LONG ISLAND SOUND STUDY HABITAT RESTORATION INITIATIVE

ANNUAL SUMMARY FOR THE YEAR 2007

Prepared by:
Connecticut Department of Environmental Protection
Office of Long Island Sound Programs
79 Elm Street
Hartford, CT 06106
860-424-3034
http://www.ct.gov/dep
and
New York State Department of Environmental Conservation
205 N. Belle Meade Road
East Setauket, NY 11733
631-444-0441
http://www.dec.ny.gov

ANNUAL SUMMARY FOR THE YEAR 2007
TABLE OF CONTENTS

LIST OF FIGURES

Cover photo: Harbor Island Park, Mamaroneck, NY.

LONG ISLAND SOUND STUDY HABITAT RESTORATION INITIATIVE --
Annual Summary for the Year 2007

BACKGROUND

This report summarizes the accomplishments of the Long Island Sound Study's (LISS) Habitat Restoration Initiative (HRI) for year 2007, the tenth year of implementation. The HRI is a bi-state, multi-organizational effort to restore estuarine coastal habitats in Connecticut and New York. The HRI members meet three times a year to discuss progress, share new technologies, and identify emerging issues. In 1997, the LISS HRI established the following goals:

- Restore the ecological functions of degraded and lost habitats;
- Restore at least 2000 acres of coastal habitats and 100 miles of riverine migratory corridor habitat over the next 10 years; and
- Use partnerships to accomplish the restoration objectives and to leverage limited state, local, and federal funds.

Potential restoration sites were identified through interviews with individuals knowledgeable with the states' ecosystems, and through a public nomination process. This information was compiled into a Habitat Restoration Geographic Information System, and published in a brochure called "Restoring Long Island Sound's Habitats". Implementation of HRI goals began in 1998. Twelve priority coastal habitat types have been identified by the HRI members as particularly important to sustaining the living resources of the Long Island Sound ecosystem. These habitat types are Tidal Wetlands, Freshwater Wetlands, Riverine Migratory Corridors, Submerged Aquatic Vegetation, Coastal Grasslands, Intertidal Flats, Estuarine Embayments, Coastal and Island Forests, Shellfish Reefs, Cliffs and Bluffs, Rocky Intertidal Zones, and Coastal Barriers, Beaches, and Dunes.

In 2000, eleven state, federal, municipal and non-governmental organizations signed a Memorandum of Understanding (MOU) that codified their commitment to work cooperatively on the LISS HRI goals. To view the MOU, please visit the LISS website http://www.longislandsoundstudy.net/archive/misc/mou.pdf. For more information on the habitat restoration initiative, go to: http://www.longislandsoundstudy.net/habitatteam.htm.

The Policy Committee, comprised of the Commissioners of NYS DEC and CT DEP, and Regional Administrators of EPA region 1 and 2, met once again in 2006 to sign a new MOU and establish updated goals for the Habitat Restoration Initiative. Many of the same partners who signed the 2000 MOU renewed their commitment this year to promote coastal habitat restoration, and a few new organizations also joined the partnership. Under the terms of the 2006 MOU, the partners resolve to:

- Work together to restore or protect an additional 300 acres of coastal habitat and open up an additional 50 miles of riverine migratory corridor to diadromous fish from January 1, 2006 to December 31, 2011, as stated in EPA's Strategic Plan, and ultimately restore 2,000 acres by 2020;
- Use partnerships to accomplish restoration objectives and leverage limited local, state, and federal funds.

The 2006 MOU can be viewed online at:
http://www.longislandsoundstudy.net/committees/Habitat_MOU06.pdf.
The Long Island Sound Study plays a major role in habitat restoration by providing annual funding to the New York Department of Environmental Conservation's Bureau of Marine Resources and to the Connecticut Department of Environmental Protection's Office of Long Island Sound Programs (OLISP).

2007 PROGRESS REPORT

Although the ultimate goal of habitat restoration is the implementation of projects, it can take several years of planning, design, obtaining permits and applying for grant funds before a project is ready for construction. For this reason, restoration acreages can vary considerably from year to year, and acreage alone is not a true measure of progress in the field of habitat restoration. Progress is reported by major habitat types with emphasis placed on completed projects. An introduction to each section is provided to summarize the overall work effort.

In calendar year 2007, progress was made toward the restoration goals. Eight coastal habitat restoration projects were completed, totaling just over 7 acres in 2007 Four riverine migratory corridor projects were completed, which now provide access to an additional 36.43 miles of migratory passageways for fish. By the end of 2007, 143.13 miles of riverine migratory corridor had been opened to fish passage. Additional progress was made in other areas such as securing funding, initiating engineering design, and conducting preliminary tidal studies on other on-going projects.

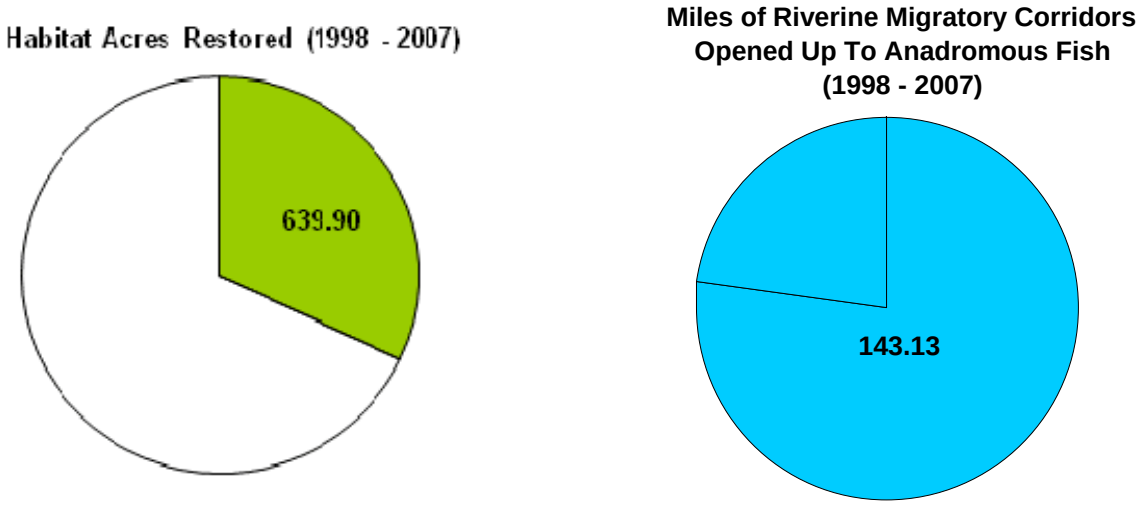


FIGURE 1. Acres and miles of coastal habitat restored relative to HRI goals. We have reached 32% and 143.13% of the goals of 2000 acres of coastal habitats and 100 river miles, respectively.

Other miscellaneous highlights include:

- The third round of awards from the Long Island Sound Futures Fund were made in 2007. They included funding for tidal wetland restoration, forest restoration and migratory fish passage projects.

The following sections summarize restoration projects completed in 2007 by the states of Connecticut and New York. The habitat types included are tidal wetlands, riverine migratory corridors, estuarine embayments, coastal forest, coastal barriers, beaches and dunes, and submerged aquatic vegetation.

TIDAL WETLAND RESTORATION

Seven tidal wetland restoration projects were completed in 2007 for a total of 4.5 acres restored. These will be further discussed in the following section.

Completed tidal wetland project acreage for 1998–2007 are presented in Figure 2.

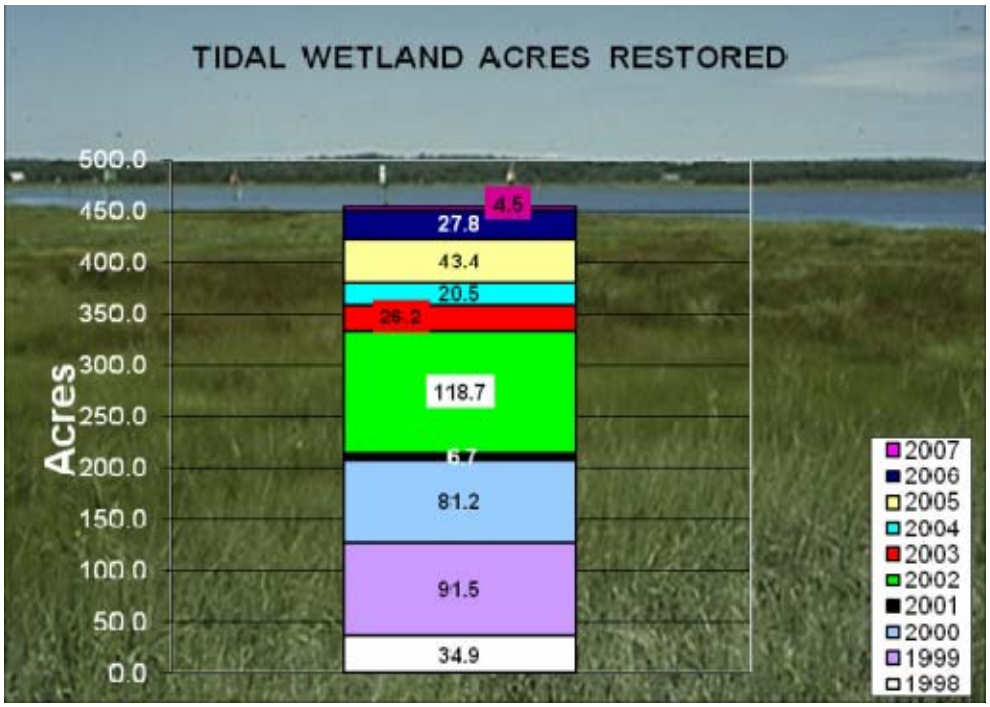


FIGURE 2. Acres of tidal wetlands restored between1998 and 2007 (455.4 acres).

Many other projects were in various stages of development. Connecticut's 2007 habitat restoration workplan contained 14 tidal wetland projects, including *Phragmites australis* control efforts (see discussion on the following page). Some of the highlights include:

- **Lower Connecticut River Marshes:** Five years of post-construction monitoring of the restoration at the Lower Connecticut River marshes (Great Island, Upper Island, and Lieutenant River near the confluence with the Connecticut River) was completed in 2006, and a report was submitted by Connecticut College researchers to CT DEP in October 2007; funding was provided by the Long Island Sound License Plate Fund as administered by the CTDEP and by EPA Long Island Sound Study.
- **Old Field Creek:** Funds from a canceled project (at Sybil Creek, Branford) were made available for Old Field Creek restoration to make up for increases in costs. Construction is expected to begin in late summer / fall 2008, after seasonal restrictions pass.
- **Fivemile River:** Monitoring continued at Five Mile River marsh; the coir logs are filling in with sediment, but very slowly.

Marsh Dieback: Several of the Long Island Sound Study's habitat restoration initiative partners participated in the third annual New England regional Sudden Wetland Dieback Workshop in Wellfleet, MA, May 23, 2007.

Phragmites australis Control and Evaluation of Restoration Techniques

No new information was available for 2007 please see the 2005 report for previous information, updates to this section will be put into future annual reports.

Surface Elevation Tables Installation and Monitoring in Long Island Sound

No new information was available for 2007, please see the 2005 report for previous information. Updates to this section will be put into future annual reports

HAMMONASSET BEACH STATE PARK TIDAL MARSH RESTORATION, Phase 4

State: Connecticut
Town: Madison
Habitat Type: Tidal Wetland
Acres Restored: 1.14

Cause of Degradation: In the 1960s, the State of Connecticut removed sand from the beach side at Hammonasset State Park to make the beach safer for visitors. The beach was wide and very shallow at the time, requiring bathers to wade out a very long way from shore to find water deep enough for swimming. The beach's own natural topography made it hazardous for children and weak swimmers who waded out far from shore upon the return of the flood tide. The hydraulically dredged material was pumped into the nearby tidal wetland for the purposes of creating additional parking lots. Only a portion of the filled area was actually converted to parking - the rest, approximately 11 acres, was left unmanaged.

Project Description: In 1999 and 2000, 5 acres of fill were removed and tidal flow was restored to what is once again a (restoring) tidal wetland. In May of 2005, the Department of Environmental Protection removed an additional 4.1 acres of sandy fill abutting the existing tidal wetlands restored in 1999 - 2000. In May of 2007, DEP removed an additional 1.14 acres of sand from the area immediately adjacent to, and southwest of the phase 3 restoration site. The sandy fill from all phases of this project was used to renourish the Hammonasset State Park beaches which had been slowly eroding and was in need of sand before Memorial Day weekend, the official beginning of the State Park season. Planting was not necessary after fill was removed - plant colonization of this area will occur naturally with tidal action dispersing seed, as well as through vegetative reproduction (horizontal spread of rhizomes).

Implementation Partners: Connecticut Department of Environmental Protection - Parks Division (lead), Wildlife Division (construction), and Office of Long Island Sound Programs.

Funding Provided By: Connecticut Department of Environmental Protection - Parks Division.

Right: Hammonasset tidal marsh restoration site as viewed from above; the newest phase of this project is in the foreground.

Below: Four black ducks and a great blue heron utilizing the newly restored marsh (phase 3) while construction of phase 4 is taking place in the background.

205 MAGEE AVENUE TIDAL MARSH RESTORATION

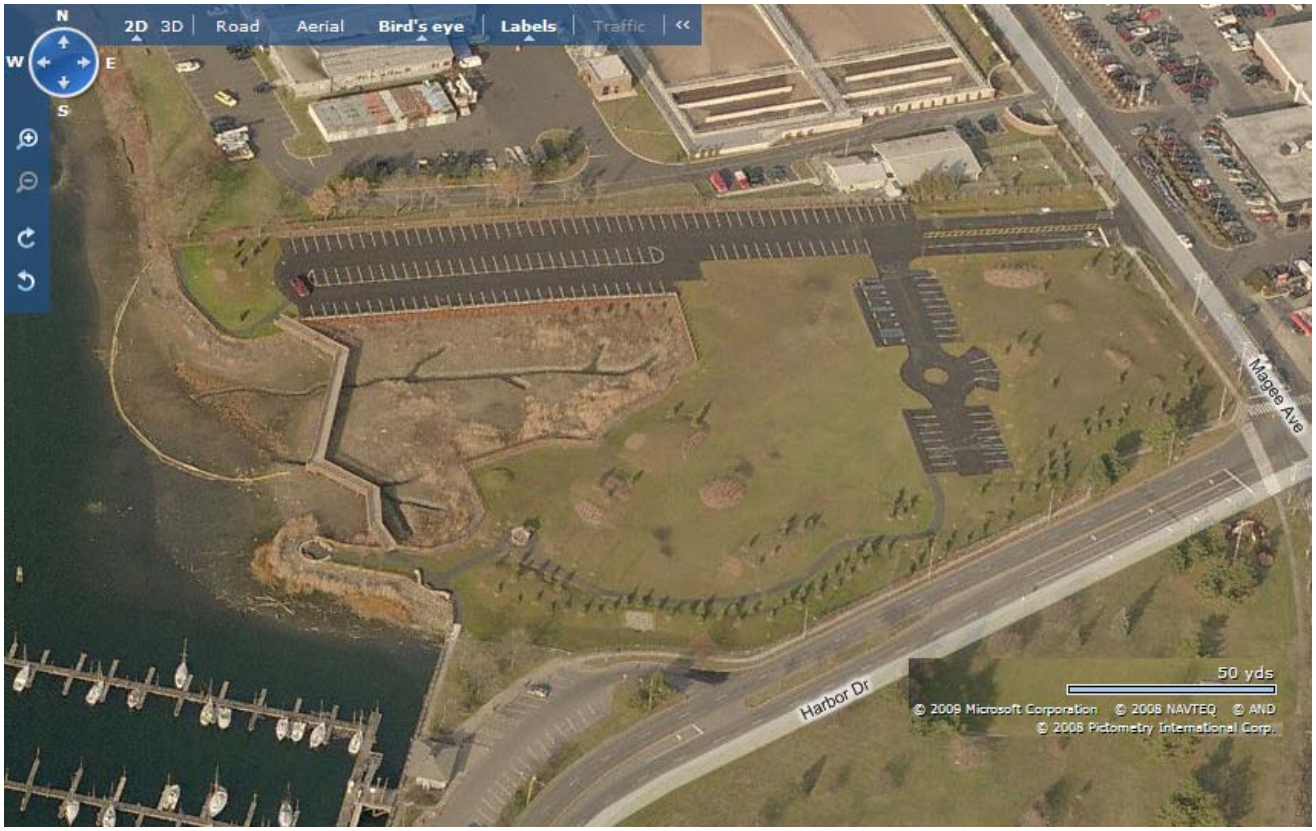
State: Connecticut
Town: Stamford
Habitat Type: Tidal Wetland
Acres Restored: 1.8

Cause of Degradation: Tidal wetlands were partially filled.

Project Description: A filled tidal wetland was excavated to restore approximately 1.8 acres. The restoration was done in conjunction with the creation of a public park. Overall area for the entire project site is approximately 3.3 acres. 3.1 acres of which was acquired by the City of Stamford for use as a public park.

Implementation Partners: Collins-Magee, LLC; City of Stamford.

Funding Provided By: Collins-Magee, LLC



BAR BEACH LAGOON PHASE II

State: New York
Town: Port Washington
Habitat Type: Tidal Wetland
Acres Restored: 0.9 acres of tidal wetlands

Cause of Degradation: The tidal wetland was historically filled with industrial fill, debris and pea gravel.

Project Description: The project entailed removal of debris and fill, with the site being re-grsded to appropriate elevations to support tidal wetland vegetation. After re-grading, the site was planted with *Spartina alterniflora* plugs with goose exclusion fencing being utilized. Coir logs and erosion control fencing also were used to better allow plants to take root. A stormwater outflow pipe leading to the restoration site was reconfigured to reduce scour into the restoration site. A combination of geotextile fabric and stone was used to level the slope leading out of the outfall pipe.

Implementation Partners: National Oceanic and Atmospheric Administration, U.S. Fish and Wildlife Service and the New York State Department of Environmental Conservation.

Funding Provided By: National Fish and Wildlife Foundation, Town of North Hempstead

Newly re-graded and planted shoreline.

Reconfigured stormwater outfall pipe.

Photos courtesy of NYS DEC

HARBOR ISLAND PARK

State: New York
Town: Mamaroneck
Habitat Type: Tidal Wetland
Acres Restored: 0.6 acres of tidal wetlands

Cause of Degradation: This public park was created by filling in tidal wetlands in the early 20th century. The fill had created a steep embankment along much the shoreline and dominated by Japanese Knotweed and *Phragmites australis*.

Project Description: The fill along the shoreline was excavated and the shoreline was then re-graded to support tidal wetland vegetation. Native wetland species, such as *Spartina alterniflora* and *S. patens*, were planted. Coconut fiber mats were staked into the ground to provide temporary erosion control while the plantings became established. Goose exclusion fencing also was utilized.

Implementation Partners: Westchester County, Village of Mamaroneck

Funding Provided By: Westchester County

Harbor Island Park shoreline after re-grading and planting. Photo courtesy of NYS DEC.

CEMENT PLANT PARK, PHASE III

State: New York
Town: Bronx
Habitat Type: Tidal Wetland
Acres Restored: 0.006 acres of tidal wetlands

Cause of Degradation: During the three centuries of development along the riverbank, the Bronx River valley became an industrial corridor. Much of the historical tidal wetlands and riparian habitats were lost during the armoring and channelization of the river. This site is a former Cement Plant that is being reclaimed as a public park.

Project Description: This project continues restoration along a highly industrialized section of the Bronx River. Industrial debris, invasive species and fill were removed from the shoreline, adjacent to the previous restoration site. After re-grading, coconut fiber mats, pre-planted with *Spartina alterniflora*, were staked into the ground.

Implementation Partners: Bronx River Alliance, New York City Parks Natural Resource Group, Green Apple Corps

Funding Provided By: National Oceanic and Atmospheric Admistration-Wildlife Conservation Society Bronx River Fund

Volunteers are staking the coir mats to the shoreline.
Photo provided by NYS DEC.

STARLIGHT PARK

State: New York
Town: Bronx
Habitat Type: Tidal Wetland
Acres Restored: 0.007 acres of tidal wetlands

Cause of Degradation: The Bronx River valley became an industrial corridor during the 19th century. Much of the historical tidal wetlands were lost during the armoring and channelization of the river. This site is a former Manufactured Gas Plant that is being reclaimed as a public park.

Project Description: Debris, invasive species and fill were removed from the shoreline. After re-grading, coconut fiber mats, preplanted with *Spartina alterniflora*, were staked along rip-rap on the shore.

Implementation Partners: Bronx River Alliance, New York City Parks Natural Resource Group, Green Apple Corps

Funding Provided By National Oceanic and Atmospheric Admistration-Wildlife Conservation Society Bronx River Fund

OYSTER BAY WATERFRONT

State: New York
Town: Oyster Bay
Habitat Type: Tidal Wetland
Acres Restored: .09

Cause of Degradation: The property previously was an industrial tugboat maintenance facility and boatyard that came into public ownership. The property was cleaned of toxic and hazardous materials.

Project Description: During the rehabilitation process a small section of bulkhead was removed and the site was re-graded to appropriate elevations to plant *Spartina alterniflora* and *S. patens*. Coir logs and goose exclusion fencing were used to assist in the re-establishment of the wetlands plantings.

Implementation Partners: Town of Oyster Bay, New York State Department of Environmental Conservation

Funding Provided By: Town of Oyster Bay, New York State Clean Water Clean Air Bond Act.

Site after two growing seasons had passed. Picture provided by NYS DEC.

RIVERINE MIGRATORY CORRIDOR RESTORATION

The Connecticut Riverine Migratory Corridor (RMC) team, led by the CTDEP Inland Fisheries Division, completed four migratory fish passage projects resulting in 35.82 additional river miles now accessible to anadromous finfish. Project summary pages follow.

The 10-year goal (1998 - 2008) for this habitat type is to open up 100 currently inaccessible river miles to diadromous fish. Due to success in reaching the goal, the 2006 MOU added an extra 50 miles to the HRI goal to be reopened to migratory fish passage by 2011. To date, 143.13 river miles have been restored through fish passage projects such as dam modifications or dam removal. River mileage for projects completed in 1998–2007 is presented in Figure 3.

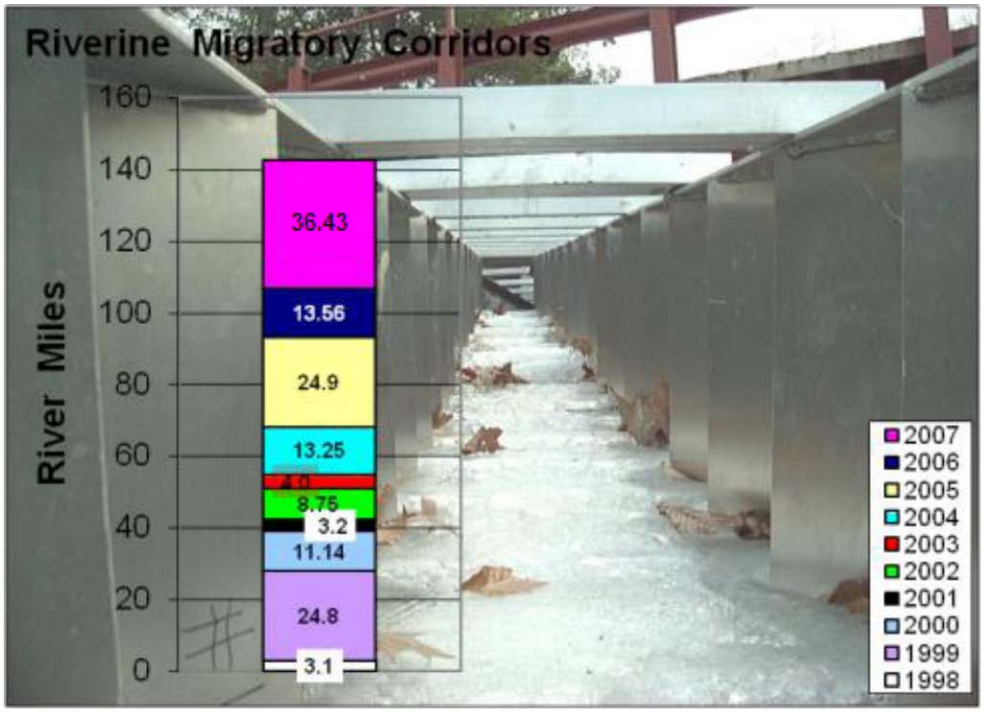


FIGURE 3. River mileage for projects completed between1998-2007 (143.13 miles).

TUNNEL DAM FISH LIFT

State: Connecticut
Town: Preston
Habitat Type: Riverine Migratory Corridor
Stream Name: Quinebaug River
Miles Restored: 15.37 miles

Cause of Degradation: This 25-foot tall hydroelectric dam in the Quinebaug River in Preston, CT, blocks the passage of fish. The dam is the first on the Quinebaug River, about 1/2 mile upstream from the confluence with the Shetucket River. The next dam upstream is the Aspinook Pond Dam in Jewett City.

Project Description: A fish lift was designed and constructed to transport fish to upstream reaches of the river. The fish lift is capable of manual or automatic (computer driven) operation. Fish are attracted to the entrance and then crowded into a lifting hopper. The hopper is then lifted to the top level and dumped with water into an exit flume. Fish swim out of the flume and into the headpond under their own volition, passing a viewing window as they go. A computer driven monitoring system records images of fish as they pass and data are compiled later.

Targeted Fish Species: American shad, alewife, blueback herring, sea-run brown trout, sea lamprey

Implementation Partners: Northeast Utilities-Northeast Generation Services; Connecticut Department of Environmental Protection - Inland Fisheries Division; United States Fish and Wildlife Service

Funding Provided By: FirstLight Power

JORDAN MILLPOND DAM FISHWAY

State: Connecticut
Town: Waterford
Habitat Type: Riverine Migratory Corridor
Stream Name: Jordan Brook
Miles Restored: 4.25 miles

Cause of Degradation: The Jordan Millpond Dam, located in the Jordan Village National Register Historic District, was built over 150 years ago to power a mill. The mill property, including the eight-foot high stone masonry dam and retaining wall, is historically significant and was listed on the National Register of Historic Places in 1990. The dam is privately owned, but Jordan Mill Park, the land on which most of the fishway rests is operated by the Town of Waterford - a 7 acre parcel of waterfront property donated to the Town by the estate of Marian E. Tew in 1954. In 1961, the Gardiner family granted a right-of-way easement to the Town allowing the public to access the park from Mill Street, using a footbridge over Jordan Brook.

Because of its historic significance, dam removal was not an option. But the dam, the first on Jordan Brook and at the head of tide, still blocked fish passage.

Project Description: A 65-foot long Alaskan Steeppass fishway was designed and installed on the dam, and runs along the southern bank of Jordan brook. Construction involved cutting a notch into the southern end of the spillway, removing bedrock from the southern bank, and installing four prefabricated aluminum steep-pass units. Entrance and exit structures also were installed, and a concrete resting pool that slows water velocity was built approximately halfway up. A stone weir was erected below the entrance structure to direct fish into the fishway. A portion of the funds used to pay for construction of the fishway were from a penalty levied upon a shipping company when one of its barges ran aground off of Fishers Island in December 1992.

The fishway has restored access to 4.25 miles of Jordan Brook and its tributaries as well as to approximately 8 acres of high-quality spawning habitat behind the dam. Prior to the installation of the fishway, very small numbers of anadromous fish have been spawning at the base of the dam annually, but once they are re-united with upstream habitat, the number of surviving fish will increase and the size of the annual run is expected to rise into the thousands.

Targeted Fish Species: alewife, sea-run brown trout

Implementation Partners: Town of Waterford (lead); Connecticut Department of Environmental Protection - Office of Long Island Sound Programs and Inland Fisheries Division; US Environmental Protection Agency - Long Island Sound Study National Estuary Program; National Oceanic and Atmospheric Administration - Restoration Center; Corporate Wetlands Restoration Partnership; Save the Sound, Inc.

Funding Provided By: Connecticut Department of Environmental Protection - RTC-380 oil spill Supplemental Environmental Project funds (SEP/penalty money); Corporate Wetlands Restoration Partnership; National Oceanic and Atmospheric Administration - Restore America's Estuaries.


Waterford
Jordan Brook
Nevins Brook
Route 213
US Route 1
Route 156
Jordan Millpond
Route 156
Jordan Millpond Dam
Jordan Brook
N

RAYMOND BROOK DAM REMOVAL

State: Connecticut
Town: Hebron
Habitat Type: Riverine Migratory Corridor
Stream Name: Raymond Brook
Miles Restored: 16

Cause of Degradation: A 50-year-old, privately owned dam was in disrepair and was no longer needed for its original (recreational) purposes. The dam was partially breached and water was able to seep through the dam, even at times of low flow. The ½-acre impoundment created by the dam also had completely filled in with silt.

Project Description: The 4-foot-tall dam was completely removed in one day. The sediments that choked the pond created by the dam were placed on what would become the new banks of this re-shaped stretch of Raymond Brook. The banks were stabilized and landscaped to restore a more natural, undisturbed stream. Cobble was also placed along the streambed a so that it would resemble the substrate located upstream and downstream of the dam's former location.

Targeted Fish Species: Atlantic salmon, American eel

Implementation Partners: Connecticut River Watershed Council (lead); Connecticut Department of Environmental Protection - Inland Fisheries Division; American Rivers; The Nature Conservancy; National Oceanic and Atmospheric Administration - Restoration Center

Funding Provided By: American Rivers-National Oceanic and Atmospheric Administration Community-based Restoration Program partnership grant; The Nature Conservancy (in-kind); Yale University (in-kind); Connecticut River Watershed Council (in-kind); Connecticut Department of Environmental Protection - Inland Fisheries Division (in-kind).

Raymond Brook Dam during fall 2005 (pre-removal). All three photos courtesy of the Connecticut River Watershed Council.

Raymond Brook post-dam removal (July 2007, above) and on November 5, 2007 (below).

ZEMKO DAM REMOVAL

State: Connecticut
Town: Salem
Habitat Type: Riverine Migratory Corridor
Stream Name: East Branch of Eightmile River
Miles Restored: 1.1 miles

Cause of Degradation: A 5-foot-high earth and stone dam blocked the passage of migratory fish. The 80-foot-long and 12-foot-wide dam also served as an unimproved road, with a concrete slab over the spillway. Zemko Dam was the last remaining obstruction to fish passage on the East Branch Eightmile River.

Project Description: Complete removal of Zemko Dam, the last man-made obstruction on the East Branch Eightmile River, allows migratory fish to access their full historic range within this system. In addition to improving fish passage, removal of the dam restores the river's natural structure and flow, a key element of a watershed's overall health, and will eliminate the potential for dam failure in the future. The property where the dam once stood has since been purchased by The Nature Conservancy and is therefore protected from future development. The Eightmile River also was recently designated by Congress as a Wild & Scenic River, which provides additional protection at the federal level. This stone, concrete and earthen dam was removed in stages, and stream flow was diverted during the removal process.

Targeted Fish Species: Atlantic salmon, river herring, sea lamprey, American eel

Implementation Partners: The Nature Conservancy; American Rivers; Save The Sound; NOAA; Connecticut Department of Environmental Protection - Inland Fisheries Division

Funding Provided By: Natural Resources Conservation Service- Wildlife Habitat Incentive Program; Corporate Wetlands Restoration Partnership; Restore America's Estuaries/Save the Sound partnership; National Oceanic and Atmospheric Administration/American Rivers Partnership; and The Nature Conservancy- National Oceanic and Atmospheric Administration Partnership, Global Marine Incentive and Connecticut Chapter.

Zemko Dam before construction (left) and after removal. Photos from http://www.ctcwrp.org/56

FRESHWATER WETLAND RESTORATION (NON-TIDAL)

The term 'freshwater wetlands' is used collectively to describe the diverse range of non-saline (and non-tidally influenced) ponds, bogs, fens, swamps, and marshes found in the world. The U.S. Fish and Wildlife Service wetland classification system created by Cowardin et al. (1979)[1] categorizes freshwater wetlands in the United States as palustrine, lacustrine, or riverine systems. The classification system also addresses deep-water habitats where the substrate is predominantly non-soil and flooding is permanent, but those types of wetlands generally are not included in the Long Island Sound Study Habitat Restoration Initiative.

Palustrine Systems

Palustrine wetland systems are defined by Cowardin et al. (1979) as non-tidal wetlands dominated by trees, shrubs, persistent emergents, emergent mosses or lichens; or they may be non-vegetated, shallow water areas (less than six feet deep) with no wave formed or exposed bedrock shoreline features. In order to be considered palustrine, these non-vegetated areas must be less than 20 acres in size.

Lacustrine Systems

Lacustrine wetlands are wetlands and deep water habitats situated in a topographical depression or dammed river channel; lacking trees, shrubs, persistent emergent vegetation[2], emergent mosses or lichens with greater than thirty percent areal coverage; and with a total area larger than 20 acres. Certain wetlands smaller than 20 acres may be classified as lacustrine if there are active wave-formed or bedrock shoreline features making up all or part of the boundary, or if the deepest part of the basin exceeds 6.6 feet at low water (Cowardin et al., 1979). While lacustrine wetlands do occur within the project boundary in Westchester County and in Connecticut, for the purposes of this initiative, restoration will focus on the shorelines of these bodies of water where the classification shifts to palustrine.

Riverine Systems

Riverine communities are defined by Cowardin et al. (1979) as "all wetlands and deep water habitats contained within a channel" except those that are dominated by persistent emergent vegetation, trees or shrubs (palustrine), or have more than 0.5 ppt ocean-derived salinity (estuarine, marine). Community types are classified by the rate of water flow, which, in turn, dictates the substrate composition and faunal and vegetation types present. Although the Cowardin et al. system also includes tidally influenced, freshwater, non-persistent emergent riverbank vegetation, such as wild rice, all tidally influenced wetland restoration sites would be included in the **Tidal Wetlands Restoration** chapter of this report.

1 Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. *Classification of Wetlands and Deepwater Habitats of the United States*. U.S. Fish and Wildlife Service, FWS/OBJ.79/31. Washington, D.C. 103pp.

2 Persistent emergent plants are those that leave all or a visible portion of their foliage above the saturation zone or water surface during the dormant season. Conversely, non-persistent emergents are those plants that leave no portion of their foliage visible during the dormant season.

Restoration Objectives

The major cause of wetland degradation is the alteration of the hydrology in the wetland system. This alteration may be caused by a number of activities such as draining, filling, and impounding. In the past, surface water supplies to wetlands have been diverted for drinking water reservoirs, flood control projects, cooling of industrial plants, and irrigation of crops. Other degradation may be caused by chemical inputs to wetlands, or invasion by exotic species. While degradation is caused by unique combinations of circumstances in each affected wetland, some general causes and restoration methods can be outlined. These methods include fill removal, invasive species control, relocation of excessive runoff, and other hydrological modifications.

In New York one freshwater wetland restoration project was completed in 2007, totaling 2.5 acres.

NATURE STUDY WOODS, PHASE 3

State: New York
Town: New Rochelle
Habitat Type: Freshwater Wetland
Acres Restored: 2.5 acres

Cause of Degradation: A discharge pipe was dumping stormwater directly into a freshwater wetland.

Project Description: A stormwater outflow pipe was reconfigured to no longer discharge directly into the wetland. The outflow area was lined with stone to disperse the flow of stormwater before entering the wetland. The scoured area from the old outflow pipe location was re-filled and planted with native vegetation.

Funding Provided By: Federal Appropriation, Nina Lowey's office

Implementation Partners: Westchester County Soil and Water Conservation District, Westchester County,

SUBMERGED AQUATIC VEGETATION (SAV)

Seagrass Experts Meeting

On Tuesday May 22nd, 2007, invited seagrass researchers from around the country gathered at the NYSDEC Bureau of Marine Resources in East Setauket, NY. Long Island experts presented background information and data to a scientific panel of seagrass experts to support the prioritization of information gaps that would be most important to fill in order for NY to move forward most efficiently and effectively toward preserving and/or restoring seagrass habitat. Seagrass, which provides high quality habitat, oxygenates bottom waters, aides in nutrient cycling, stabilizes bottom sediments, and dampens wave actions to allow sediments to settle and increase water clarity, has suffered severe declines in New York marine waters. Proceedings from the meeting will be published and circulated, and will be forwarded to the newly established New York State Seagrass Taskforce charged with developing recommendations for regulations to improve seagrass protection, restoration, research and monitoring. This effort was supported by NYSDEC, New York Sea Grant, The Nature Conservancy, Cornell Cooperative Extension, and New York estuary programs among others. The proceedings are available at:
http://www.peconicestuary.org/NY%20Seagrass%20Experts%20Meeting_FinalProceedings.pdf

Water Chestnut Status

Except for the figure below, no new information was available for 2007. Please see the 2005 report for previous information, updates to this section will be put into future annual reports.

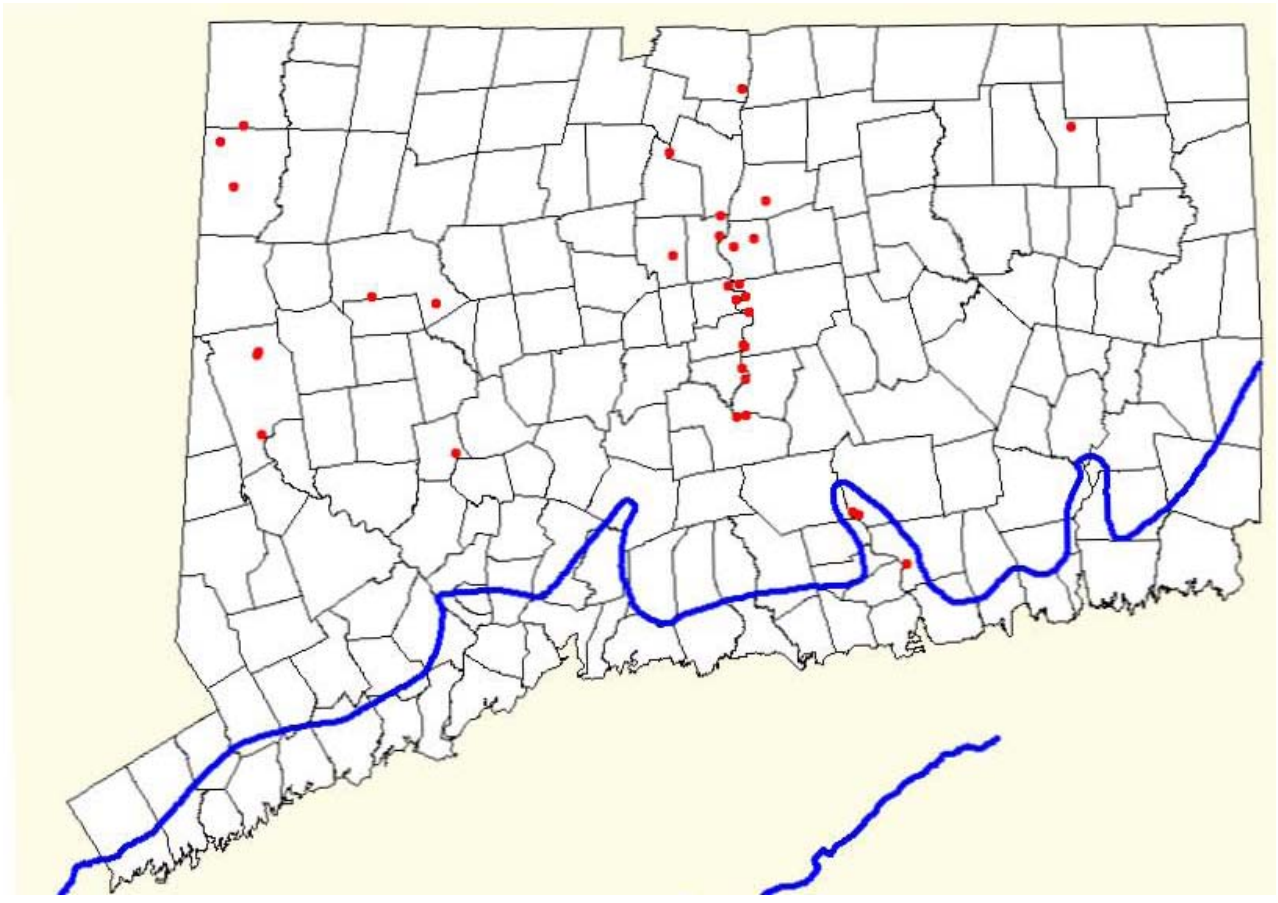


Figure 4. Known water chestnut populations (red dots) in Connecticut as of December 2007. To date, three water chestnut populations are known to reside within the Long Island Sound Study Project Boundary (thick blue line).

ST. THOMAS POINT EELGRASS MEADOW

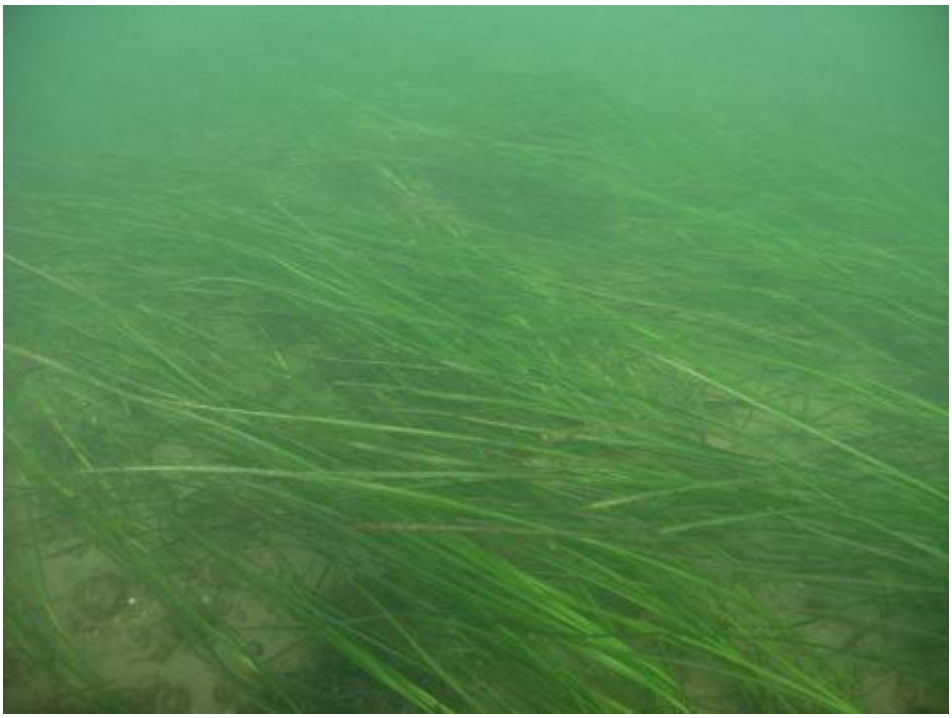
State: New York
Town: Southold
Habitat Type: Tidal Wetland
Acres Restored: 2 acres of eelgrass

Cause of Degradation: After the 1930's eelgrass die-off, New York's Long Island Sound eelgrass didn't recover to the extent it previously existed.

Project Description: Cornell Cooperative Extension (CCE) researchers developed a rock transplant method to encourage successful establishment of eelgrass shoots. Donor meadows included Mulford Pt., Fishers Island and Orient Point. The site was chosen due to geographic similarities to Mulford Pt. a natural meadow that also served as a reference meadow.

Implementation Partners: Cornell Cooperative Extension of Suffolk County, National Fish and Wildlife Foundation, Save the Sound, Southold Town Trustees.

Funding Provided By: National Fish and Wildlife Foundation, Save the Sound



Restored meadow off of St. Thomas Pt. in Southold. Photo courtesy of CCE.