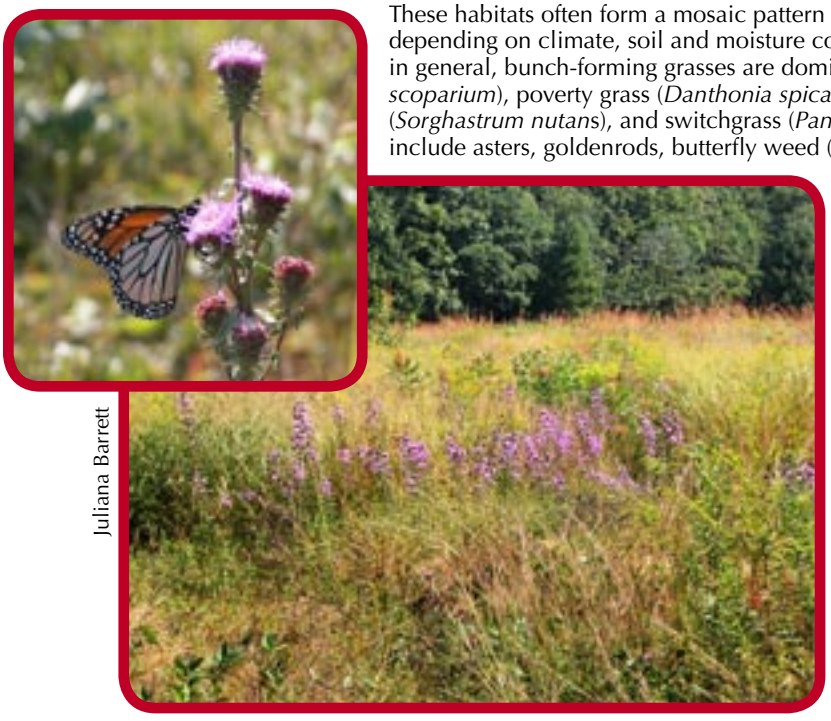
The largest occurrences of coastal grasslands in the Long Island Sound watershed are found on Long Island, but smaller ones are also found in Connecticut. These grasslands are influenced by a maritime climate, which refers to an area adjacent to the coast with moderate temperatures, a relatively longer frost-free season (than further inland), ocean winds, and salt spray. The grasslands we find along the Long Island Sound coastlines include several different types: maritime grasslands influenced by wind and salt spray, abandoned agricultural fields often beyond the influence of wind and salt spray, and sandplain grasslands.

What is the Long Island Sound Futures Fund?

The Long Island Sound Futures Fund (LISFF) is a grant program that supports projects that restore and protect the health and living resources of Long Island Sound (LIS). Past projects have focused on habitat restoration, water quality monitoring, developing watershed plans, and increasing public education, just to name a few topics. Major funding support for this program is provided by Environmental Protection Agency, National Fish and Wildlife Foundation, the Shell Marine Habitat Program and U.S. Fish and Wildlife Service. To date, over $4.7 million worth of funding has been provided, resulting in over 150 projects to improve the health of LIS!

Look at the bottom of each newsletter page for descriptions of past LISFF habitat restoration projects!

This year, up to $3 million is expected to be available through the LISFF. If you are interested in applying for a grant, please visit our Web site at: www.longislandsoundstudy.net/futuresfund



Juliana Barrett

Coastal grasslands are home to a mix of grasses and herbaceous species and contain rare plants such as this purple flower, the New England blazing star.

These habitats often form a mosaic pattern in the landscape. The vegetation of the grasslands varies depending on climate, soil and moisture conditions, as well as land-use history. For coastal grasslands in general, bunch-forming grasses are dominant with species such as little bluestem (*Schizachyrium scoparium*), poverty grass (*Danthonia spicata*), common hairgrass (*Deschampsia flexuosa*), Indian grass (*Sorghastrum nutans*), and switchgrass (*Panicum virgatum*). Herbaceous species that may be found include asters, goldenrods, butterfly weed (*Asclepias tuberosa*), and false indigo (*Baptisia tinctoria*).

The mosaic of coastal grasslands, heathlands and shrublands within Connecticut and New York provide habitat for numerous rare species of plants and wildlife and are high conservation priorities from the national down to the local levels. For example, these areas provide habitat for numerous federal and state listed rare plant species such as sandplain gerardia (*Agalinis acuta*), New England blazing star (*Liatris scariosa* var. novae-angliae) bushy rockrose (*Helianthemum dumosum*), and declining grasslands bird species such as the grasshopper sparrow (*Ammodramus savannarum*) and upland sandpiper (*Bartramia longicauda*).

Many of our coastal grasslands have been lost through development of these highly desirable sites or due to lack of disturbance and subsequent succession by woody and/or invasive plant species. Restoration and management challenges are being met in some areas through active management including mowing regimes, burning, and even returning to agricultural practices, such as grazing, to sustain these grasslands.

Barrett is a Coastal Habitat Specialist for the Connecticut Sea Grant College Program.

Long Island Sound Futures Fund at work: Restoring wetlands

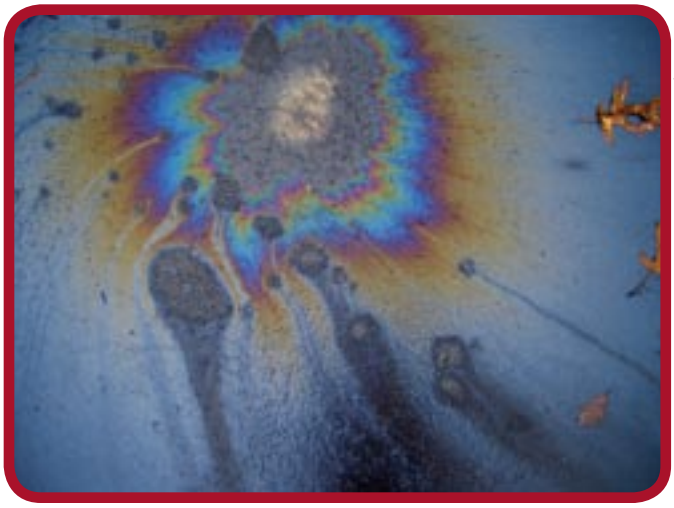
In 2009, Ducks Unlimited, Inc. was awarded $49,620 to restore tidal flow to approximately 100-acres of brackish wetlands in Little River marsh, located between New Haven and North Haven, Connecticut. Once completed, this group will have remove obstructions to restore portions of the original channel and allow a natural tidal flow in the meandering tidal creek. Invasives, such as *Phragmites*, will also be removed to allow re-establishment of the native marsh habitat.

Vegetated Buffers Wrestle Pollutants to the Ground!

By Judy Preston

The Environmental Protection Agency (EPA) has estimated that polluted runoff is now the single largest cause of the deterioration of our nation's water quality. The end point for nonpoint source pollution in Connecticut and many areas in New York is Long Island Sound, where the result is degraded water quality and impairments to living marine resources.

Nonpoint source pollution, in simple terms, is polluted stormwater runoff that washes over the land, picking up pollutants along the way, and eventually flows into our waterways. The pollutants can be toxins (such as heavy metals, pesticides, and organic compounds like PCBs), pathogens (disease-causing microorganisms, such as bacteria and viruses), nutrients (such as compounds that stimulate plant growth, like nitrogen and phosphorus found in lawn fertilizers), and trash that ultimately end up in and can be detected in water bodies such as a stream, river, or the Sound.



Judy Preston

One pint of motor oil can create a slick the size of an acre! While vegetated buffers can help mitigate this problem, the best solution is to dispose of oil at a recycilng center and fix leaks promptly.

In our towns, the most common sources of nonpoint source pollution are the polluted waters that run off our streets, buildings, parking lots, and other hardened surfaces and ultimately drain to our waterways. These sources of water carry many pollutants including oil from our cars, fertilizers from our lawns, toxins from our roofs, and salt from our roads. Sediment that is washed into our waterways can carry pollutants, as well as smother habitat and aquatic life. Concentrated and chronic doses of pollutants that end up in our waters threaten the unique and valuable natural resources of Long Island Sound.

Although the best solution to the problem of nonpoint source pollution is to eliminate the source, another tool to protect our valuable waterways resides in an often overlooked and underappreciated resource: the riparian, or vegetated, buffer. A riparian buffer is, quite simply, the vegetation that borders wetlands and watercourses. This area creates a processing strip that slows polluted water down, encouraging it to infiltrate the ground, where it can be modified by plants and soil organisms.

Judy Preston

Vegetated buffers, even modest ones, help filter excess nutrients, such as lawn fertilizers, before they enter nearby waters. Buffers can be managed to provide views, enhance property values, and provide wildlife habitat.

Riparian buffers are the most economical way to address water quality, and they supply multiple services. In addition to helping to protect water resources, vegetation also helps purify the air, provides valuable wildlife habitat, moderates air temperatures through transpiration and shade, and provides a source of nutrients that is important to many aquatic insects, and the fish that eat these insects. Riparian buffers along waterways enhance and help protect scenic beauty, creating a screen to development and providing privacy.

Even modest riparian buffers can make a difference for water quality, depending on the type of soil, the slope, and existing vegetation that borders water resources. A variety of native plants (that are well suited to coastal weather conditions) are the best candidates for creating buffers and an array of heights—from grasses, shrubs to trees—creates the most diverse habitat for wildlife.

For more information about riparian buffers, consult your local county extension agent, Sea Grant Office, or the Long Island Sound Study website (http://www.longislandsoundstudy.net), which includes links to the "Riparian Toolbox".

Preston is the Connecticut Long Island Sound Study Outreach Coordinator for Connecticut Sea Grant.

Long Island Sound Futures Fund at work: Restoring riparian buffers

In 2007, the New York City Department of Parks and Recreation was awarded $150,000 to restore 23.5 acres in Alley Creek Pond Park in Queens, NY. Alley Creek is one of the largest, unfragmented watersheds in urban New York City with a rich mosaic of streams, ponds, creeks, forest, and marshes. With the help of almost 300 volunteers, invasive and non-native plants were removed and, over the course of 2008 and 2009, 6,075 trees and 1,240 shrubs were planted.

Forests of the Connecticut Coastal Ecoregions

By Ron Rozsa, Patrick Comins, and David Kozak

Geology and climate determine the dominant types and distribution of plant communities within the Sound's coastal area. In Connecticut, an elevation gradient, ranging from mean sea level (msl) along the coast to 2,380 feet above msl further inland, creates a series of climatic zones, including 11 recognized ecoregions, each dominated chiefly by forests. Along Connecticut's coast, an eastern and western coastal ecoregion extends five to seven miles inland, with elevations ranging from sea level to 500 feet above msl. The Sound's moderating effect on temperature within these ecoregions creates the longest frost-free zones in the state.

Audubon Connecticut

Coastal forests are very abundant in the Guilford Sluice property, an area that was protected through the USFWS National Coastal Wetland Conservation Grant.

Does New York have coastal forests?

In New York, six "maritime" forests are recognized by New York's Natural Heritage Program. These forests are heavily influenced by such coastal processes as heavy salt spray, high winds, dune formation, and overwash. They generally contain stunted "salt-pruned" trees with contorted branches and wilted leaves and usually have a dense vine layer. Maritime forests have formed at various locations along Long Island's north shore. For example, the bluffs at Baiting Hollow host a maritime beech forest; east of Goldsmith's Inlet, leeward of the primary dune, is a maritime post oak forest; and remnants of maritime red cedar forests can be found at various locations, including Long Beach in Smithtown and Flax Pond in Old Field.

New York's Natural Heritage Program also recognizes five different types of "coastal" forests. These are further from shore and are only lightly influenced by the coastal processes listed above. Coastal forests generally contain trees of normal height and form and have, at most, a sparse vine layer underneath. Coastal forests are found at various places along Long Island, including in Oyster Bay Cove in Nassau County and in Caleb Smith State Park, Stony Brook, and Old Field in Suffolk County.

To learn about these ecological communities, visit: http://www.dec.ny.gov/docs/wildlife_pdf/terrestrial_subterranean.pdf

The forests in these areas are dominated by oaks including red oak (*Quercus rubra*), white oak (*Quercus alba*), black oak (*Quercus velutina*), hickories (*Carya* spp.), tulip poplar (*Liriodendron tulipifera*), black cherry (*Prunus serotina*) and sassafras (*Sassafras albidum*). Several species of vines, including greenbrier (Smilax spp.), poison ivy (Toxicodendron radicans), Virginia creeper (*Parthenocissus quinquefolia*), and the non-native Asiatic bittersweet (*Celastrus orbiculatus*) and Japanese honeysuckle (*Lonicera japonica*), form dense tangles in coastal forests. Along barrier beaches, low dunes provide little protection from salt spray. This spray is toxic to the terminal buds of woody plants creating a 'seaside pruning effect' of stunted trees.

Coastal forests provide a crucial habitat for wildlife, in particular birds. One important function of coastal forests is the 'stopover' habitat they provide to migratory birds traveling the Atlantic Flyway. These birds need shelter after long night flights and will often rest and forage in coastal forests. In Connecticut, key migration stopover areas include Bluff Point State Coastal Reserve in Groton, Stewart B. McKinney National Wildlife Refuge Salt Meadow Unit in Westbrook, East Rock Park in New Haven, and Cove Island Park in Stamford.

Ongoing studies at the Connecticut-based Bird Conservation Research, Inc. have demonstrated that coastal forests are the principal winter reservoir for permanent resident birds, including the black-capped chickadee (*Poecile atricapillus*), white-breasted nuthatch (*Sitta carolinensis*), blue jay (*Cyanocitta cristata*), American robin (*Turdus migratorius*), northern cardinal (*Cardinalis cardinalis*) and American goldfinch (*Spinus tristis*). Moreover, these forests support the greatest richness and density of wintering birds. Milder coastal climates appear to make coastal forest superior winter habitats because higher temperatures reduce metabolic energy expenditure by birds.

Coastal forests are not a generally well-recognized or understood resource, which has caused difficulties in conservation planning and management for this habitat type. Some common threats affecting our coastal forests include understory over-browsing by deer, invasive species infestation, forest fragmentation (or the division of large areas of forest into smaller areas bounded by roads and other structures), and climate change, which is predicted to change the species composition of coastal forests.

Although managers still face challenges related to the definition and management of coastal forests, they are working to overcome these obstacles, a first step in protecting and restoring this important habitat.

Rozsa is a Plant Ecologist, retired from CT Department of Environmental Protection's Coastal Management Program, Comins is the Director of bird conservation for Audubon Connecticut, and Kozak works for the CT Department of Environmental Protection.

David Kozak

Coastal forests provide a crucial habitat for wildlife, in particular birds.

Restoration of a Barrier Beach in Connecticut

By Wendy Green

Wendy Green

This abandoned cottage is one of 37 that will be removed from the Long Beach property.

Long Beach, in Stratford, CT, is part of the longest stretch of barrier beach in Connecticut and contains sand dunes, tidal wetlands, and sand flats. Long Beach and the adjacent Pleasure Beach shelter a 700 acre estuarine system that provides one of the most critical areas for birds in Connecticut. Together, they represent 20 percent of the undeveloped barrier beach habitat in Connecticut and were recognized as one of 17 inaugural Long Island Sound Stewardship areas in Connecticut under the Long Island Sound Stewardship Initiative. Additionally, these beaches have been recognized by the National Audubon Society as an Important Bird Area.

Like most coastal habitats in Southern New England, Long Beach has suffered from the impacts of houses developed on this sensitive area. The houses on the site at the western end of Stratford-owned Long Beach had been leased by the town to local residents until 1997. The bridge connecting the beach to the City of Bridgeport burned down in 1996 and consequentially emergency and other critical services could not be provided to the area. The town elected not to renew those leases, although some tenants continued to occupy the cottages during a long legal battle, which formally ended in the spring of 2007. The cottages have been vacant since then and many, if not all, have been extensively vandalized. Thirty-seven cottages, 25 outbuildings, four docks, retaining walls, debris, and trash currently remain at the site and pose a safety hazard.

The Southern New England–New York Bight Coastal Program, a division of the United States Fish and Wildlife Service, received $909,000 under the American Recovery and Reinvestment Act to remove abandoned cottages and associated structures and to restore barrier beach habitats on 35 acres of Long Beach West. There are also many partners that are providing technical assistance and financial contributions toward this project. Other grants received include $50,000 from CT Department of Environmental Protection's Long Island Sound Fund, $53,000 from the Dissolved Oxygen Environmental Benefit Fund for the Western Long Island Sound and Jamaica Bay, and $100,000 from the EPA Long Island Sound Study's Long Island Sound Futures Fund through The Trust for Public Land. Other notable partners on the project include the Town of Stratford, Audubon Connecticut, Stewart B. McKinney National Wildlife Refuge and Land Tech Consultants, Inc.

On the Web...

For more information please visit: http://recovery.doi.gov/press/bureaus/us-fish-and-wildlife-service/barrier-beach-restoration-on-long-beach-west

Long Beach is part of the longest stretch of barrier beach in Connecticut, containing sand dunes, tidal wetlands, and sand flats. Above, the Long Beach site is outlined in green and the National Wildlife Refuge is outlined in blue.

Removal of the cottages and restoration of the habitat will benefit both people and wildlife. In addition to removing these unattractive nuisance and safety hazards, the public will have an opportunity to enjoy the natural beauty of this sensitive land just minutes from Interstate-95 and downtown Stratford. This project will also create habitat for state-listed plants at the site, and increase nesting, rearing, and feeding habitat for migratory birds, including federal- and state-listed endangered and threatened species. This site is one of the most important remaining beach-nesting areas for the federally threatened piping plover and state threatened least tern in Connecticut. Cottage removal is planned to commence in February 2010.

Green is a wildlife biologist with the U.S. Fish and Wildlife Service.

Long Island Sound Futures Fund at work: Opening river miles

In 2007, $43,500 was awarded to Connecticut River Watershed Council to design a fishway that would reopen 16.5 miles of the Mattabesset River to fish passage. This river is a valuable natural resource that spreads across fifteen Connecticut towns and drains into the Connecticut River. This riverine habitat is important for many diadromous fishes (those that live in both fresh and salt water), such as river herring (*Alosa* spp.), sea lamprey (*Petromyzon marinus*), American eel (*Anguilla rostrata*), and striped bass (*Morone saxatilis*).

New York and Connecticut Communities Garden for Wildlife

By Jane Grant

Residents of Rye, New York and Colchester, Connecticut are working to provide wildlife habitat in their communities through the National Wildlife Federation's (NWF) Community Wildlife Habitat program, which encourages communities to create habitat in private gardens, schoolyards, business and office lots, and public areas. Gardeners, landscape designers, conservationists homeowners, and educators in the two towns have come together and their interests and skills are saving wildlife for the future.

The pressures of development and the consequent loss of habitat in New York and Connecticut—and all over the country—put enormous stresses on wildlife populations. We can no longer solely rely on the habitat preserved in parks and nature reserves; we need more. Imagine the benefits that turning one-fifth of our developed area into forest, native plantings or meadows could have on local wildlife and the water quality of the Sound. The mission of the Community Wildlife Habitat program is to achieve this challenging vision.

Chris Cohan

This certified habitat is one of many in Rye which is the first town in New York to participate in the National Wildlife Federation's Garden for Wildlife program.

Instead of establishing individual wildlife preserves of significant size—now a practical impossibility—the NWF aims to assemble corridors for wildlife from small distributed packets in every suburban garden, office lot, and municipal property. Like many things in the 21st century, habitat creation can be crowd sourced among home and business owners, gardeners, landscape designers and town boards. All members of our communities can create corners—easily and unobtrusively—and thereby support wildlife and reduce run-off and pollution.

The NWF certifies a property as a wildlife habitat if it provides five basic elements: food, water, cover, places to raise young, and sustainable gardening. Entire communities can be certified, by achieving a proportionate number of habitats according to population. From villages like Cottage Home, Indiana to counties such as Sonoma, California to cities like Austin, Texas, citizens all over the nation are working to preserve native flora and fauna and the ecosystems that sustain them.

On the Web...

For more information on how to start an NWF Community Wildlife Habitat, visit: http://www.nwf.org or contact Jane Grant at rye-habitat@nyc.rr.com

Backyard habitats are also part of the Community Wildlife Habitat program, allowing community members to be involved.

In Rye, a landscape architect, a native plant gardener, and staff from local wildlife sanctuaries formed a team in March 2009, with the support of the city council. At Marshlands Conservancy they set up a resource center to map the growing number of certified habitats—about fifty, including homes, schools, businesses, places of worship, and a golf club. The town of Colchester, Connecticut began their project in September 2008 and are close to achieving final certification. Their team includes master gardeners, garden clubs, and local land trust members, all supported by their town board. All Colchester schools are certified habitats, as are nine other community properties, and many homes, farms, businesses and places of worship.

Rye and Colchester are the first in what could become an extensive web of communities, together creating a huge wildlife preserve in our own backyards, and improving the quality of life and the health of the environment along Long Island Sound.

Grant is the Habitat Project Leader for the City of Rye, NY.

Long Island Sound Futures Fund at work: Removing dams

In 2009, $94,883 was given to the Town of Smithtown for habitat restoration at Harrison Pond in Kings Park, NY. Harrison Pond was a man-made pond constructed over 200 years ago and fed by groundwater springs. The pond existed until September 2004 when significant rainfall from a major storm caused the dam to collapse. This project will remove the broken dam, which will restore 0.35 acres of freshwater wetland and facilitate stream flow to a tributary of the Nissequogue River. This will be the first known dam removal on Long Island.

STAC Spotlight: Meet the Fellows

Each year, the Long Island Sound Study (LISS) awards a fellowship to two graduate students. The purpose of the fellowships is to provide experience on Long Island Sound issues and programs to students interested in environmental management or policy careers. The main responsibility of these fellows is to assist LISS's Science and Technical Advisory Committee (STAC), a group that provides objective scientific and technical guidance for the restoration and protection of Long Island Sound. Read below to learn about our fellows for this academic year.

Sign up for Sound BYTES!

Sound BYTES is an electronic newsletter that highlights upcoming events and current projects. Sign up for Sound BYTES under the heading "E-newsletter" on our Web site at: www.longislandsoundstudy.net

Amina B. Traore Schartup, PhD student in Chemical Oceanography
Marine Sciences Department, University of Connecticut, CT

Q. What triggered your interest in environmental issues?

A. My childhood, which was spent principally in Azerbaijan and Mali, initiated my interest in environmental issues. Like many former Soviet republics, Azerbaijan is facing enormous environmental challenges. Widespread oil pollution and the dumping of raw sewage into the Baku Bay gives its beaches a peculiar odor. Like many African countries, poor water quality in Mali has resulted in various waterborne disease epidemics, including cholera outbreaks, due to the lack of sewage systems and water treatment facilities as well as limited access to potable water. Although saddening, the experience of growing up in polluted countries sparked my interest in ecosystem management from a young age.

Q. What is the focus of your research?

A. The main focus of my doctoral research is how organic matter, which can be produced in Long Island Sound (LIS) or released by water treatment facilities into LIS, affects the conversion of inorganic forms of mercury (least toxic) into organic forms (most toxic) that accumulate and magnify in the food chain. I hope that my work will shed some light on potential remediation options that will be required to provide healthy coastal environments for fish and people.

Jim Rice, PhD student in Earth and Environmental Sciences
City University of New York, Gradate Center and Queens College, NY

Q. What triggered your interest in environmental issues?

A. My interest stems from a passion for biology and geography. Growing up in a military family and through my own military career, I have lived throughout Africa and Europe. From field-mapping glaciers in Iceland to interviewing villagers in Djibouti, my military experience afforded me opportunities to experience different environments and cultures. When I left the military in 2008, I knew I wanted a PhD studying biogeography. This interest led to my current research at Queens College, studying marine ecology with Professor Gillian Stewart.

Q. What is the focus of your research?

A. Updating the record of mesozooplankton abundance and diversity within Long Island Sound and spatially expanding it. Since July of 2009, I've sampled monthly from locations along the north and south shore of LIS and once in the center of the Western Basin. Since the record I'm updating is from the 1950s, I should have an interesting comparison given climate change and urbanization in the Long Island Sound region.

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"What Can I Do?"

Simple ways you can you can protect Long Island Sound habitats.

1 Create a habitat in YOUR backyard. Whether you have an apartment balcony or a 20 acre farm, you can create a garden that attracts beautiful wildlife and helps restore habitat in commercial and residential areas. By providing food, water, cover and a place for wildlife to raise their young—and by incorporating sustainable gardening practices—you help wildlife. Visit the National Wildlife Federation's Web site at **www.nwf.org/gardenforwildlife** for more ideas.

2 Get your school involved. The National Wildlife Federation also has a program for schools, through which students come together to plan, design, implement, and monitor their schoolyard habitat. For more details, visit the National Wildlife Federation's Web site at **www.nwf.org/At-School.aspx** and click on "Schoolyard Habitats".

3 Protect habitats from your office desk. You may not realize it but what you do at the office can have an impact on habitats. To help reduce waste and marine debris be sure to dispose of trash properly, reduce paper consumption, use reusable containers and cups, and purchase recycled and/or reusable office materials.

Larissa Graham

Habitats, such as the tidal wetlands shown above, not only provide benefits to wildlife, but also to us! Learn how you can protect the habitats of Long Island Sound by reading above.

On the Web...

Learn more about habitats and habitat restoration at www.longislandsoundstudy.net/habitatrestoration

4 Leave a buffer. Riparian (or vegetated) buffers not only improve water quality and increase bank stabilization, but they also provide habitat for wildlife. Riparian buffers are easy to create and maintain are are particularly important for those living close to the Sound or streams. For more information, visit: **www.crjc.org/riparianbuffers.htm**

5 Let night be dark. Light pollution has been shown to disorient migratory birds, disrupt mating and reproductive behavior in fireflies and frogs, and interfere with communication in species. Keep your backyard habitat dark by turning off unnecessary lights around your house and yard or using timers and sensors to help put light only where and when it is needed.

6 Don't plant non-native species. Non-native and invasive plant species will quickly outcompete native plant species, creating an unnatural habitat for wildlife. Research native plants at the USDA PLANTS database at **www.plants.usda.gov** and request that your local nursery carry native plants. For native plants in Connecticut and New York, visit: **www.ct-botanical-society.org/garden/index.html**

7 Make your voice heard. Let your state's elected officials know that you support efforts to protect and restore Long Island Sound. Support federal, state, and local government coastal management and clean water efforts which result in coastal habitat protection.

8 Get involved. Why not volunteer to help researchers collect data that will protect habitats in and around Long Island Sound? Visit our "Get Involved" web page at **www.longislandsoundstudy.net/volunteer.htm** for a list of organizations that need volunteers—just like you!

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